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NEW SOUTH WALES.

VOTES

AND

PROCEEDINGS

OF THE

LEGISLATIVE ASSEMBLY

DURING THE SESSION

OF

1888-9,

WITH THE VARIOUS DOCUMENTS CONNECTED THEREWITH.

IN THREE VOLUMES.
VOL. II.

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LEGISLATIVE ASSEMBLY.
NEW SOUTH WALES.

VOTES AND PROCEEDINGS:

SESSION 1888-9.

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LEGISLATIVE ASSEMBLY.
NEW SOUTH WALES.

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AND

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OF

1888-9.

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1888.

NEW SOUTH WALES.

PARLIAMENTARY STANDING COMMITTEE ON
PUBLIC WORKS.

REPORT

TOGETHER WITH

MINUTES OF EVIDENCE

AND

APPENDIX

ON

HARBOUR IMPROVEMENTS AT NEWCASTLE.

Presented to Parliament in accordance with the provisions of the Public Works Act
51 Vic. No. 37, section 8.

SYDNEY: CHARLES POTTER, GOVERNMENT PRINTER.

1888.

NAMES OF THE MEMBERS OF THE COMMITTEE.

LEGISLATIVE COUNCIL.

- The Honorable JOHN LACKEY, Chairman.
- The Honorable GEORGE CAMPBELL.
- The Honorable WILLIAM HENRY SUTTOR.
- The Honorable JAMES WATSON.
- The Honorable FREDERICK THOMAS HUMPHREY.

LEGISLATIVE ASSEMBLY.

- JOSEPH PALMER ABBOTT, Esquire, Vice-Chairman.
- JAMES NIXON BRUNKER, Esquire.
- HENRY COPELAND, Esquire.
- ALEXANDER KETHEL, Esquire.
- JOHN RENDELL STREET, Esquire.
- THOMAS MICHAEL SLATTERY, Esquire.
- JACOB GARRARD, Esquire.
- SYDNEY SMITH, Esquire.

[James Nixon Bruncker, Esquire, by reason of his accepting the office of Minister for Lands, did not take his seat as a member of the Committee.]

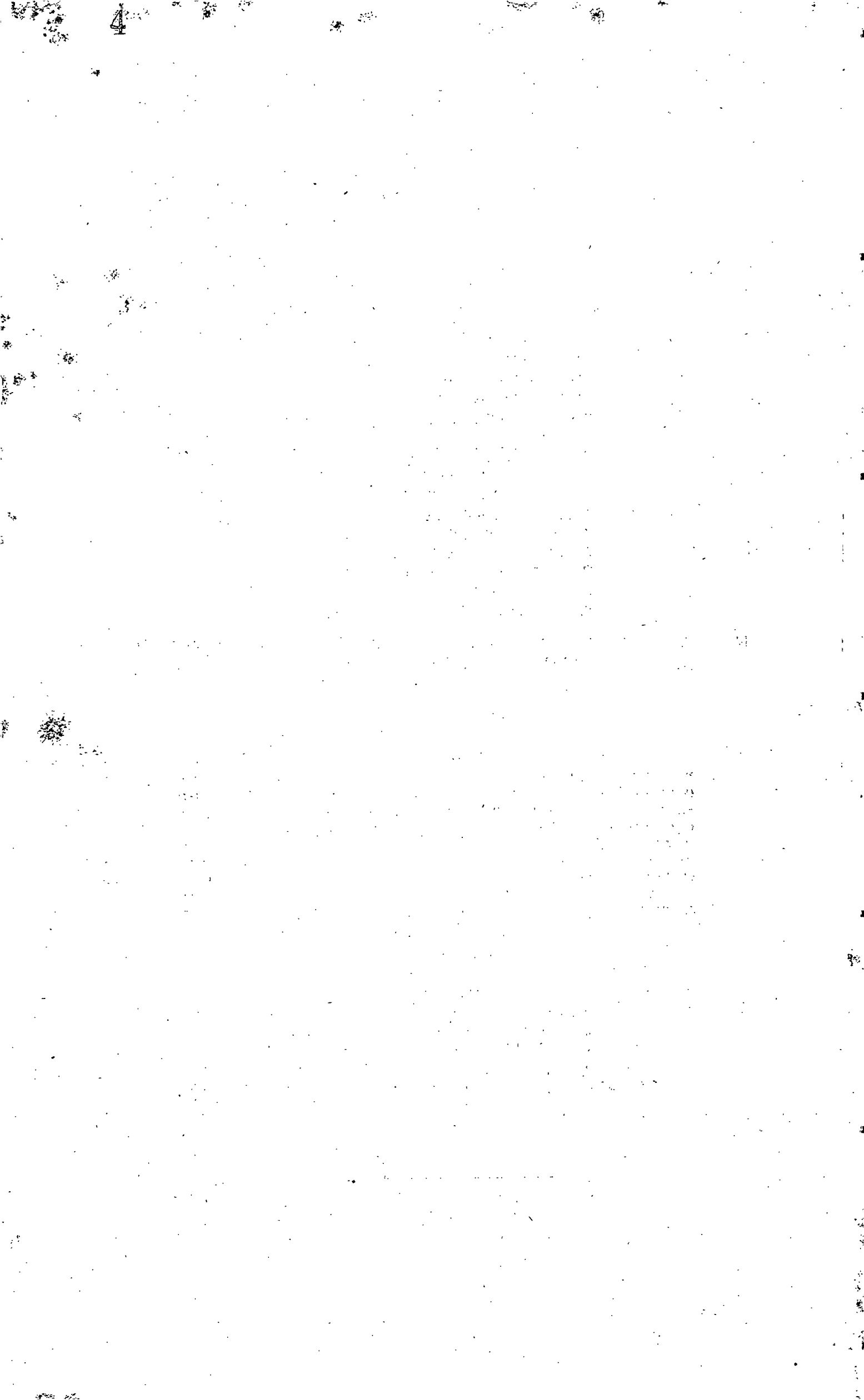
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PARLIAMENTARY STANDING COMMITTEE ON PUBLIC WORKS.

HARBOUR IMPROVEMENTS AT NEWCASTLE.

REPORT.

THE PARLIAMENTARY STANDING COMMITTEE ON PUBLIC WORKS, appointed during the last Session of Parliament, under the Public Works Act of 1888, 51 Vic. No. 37, to whom was referred the duty of considering and reporting upon "the expediency of carrying out certain works of harbour improvements, including shipping facilities, at Newcastle," have, after due inquiry, resolved that it is expedient the works should be carried out; and, in accordance with the provision of sub-section IV, of clause 13, of the Public Works Act, report their resolution to the Legislative Assembly:—

The proposed improvements consist of the construction of a basin on the southern end of Bullock Island (now known as Carrington), which it is intended to line with a wharf or quay that will provide about 4,000 feet of wharfage accommodation; the erection of seven additional hydraulic cranes, with a loading capacity of 10 tons each; the reclamation of land near Honeysuckle Point, adjoining the Great Northern Railway; and the removal of about 20,000 cubic yards of rock which now obstructs the channel at the entrance to the harbour.

The estimated cost of the proposed works is £112,000, this amount being stated on sworn testimony to be sufficient to complete them; and the object in constructing the works is to increase the shipping facilities in the port of Newcastle, in accordance with a plan prepared some years ago, and by which the present arrangements at Bullock Island (now known as Carrington), were brought into operation.

According to the evidence given before the Committee, the proposed improvements are very necessary.

Four of the cranes which have been in use upon the wharf on the south side of the harbour have been removed from that wharf, in order to provide room there for the unloading and loading of general merchandise; and three of these, with the proposed new ones, will be brought into operation at Bullock Island—the intention being that, as far as possible, the whole of the coal traffic on the southern side of the harbour shall be centred in this locality.

The proposed basin, and the construction or completion in its vicinity of the necessary wharf accommodation, will provide the authorities with additional mooring space for vessels, and enable them to load coal from the western side of a portion of the present dyke as well as from the eastern. In the basin there will be, according to the Harbour-Master, room for a dozen vessels waiting their turn to load, and, as a mooring ground, it will be better than any other part of the harbour, as it will be out of the tideway.

The proposed reclamation of land at Honeysuckle Point may be made very profitable. The acting Engineer-in-Chief for Harbours and Rivers explains that the railway line at Honeysuckle Point runs close to Blane-street, and that the railway workshops are on both sides of the line. It is proposed to put the workshops on the further side of the line from Blane-street on, or adjacent to, the land which is

is to be reclaimed, and then to sell a portion of the Blane-street frontage, the proceeds from the sale of which, it is believed, will more than pay for the reclamation. The cost of the reclamation, so far as it is proposed to be carried out under the present plan, is set down at £10,000.

The removal of a portion of the rock which interferes with the safe navigation of the harbour, and which is to cost £12,500, appears to be very desirable, for the reason that it has been very much in the way, and is a serious danger to vessels meeting the tide.

In their consideration of these proposals the principal points upon which, in the judgment of the Committee, it appeared to be desirable to elicit information, in order that they might arrive at a just conclusion, were:—

- (1.) The accommodation existing at Newcastle at the present time for the carrying on of the coal trade of the port;
- (2.) The extent to which the trade was actually increasing, or would probably increase;
- (3.) The possible diverting of a portion of the present trade from Newcastle to Sydney, in consequence of the completion of railway communication between the two places;
- (4.) The probable duration of the Newcastle coal supply;
- (5.) The revenue derived by the Government from the port.

All the witnesses examined agree in stating that the present accommodation is insufficient. Mr. Hickson, Acting Engineer-in-Chief for Harbours and Rivers, says the proposed improvements are wanted very much, and that vessels have had to wait a long time for their turn under the cranes. "We have just finished," he states (*question 49*), "four additional hydraulic cranes, which have given great relief, but still we want much more accommodation"; and (*question 86*) "I have known a vessel wait for two months for a berth." The evidence of Captain Newton, Harbour-Master at Newcastle, is to the same effect. "The limited space," he states (*question 125*), "has of late been very severely taxed—it has been constantly complained of by shipmasters"; and (*question 127*) "a want of accommodation interferes greatly with the shipment of coal." Mr. F. R. Neild, Acting Railway Traffic Manager at Newcastle, says (*question 199*), "the want of facilities has always been a serious trouble." Mr. C. A. Goodchap, Commissioner for Railways, though he is not prepared to say there has been any want of facilities for the shipment of coal, at the same time considers the proposed new cranes to be absolutely necessary in view of the requirements of the trade yearly; and, in an appendix to his evidence (*Appendix B*), he strongly advocates the construction of the proposed basin, in order to improve the shipping facilities of the port, and the carrying out of the proposed reclamation to create "much-needed water frontage at Honeysuckle Point."

With regard to the extent to which the trade is actually increasing, Captain Newton states that the shipping is increasing more than the accommodation; and that, from his pilotage returns, he knows that but for the present strike at the collieries the export of coal this year would have largely exceeded the returns of former years, and the shipping returns would have eclipsed anything before known in Newcastle.

The question as to the railway communication between Newcastle and Sydney diverting any of the coal shipment from Newcastle to the Metropolis was dealt with principally during the examination of Mr. Goodchap, who was regarded by the Committee as well qualified to express an opinion upon the point; and Mr. Goodchap considers that the coal trade of Newcastle will not in this respect be affected in any material degree. He thinks (*question 395*) that there will be a good trade in coal on the Northern Railway line connecting Sydney and Newcastle, but that "it will not affect the established mines that now do business with Newcastle in a very large degree; that the coal which will be brought over this portion of the Northern Railway will be coal developed at Lake Macquarie, and between that and the Hawkesbury River." "The present mines," he says, "will continue to use the harbour of Newcastle and the shipping appliances at Bullock Island."

The

The probable duration of the coal supply in the Newcastle district is strikingly shown in evidence given by Mr. T. W. E. David, Geological Surveyor, Department of Mines, who, in the absence from Sydney of Mr. C. S. Wilkinson, Government Geologist, was examined by the Committee; and in an appendix to his evidence. He divides the productive coal measures of the district into three groups,—

- (1) The Upper or Newcastle measures,
- (2) The Middle or East Maitland measures,
- (3) The Lower or Greta measures,—

and he estimates that the unworked areas of the first will furnish an output of at least 2,000,000 tons annually for 200 years, the second 20,000 tons daily for 100 years, and the third 40,000 tons daily for 200 years. Evidence upon the question of supply was also obtained from Mr. John Dixon, Inspector of Collieries in the Northern District, and from Mr. John Mackenzie, Examiner of Coal-fields, and, though not of so definite a nature as that given by Mr. David, it supports the view that the probable life of the mines in the Newcastle district is sufficient to justify the carrying out of the proposed harbour improvements.

The revenue derived from the port appears to be less than it might be made, for though a substantial return is received from the haulage and shipment of coal, no wharfage dues on imports or exports are levied; and the evidence of Captain Jackson, Manager of Public Wharves, together with an appendix to his evidence, shows that if wharfage rates were levied, as they are in Sydney, the revenue would be very materially increased. There is also at Newcastle, in connection with the coal trade, the anomaly of the Railway Department collecting and crediting itself with the whole of the revenue derived from the shipment of coal, and yet not being charged with any portion of the cost which is incurred by the Government in the erection of cranes and the construction of wharves.

It will, however, be seen that the evidence generally, during the inquiry, was strongly in favour of the proposed works being adopted, and on Thursday, 13th September, the Committee agreed to the following resolution, which was moved by Mr. Watson and seconded by Mr. Kethel:—

“That the Committee consider it expedient that the harbour improvements at Newcastle, as proposed on the plan and explained in the evidence before the Committee, be carried out.”

JOHN LACKEY,
Chairman.

Office of the Parliamentary Standing Committee on Public Works,
Sydney, 22nd October, 1888.

PARLIAMENTARY STANDING COMMITTEE ON PUBLIC WORKS.

MINUTES OF EVIDENCE.

MONDAY, 27 AUGUST, 1888.

Present:—

The Honorable JOHN LACKEY (CHAIRMAN).

The Hon. GEORGE CAMPBELL.
 The Hon. WILLIAM HENRY SUTTON.
 The Hon. JAMES WATSON.
 The Hon. FREDERICK THOMAS HUMPHERY.
 HENRY COPELAND, Esq.

ALEXANDER KETHEL, Esq.
 JOSEPH PALMER ABBOTT, Esq.
 JOHN RENDELL STREET, Esq.
 THOMAS MICHAEL SLATTERY, Esq.
 SYDNEY SMITH, Esq.

The Committee resolved to examine Joseph Barling, Esq., Under Secretary for Public Works, with reference to a suggestion from the Honorable the Minister for Works that certain of the proposals referred to the Committee by Parliament should be first considered, and with regard to the whole of the works in the list referred to the Committee.

Joseph Barling, Esq., Under Secretary for Public Works, sworn and examined:—

1. *Chairman.*] You know, I suppose, the list of proposed public works which has been submitted to the Committee from your department as those which might first be considered by the Committee? Yes.
2. The list, I take it, is one of works which are in a sufficient stage of advancement to be dealt with at once, if the Committee should decide in their favour? I think every one.
3. Can you tell us if any of the works have actually been commenced? The first, which is wharfage accommodation at Woolloomooloo Bay,—with reference to that, some improvements have been carried out there; but the special improvements referred to in this list, which are actually an extension of improvements already taken place, have not yet been begun. The detailed information, with regard to the works, of course, can be given by Mr. Hickson, the Acting Engineer-in-Chief for Harbours and Rivers.
4. The work at Woolloomooloo Bay, as represented in this proposal, has not, in fact, then been commenced? The work we wish to place before you has not been commenced.
5. With regard to the improvements of the Circular Quay? Part of the work on the eastern side has been commenced, but the improvements referred to here will extend to the western side as well as the eastern side.
6. And does that embrace the £120,000? The £120,000 is supposed to cover the whole; that is as near as I can give the information at the present moment.
7. There is a dredge for Sydney Harbour in the list? No steps have been taken with reference to that.
8. Then there are harbour improvements at Newcastle—has anything been done with reference to that matter? That is merely a continuation of works which have been in progress for a great many years. The improvements referred to here will include the erection of several steam and hydraulic cranes and a provision for further wharfage accommodation, which Mr. Hickson will be able to explain in detail.
9. Are all these works waiting now for the action of the Committee? Yes, or nearly all of them.
10. And you recommend in this list submitted by your department certain works as those of a more immediate nature? Yes. I may mention, with regard to this list, that although we have placed certain works in this order, it does not mean that Mr. Sutherland considers that one work is more urgent than another, but simply because it was supposed that those mentioned in the list might be dealt with very quickly by the Committee, as they did not appear to involve such large issues as others. Mr. Sutherland has promised to bring the Western Suburbs drainage scheme before the Committee at once; and I think I am right in saying the information respecting that matter is ready to be placed before the Committee. But with regard to the other works mentioned in this list, it was thought that they were of so simple a character they might be got through in a very short time.
11. *Mr. Kethel.*] May I ask what reason there is for delaying No. 6 on the list referred to the Committee by Parliament—improvements to the entrance of the Richmond River—and why the plans and specifications of that work are not ready, the work being one of a most urgent character? There is no reason why that work should not be taken into consideration at once, because the plans are ready; but I think Mr. Sutherland, looking through the whole list, supposed that with regard to this work to which you refer the Committee would probably have to visit the Richmond River. It is not that Mr. Sutherland considers it less urgent than the rest; but he thought it would take longer time. But we are perfectly ready for it.

J. Barling,
 Esq.
 27 Aug., 1888

HARBOUR IMPROVEMENTS AT NEWCASTLE.

FRIDAY, 31 AUGUST, 1888.

Present:—

The Honorable JOHN LACKEY (Chairman).

The Hon. WILLIAM HENRY SUTTON.

The Hon. JAMES WATSON.

The Hon. FREDERICK THOMAS HUMPHERY.

ALEXANDER KETHEL, Esq.

JOSEPH PALMER ABBOTT, Esq.

JOHN RENDELL STREET, Esq.

THOMAS MICHAEL SLATTERY, Esq.

JACOB GARRARD, Esq.

SYDNEY SMITH, Esq.

The Committee proceeded to consider the subject of the proposed Harbour Improvements at Newcastle.

Joseph Barling, Esq., Under Secretary for Public Works, sworn and examined:—

J. Barling,
Esq.

1 Aug., 1888.

12. *Chairman.*] You have submitted here a list of works which I understand the Department is better prepared to go on with than with others? Yes.

13. It consists of harbour improvements at Newcastle, improvements to the Circular Quay, improvements at Woolloomooloo Bay, and dredging plant for Sydney Harbour. The first work is harbour improvements at Newcastle, and the Committee in going into the matter would like to have some evidence of the necessity for the work, if you have that evidence to give; the circumstances under which the work is to be inaugurated, or whether it is a continuation of something already in progress; and any other facts connected with the initiation of the work which you may be able to give us? After I was examined by the Committee on the last occasion, I saw Mr. Sutherland and had a talk with him about the general business of the Committee, and he has desired me to make certain general statements, which, if it is the pleasure of the Committee that I should do so, I will read.

[*Mr. Abbott objected to the Minister for Works directly or indirectly sending messages to the Committee, and thereby placing evidence of a secondary nature before them, and it was decided that Mr. Barling should be examined irrespective of the Minister and on his own responsibility.*]

14. *Chairman.*] We have decided to take evidence upon the proposed improvements at Newcastle, and first of all we are desirous of knowing the reason or necessity for the works? In brief, the improvements include the construction of a basin on the southern end of Bullock Island, which it is proposed to line with a wharf or quay which will give, when complete, about 8,000 feet of wharfage accommodation, but the present proposal is to construct about 4,000 feet. This will be more particularly shown on the plan. They will also include the erection of seven additional hydraulic cranes with a loading capacity of 10 tons each; the reclamation of land near Honeysuckle Point, adjoining the Great Northern Railway; and the removal of about 20,000 cubic yards of rock which now obstructs the channel leading into the harbour, the locality of which will be indicated on the plan. Mr. Hickson, the Acting Engineer-in-Chief for Harbours and Rivers, is in attendance, and will produce large plans which will illustrate the improvements proposed, and he will be prepared to give a detailed explanation to the Committee. The works are entirely of an engineering and technical character, and it was thought it would be more satisfactory to the Committee if the engineer himself attended and explained them. I have also in attendance the Railway Traffic Manager at Newcastle, the Harbour Master at Newcastle, and Captain Jackson. These gentlemen will be prepared to show by statistics and their evidence generally the necessity for the proposed works. The first-named gentleman will be prepared with information showing the necessity for the additional shipping appliances and wharfage accommodation which the plans will disclose; Captain Newton will be able to show the necessity for the deepening operations which the scheme will also include; and Captain Jackson will be prepared with an outline of the revenue returns. Of course, the Public Works Department is not a revenue department. We merely construct the works, and the Treasury collects the revenue, and we thought it desirable that one of the revenue officers should attend and give evidence on that point. I think that gives a rough outline of our proposals, and the gentlemen I have named will be able to give more detailed information, which will show the character and necessity of the works.

15. Have you any record of any applications for, or memorials in favour of, this work? A great number, extending over many years.

16. This, then, is hardly regarded as a continuation of any special work? Works have been going on there for a great number of years.

17. But this is a new work, independent of the expenditure which has taken place there previously? It is; but it is part of the plan which has been in progress for many years.

18. It is part of the original plan? Well, I may say so; but it is just carrying out what the requirements of the trade show to be necessary from time to time.

19. The Traffic Manager, I suppose, will be able to speak to that point? Yes; he will show the necessity for extra crane accommodation, which the growth of the coal traffic makes necessary.

20. *Mr. Abbott.*] I suppose you, yourself, do not know anything of the necessity of the works? No; but the gentlemen I have named are personally acquainted with the works.

21. You say there are required seven or ten additional cranes: is the capacity of the crane one lift? Yes; we have cranes there capable of lifting 25 tons.

22. *Chairman.*] Is that the greatest capacity? I think so. I am speaking from memory, but I believe it is 25 tons.

23. *Mr. Abbott.*] Is that plan now before the Committee the one that has been prepared? Yes.

24. And what about the estimate to be submitted by the Minister? Mr. Hickson will give you that.

25. *Mr. Garrard.*] Is this extra accommodation purely for coal purposes—for coal shipment only? Well, it will not be wholly so, I think, but Mr. Hickson will explain that more fully. I may mention that, as you will see on the plan, it provides for rock excavation in the harbour. Of course, vessels go to Newcastle chiefly for coal, but not wholly so.

26. Can you tell us what the works have cost so far? Yes; but that will come more naturally from Mr. Hickson.

Robert

Robert Hickson, Esq., Acting Engineer-in-Chief for Harbours and Rivers, sworn and examined :—

27. *Chairman.*] Your name is? Robert Hickson.
28. You are Acting Engineer-in-Chief for Harbours and Rivers? Yes.
29. You have charge of the proposed works at Newcastle? Yes.
30. How long have you had these works in charge? Seven years.
31. You succeeded Mr. Darley, did you not? Yes.
32. Has any part of the work been undertaken up to the present time—any of these new works contemplated in this expenditure? No.
33. The main feature of this work is, I suppose, to give additional wharfage accommodation? Yes.
34. Will it be exclusively for coal purposes—for coal export? The wharfage accommodation will be exclusively for the export of coal.
35. I suppose that for some time it has been considered desirable that this accommodation should be provided? Yes; it has been wanted very much. Vessels have had to wait a long time for their turn under the cranes.
36. This proposed work is to provide for an increased shipment of coal? Yes.
37. Was the work designed by yourself or by some other engineer? It was mainly sketched out by myself, and approved of by Mr. Moriarty.
38. Do you know the estimate of the cost of the work? £112,000.
39. Will that complete it, do you think? Oh, yes, what we propose under the present arrangement. We provide seven additional crane berths.
40. Are these cranes to be worked by hydraulic power? Yes.
41. Are the present cranes worked by hydraulic power? Yes.
42. Do you find they work successfully? Yes.
43. *Mr. Street.*] Are you aware that great complaints have been made of the insufficiency of accommodation for the requirements of the trade of Newcastle? Yes, constantly.
44. *Chairman.*] From your own knowledge, are you aware of it? Yes.
45. You reside there, I take it? I did up to the last three months. I am now in Sydney.
46. Who is superintending these works now? The Assistant Engineer for Water Supply, Mr. Walsh.
47. How long have you been a resident at Newcastle? Seven years.
48. Then you have had an opportunity of observing the operations of the coal trade? Yes.
49. And have you been impressed with the necessity for these proposed works? Yes, very much impressed. We have just finished four additional hydraulic cranes, which have given great relief, but still we want much more accommodation.
50. Will you point out where these cranes which you recently erected are? [*Witness indicated on the plan before the Committee the position of the four cranes recently erected, and of those which have been at work at Bullock Island for some years.*] Four new cranes have been finished a few months and are in constant use. What we propose now is not to extend further in a northerly direction than what is shown on the plan, except for ballast jetties, for it would be too far away. We propose to make the basin, and as a start we are going to put up two ballast jetties on the south end of Bullock Island Wharf, and then construct a wharf along the portion of the dyke as shown on the plan.
51. How many additional cranes will that give? Seven new cranes.
52. Do you propose ultimately to have cranes on the opposite side—that is, the western side? We do not propose that at present.
53. And that is as far as this expenditure goes? Yes.
54. This £112,000 does not include the whole design? No. It includes £12,500 for the removal of a portion of rock in the harbour. All the vessels going out of Newcastle go out on a rising or flood tide, and a portion of this rock has been very much in the way. It is called the Lightship Rock.
55. It is not visible, is it? No; there is 12 feet of water on it at low-water. We propose to take off a corner of it, so as to give vessels more room. Also in the £112,000 there is a sum included of £10,000, which we propose to expend in reclaiming and utilizing a portion of land marked on this plan between the railway at Honeysuckle Point and Bullock Island. The main object of that is this: The railway goes along Blane-street, and the railway workshops are on both sides of the line. It is proposed to put the workshops on the further side of the line from Blane-street, and then the portion of the frontage of Blane-street indicated on this plan will be sold, and the money realized will more than pay the carrying out of this work of reclamation.
56. You propose to dredge the channel and fill in where you make this reclamation? Yes; we are getting a sand-dredge to do this.
57. The reclamation would then come close up to the railway line? Yes.
58. Then the present estimate includes that expenditure? It includes a portion of that expenditure;—the commencement of it.
59. That is as far as it would affect the cranes you are going to erect? Yes.
60. Do you know what the present export of coal is? I think it is about one million and three-quarters a year now, but the Railway Department can give you correct information on that point.
61. *Mr. Garrard.*] Do you mean one and three-quarter millions in value or in tons? Tons.
62. *Mr. Kethel.*] How many steam cranes is it intended to remove, or how many have been removed from the Newcastle wharf? We have taken away four; there are only two remaining now.
63. Where is it intended to place these? We are going to put three down at the south end of Bullock Island Wharf; the other one of the four is useless. The object of putting the three there is that the staiths at present on the Newcastle side will have to come down; but there is a certain class of coasting vessels which go to these staiths, and we are going to provide short berths at this new place for these coasters.
64. That is part of the present project? No; that is almost done. The cranes are down, and the foundations are almost ready for the three of them.
65. Is the removal of the cranes from the Newcastle wharf one of the reasons for this increased accommodation at Bullock Island? Partly; but it was necessary to take away these cranes in order to give more accommodation for vessels bringing general imports.
66. Is it part of this scheme to take away the whole of the lines of rails that go by the Market Wharf, and utilize the whole of the Newcastle Wharf for purposes of general trade apart from coals? It is nearly done, but that is not a part of this scheme.
67. *Chairman.*] Have you any information as to the revenue derived from the coal trade? The Traffic Manager can give you that exactly.

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68. What quantity of coal do you say they are capable of putting on board during the year? I think one and three-quarter millions of tons were put on board last year.
69. The cranes are continuously at work? Oh, yes, day and night.
70. *Mr. Garrard.*] That quantity you mention includes the shipment at Stockton? It is the whole of the export from Newcastle.
71. *Mr. Kethel.*] What is the depth of water to which it is intended to dredge the harbour alongside the proposed wharves? 24 feet.
72. What depth is it now? Between the dyke point and the A.A. Company's shoots there is about 18 feet; further up, on the western side of the dyke, it dries at low-water.
73. Is it intended to add to the present hydraulic power and pumping machinery, or to erect fresh machinery; I understood the present power is not sufficient to work the cranes? It is intended to supplement it so far as to put in a new engine and new set of boilers, but the hydraulic accumulators are sufficient, I think.
74. *Chairman.*] What is your estimate of the time it will take to carry out these proposed works? To complete them will take something under three years.
75. That is as far as the expenditure of this estimate goes? Yes; but of course as we put up each crane we can use it; we can use them as we go on.
76. *Mr. Abbott.*] Will the construction of the works now proposed necessitate ultimately the construction of the whole of the design on the plan before the Committee? Oh, no.
77. These works will be complete in themselves? Complete in themselves.
78. You said something about a reclamation there—will that be for sale, or will it be utilized by the Railway Department? Of course, that I cannot say. They might lay down a railway on a portion of it, and sell the other.
79. Do you know what the staiths which it is proposed to remove cost? No; I cannot say.
80. They have never been used to any great extent, have they? Oh, yes, by small vessels.
81. Do you know what the wharfage accommodation now at the harbour of Newcastle is? We can load twelve of the largest vessels afloat at Bullock Island now.
82. How long would it take to load those twelve vessels? Well, there can be loaded about 2,000 tons in twenty-four hours from each crane. The difficulty with loading at the cranes there is not due to the crane power, but to the difficulty of getting the coal quick enough to the cranes and put into the vessel. The trimming takes time. 800 tons in ten hours is about what is done.
83. How long do these vessels generally occupy a berth at the cranes? I think you will get better information about that from the wharfinger.
84. How often are there twelve vessels in the harbour requiring that accommodation? It is very rarely that a crane is idle.
85. But how often is there a demand for any greater number than twelve large vessels to use these cranes? I think there is always a demand.
86. And are the vessels kept there waiting very long for a berth? I have known a vessel wait there for two months for a berth.
87. Having to wait its turn? Yes.
88. *Mr. Garrard.*] I should like to know the estimate of cost of the whole of the works on this plan before the Committee? From the bridge at Bullock Island upwards, as shown on the plan, is not our scheme. I think it is the suggestion of some one on Bullock Island.
89. Why have you a plan here representing something which is not your scheme! To construct and utilize these works you will have to do a considerable amount of dredging? Yes.
90. To what width do you propose to deepen from the proposed wharf on the western side of the dyke? About 500 feet at present, to be completed as the trade demands.
91. Then vessels will have to go in head first and come out stern first? Oh, no; there will be sufficient room for them.
92. Is it intended to remove the whole of those rocks in the fairway of the harbour? Oh, no; to do so, we should have to go right up to the wharf.
93. It is intended to remove only the piece coloured on the plan? Yes.
94. What proportion is that to the remainder? That is hard to estimate.
95. Will you show the Committee the position of the last or No. 8 crane on the wharf? [*Witness indicated the position on the plan.*]
96. And to provide berths at that wharf, was not that rock considerably dredged away? No; not since I have been at Newcastle; there is about 13 or 14 feet of water on that rock there.
97. At the site of the last crane? Yes.
98. What is the nature of the retaining wall along the inner dyke on Bullock Island—is it masonry? It is a timber wharf.
99. But with an internal wall? Yes, of broken stone.
100. Mere ballast? Yes; large stone that comes as ballast—blue-metal.
101. What is the nature of the soil where the work has already been done? Sand.
102. Is there any difference between a wall to retain sand and one to retain mud—do you think a retaining wall for sand would do for mud? Yes, much better, because there is no tide there; it will be still water.
103. Are the piles on the outside wharf wooden piles? Yes.
104. Do you purpose using the same inside? Yes.
105. Is there any considerable deterioration owing to the borers there? No; we copper the piles, and they stand very well.
106. Can you tell us the estimated cost of the whole of the works? No; I could not tell you now.
107. Are there any wharfage rates or tonnage rates collected at Newcastle now? I think there is a small tonnage rate, but the wharfinger can tell you.
108. How many cranes are there at Stockton? Two.
109. Do some of the staiths that it is proposed to take away belong to a private company? No. There are two there, which belong to the A. A. Co., but of course we cannot touch them.
110. What is the depth of water along the dyke? About 23 to 24 feet at low-water, and higher up 17 or 18 feet.
111. Is it a rocky bottom? Sand.

112. Do you not think it would be better to bring the coal further north along the dyke rather than have a congested traffic, according to your proposal? I do not think so. As far as the shipment goes, this inside place at the dyke will be very much better, and it will be still water there. There is a very strong rush of tide on the outside of the dyke.

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113. *Chairman.*] Does this expenditure provide for the railway accommodation on that point? Do you mean laying sidings?

114. Yes? No, it does not.

115. Or laying rails? No, nothing to do with the railway.

116. *Mr. Abbott.*] Who is responsible for the estimated cost of £112,000? I am.

117. Did you estimate it at that amount? Yes.

118. *Mr. Garrard.*] Are the cranes for the inner portions of the works at the dyke included in your estimate? Yes, the cranes complete; seven cranes.

119. Hydraulic cranes? Yes; seven of them are in this estimate.

Captain Henry Newton, Harbour Master at Newcastle, sworn and examined:—

120. *Chairman.*] You are Harbour Master at Newcastle? Yes.

121. How long have you been there? I have been fifteen years in the service.

122. At Newcastle? Yes. Four years as Harbour Master.

123. And you are well acquainted with the proposed works at Bullock Island? Yes.

124. The works which we are now considering which embrace an expenditure of £112,000? Yes.

125. I suppose, in the performance of your functions of Harbour Master, you see the necessity daily of increased accommodation for shipping? Yes; the limited space has of late been very severely taxed. It has been constantly complained of by ship-masters. On some occasions I have had ships lying three, four, and five abreast.

126. Loading? No; lying light for the want of wharf accommodation; and such a thing is not conducive to the safety of vessels where they are subject to heavy freshets, as they are at Newcastle.

127. Of course you are of opinion that it is essential there should be sufficient harbour accommodation to prevent vessels from being delayed? A want of accommodation interferes greatly with the shipment of coal. When we have a tier of vessels lying four abreast of one another, the inside ship may receive her order to load at night-time, but as the orders for night-work are not given until 4 o'clock in the afternoon, it is very difficult to enable the vessel to comply with it. We have to break the tier of vessels, and that can only be done in fine weather. If the vessel cannot get to her berth when the order for her to load is received she would lose her turn.

128. Of course your anchorage space is more now than it was? Yes; but our shipping is increasing more than our accommodation.

129. Have you given attention to these proposed works? Yes.

130. Do you think they will obviate any delay in the shipment of coal? They are going to place three steam cranes in position that will no doubt give small vessels quicker despatch. Then there is to be 700 feet of wharfage going inside the basin, but I would rather see it 1,500 feet than 700 feet, because that 700 is actually only what is taken away from the four steam cranes on the eastern end of the wharf on the Newcastle side.

131. How do you mean taken away? There are three steam cranes near the end of the dyke which have been removed from the Newcastle side. There is a ballast wharf there, and I have had as many as six vessels there. Well, they are going to place three cranes there, and have a ballast wharf on the other side, reclaiming the ground.

132. But about the general utility of the work after it has been carried out; it will give considerable additional space for vessels engaged in the coal trade, will it not? Yes.

133. Do you think the accommodation represented in these proposed works will meet present requirements? For a very short time.

134. Then additional works will be required subsequently? Yes.

135. Have you given any consideration to the estimate set down for these works? I have heard the amount.

136. You have not gone into the figures to consider as to the money being sufficient for carrying out the proposal? No, I have not.

137. It embraces some reclamation near Bullock Island? Yes.

138. And the removal of some rock? Yes; I was the first one to apply for the removal of that rock. It is situated at the intersection of two channels, and ships coming in meet the tide and may go on the rock.

139. Vessels are liable to accident by reason of the rock remaining there? Yes; great care has to be exercised.

140. Does your knowledge extend back very many years with regard to Newcastle Harbour? Yes. I remember when coals were wheeled on board vessels in Newcastle Harbour.

141. How long ago was that? 1859. That was before I entered the service.

142. The harbour has been very much improved since then? In fact, by engineering skill and the expenditure of money, it has been made, I may say, a harbour from a creek.

143. I suppose you have no idea of the total expenditure of money on the improvement of the harbour from time to time? No.

144. Are there any wharfage dues paid now? Yes; there is a wharfage rate of $\frac{1}{2}$ d. per ton on ships taking in coal and wool. That realized about £7,000 for 1887.

145. That is being paid now? Yes.

146. Has that rate always been paid? Of late years.

147. Are the works—those that have been carried out, and those that are to be carried out—of a permanent character: Does the harbour, for instance, silt up again? Yes; the north channel silted up from a depth of 21 feet to 12 feet 9 inches in consequence of freshets.

148. *Mr. Abbott.*] What are the freshets? They are caused by floods in the river, and bring down large quantities of silt, causing a decrease in the depth by the silting up. The silt coming down in that manner has

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- has caused a decrease in the depth by the silting up from 21 feet to 12 feet 9 inches, and for about 300 feet in width. We had to take the ships down in nearly the centre of the harbour. The channel has not been deepened again yet. We have two dredges working there now—the "Newcastle" and the "Hunter."
149. *Chairman.*] Then this dredging will still have to be carried on? Yes; I am of opinion that dredging will have to be carried on continuously.
150. *Mr. Abbott.*] Have you any idea of the export trade of Newcastle? I have. About 2,000,000 tons of coal, in round numbers, we exported last year, I think. The exact figures are 1,658,386 tons of coal shipped out of Newcastle, and independent of Sydney.
151. *Chairman.*] That does not include what was sent to Sydney? No; it is the foreign trade—the trade outside of New South Wales.
152. That would include all that goes to Melbourne and Adelaide? Yes.
153. *Mr. Abbott.*] Have you any idea of what the wool export is? I think that last year it was 46,000 bales.
154. It is increasing, I suppose? Yes.
155. *Chairman.*] Would that amount which you have stated represent what went out of the Colony, or merely what went from the port of Newcastle? Out of Newcastle.
156. But a great deal of that would come to Sydney? No; I think that amount was shipped out of Newcastle direct for foreign markets.
157. *Mr. Garrard.*] Was one reason of your availing yourself of the north channel the desire to avail yourself of the Stockton coal trade? No.
158. What width of channel would you require inside of the wharf on the western side of the dyke at Bullock Island for getting vessels safely in and out? We should require from 400 to 500 feet for the class of ships now coming to Newcastle.
159. What is the estimated width between these two lines shown on the plan before the Committee (*indicating the lines*)? I have not measured it.
160. What is the length of the longest vessel coming to Newcastle? The longest has been 480 feet.
161. And if you had three vessels abreast and only 400 feet of space how could you turn a vessel round? We should always have room to swing a ship where there is a tide running.
162. You are of opinion that there would be sufficient room there to enable you to swing a ship? Yes; most decidedly.
163. Is not that proposed dock on the western side of the dyke at Bullock Island dry now at low-water? Yes, dry at low-water.
164. Do you know whether there is any charge for wharfage on the Newcastle side? I do not think there is.
165. And what is the other amount you mentioned? A half-penny a ton.
166. Who would collect that revenue? The Custom House.
167. *Mr. Kethel.*] Will there be water space available inside the dock for vessels to lie there awaiting their turn for loading, and out of the tide-way—that is, of course, when it has been dredged out? Yes. It will, in fact, be better than any other place.
168. There would be accommodation, say, for a dozen vessels waiting to load? Yes; and it will be better for them, as they will be out of the tide-way.
169. Will there be any wharfage accommodation available for vessels inwards or outwards at the reclaimed land on the Honeysuckle Point side? I can scarcely answer that question.
170. Is there to be, on the Newcastle side, where this reclamation is to be carried out, a wharf for shipping accommodation? I believe there is. I proposed that there should be a timber wharf.
171. *Mr. Garrard.*] Are you under the impression that the whole of these improvements are to be carried out at once? No; my impression is not that. I should not say they could be all done now.
172. *Mr. Humphery.*] When that work has been accomplished, will there be sufficient accommodation for the full requirements of the port? Well, for this present year, if it had not been for the unfortunate strike now taking place, I believe the shipping returns would have eclipsed anything known in Newcastle before. If we make strides, as we have been doing of late years, these improvements would be nothing more than are required.
173. But in this scheme, is there any provision for future requirements, or is it only for those that are immediate? I think immediate.
174. *Mr. Kethel.*] Is it not a fact that the frequent delay in vessels waiting for their turn to load arises from the circumstance that a number of ships are chartered to load from one mine. Is not that the cause of the delay, rather than the scarcity of accommodation? I can answer that question this way: These last three months the coal has been pretty well equally divided. Some two years ago there was a rush of shipping, and the ships that were loading Wallsend coal had very great detention, and at times cranes stood idle; but with this last influx of shipping it has not been so. The cranes have been continually at work night and day, although the Wallsend ships have had long turns. They have had as much as fifty days.
175. *Mr. Suttor.*] Do you know the quantity of coal exported from Newcastle during the present year? No.
176. You said it was proportionately larger than what it has been in former years? I referred to the shipping. I have not gone into the number of tons of coal, but I know the quantity would largely exceed the returns of former years—that is, if it had not been for the present strike. I know it from my pilotage returns. My pilotage returns for this year up to the 31st July were £11,704 17s., and last year the amount was £14,834 for the whole year.
177. *Mr. Kethel.*] I understand that the vessels engaged in the coasting trade, or in fact most of the vessels in our trade, are exempted from that pilotage? Yes; and a number of the home ships are now exempt, and most of the steamers.
178. Then these pilotage returns you have given us refer to foreign shipping? Yes.
179. What is the rate of pilotage levied? Eight-pence—four-pence in and four-pence out, by registered tonnage.
180. *Mr. Sydney Smith.*] What is the distance from the point on the north shore at Stockton to the rock, part of which it is proposed to remove? I have measured it with the line, but I have not the measurement here.
181. I mean deep water? I think about 350 feet.

182. You know it is proposed to take away this rock? Yes.
183. Do you know the quantity of rock to be taken away? No; I do not know what quantity is to be taken away, but it has been surveyed by the engineer.
184. What depth of water is there between the rock and the wharf on the Newcastle side? Sometimes it is dry.
185. Could that not be utilized? There is no way of utilizing it at present. The tide ebbs and flows there. It is all rock. The wharf terminates there.
186. *Mr. Garrard.*] Will you point out the position of your boat-harbour there? [*Witness indicated the position on the plan.*]
187. Do I understand you to say that the rock at that point is sometimes dry at low-water? Yes; there is a passage that a boat will go down, but a little bit off the rock is bare.
188. I suppose you think that ought to be removed? I think all obstructions ought to be removed, and this rock is an obstruction, as it is dangerous to vessels meeting the tide.
189. *Mr. Kethel.*] To what depth of water is it intended to remove that rock; there is, I understand, at the present time 17 feet of water on the rock: To what extent is it intended to remove the obstruction? There is only 8 feet of water on it now in some parts. I think they ought to remove it to the depth of at least 22 feet at low-water. If they do not do that, it is no use touching it.
190. *Mr. Suttor.*] You do not know what is actually proposed in relation to it? No.
191. *Chairman.*] Do you know the depth of water required to take a vessel out of the harbour? Yes.
- 191½. And you think the removal of the rock will not be of sufficient benefit unless it is deepened to the extent of 22 feet at low-water? No, I do not.

Captain
Newton:

31 Aug., 1888.

Frederick Roscoe Neild, Esq., Acting Railway Traffic Manager at Newcastle, sworn and examined:—

F. R. Neild,
Esq.

31 Aug., 1888.

192. *Chairman.*] What is your name? Frederick Roscoe Neild.
193. You are Acting Railway Traffic Manager on the Great Northern line? Yes.
194. How long have you been Acting Traffic Manager? During Mr. Higgs' six months' leave of absence.
195. What capacity do you hold in your ordinary position? Traffic Inspector.
196. Over the Northern line generally? The Metropolitan District.
197. That embraces, I suppose, the coal traffic? The section over which the coal trade runs,—from Mullet Creek to Singleton; that is my district.
198. Then you have, in your experience as a Traffic Inspector, or as Acting Railway Traffic Manager, a great deal to do with the export of coal? As Mr. Higgs' *locum tenens* I have, but in my own capacity as Traffic Inspector I have nothing to do with the mineral trade.
199. Has your attention been given to the necessity for increased accommodation for the shipment of coal at Newcastle? The want of facilities has always been a serious trouble.
200. Do you think this inconvenience will be remedied by the course of improvements which it is proposed to commence at Bullock Island? I think so.
201. Do you know the number of staiths or cranes they propose to erect there? Seven cranes.
202. And you understand the design of the work generally? Yes; Mr. Hickson explained it to me yesterday.
203. You have seen from time to time the delays caused by the want of wharfage accommodation? There have been delays.
204. Sometimes vessels have had to wait in the harbour for their turn? That was more the case some time ago than just now.
205. It is not the case at present? No.
206. But the coal trade has been very great this year? Yes.
207. And it would have gone on in the same proportion but for the present strike? Yes.
208. Are you aware of the revenue which the Government derive from the export of coal generally? During the year 1887 it was £80,943.
209. What would that include? The haulage and shipment of coal.
210. Does it apply to any other export but that of coal? To coal only.
211. Of course coal is the largest export of Newcastle? Yes.
212. It preponderates over everything else? Yes.
213. Wool is being exported now, is it not? Yes.
214. Direct to foreign markets? Yes.
215. Do you recollect how many ships went out of Newcastle with wool last year? I could not say.
216. I suppose you have never given much attention to the engineering requirements of the harbour? No; I do not profess to know anything of them.
217. How long have you been in the Railway service? About twenty-six and a half years.
218. In this Colony the whole time? Yes.
219. *Mr. Garrard.*] Were the plans for the proposed wharfage accommodation submitted to the Railway Department? Not that I am aware of.
220. This is the first time you ever saw them, or rather yesterday, when Mr. Hickson showed them to you? Yes.
221. Do you not experience considerable difficulty at Bullock Island in getting the trains alongside the Bullock Island Wharf? We have had a great deal of difficulty, but it is in consequence of the unpreparedness of the yard.
222. Is it complete now? No, but it is better than it was.
223. You see this plan before the Committee; it is proposed to have a double line of rails [*indicating the position on the plan*]; do you prefer the way the Harbours and Rivers Department brings this line down this point, or would you prefer it going north? The scheme now proposed will be more concentrated, and will place us in a better position from a railway point of view. Our difficulty now is, that with our comparatively small staff our expenses are much increased. The expenses will be very much smaller when the work is concentrated.
224. You said the revenue was derived from the haulage and train work? Yes; the shipping charges are included in the haulage rates.
225. Are the shipping departments under the Railways or under the Harbours and Rivers? There is a combination; they erect them, and we work and maintain them.

226.

- F. R. Neild, Esq.
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226. Shipping facilities are provided to enable you to carry out your contract for haulage? Yes.
227. And should be charged against the Railways? Well, that is a matter of accounts. Certainly, if we collect the revenue, we are fairly chargeable with the cost.
228. Can you tell me whether the charge for the erection of the cranes and for harbour improvements has ever been charged against the railway lines? I am not in a position to state positively, but I believe not.
229. Nor the interest? Not so far as I am aware.
230. What is the profit to the Crown after the expense of haulage, and from the money received for haulage—what does it cost the department, for instance, to bring a train of 500 tons from Wallsend to Bullock Island? That is a matter which cannot be very quickly got at, because there are so many items of detail.
231. What proportion of the haulage rates is charged for crane purposes? I could not say; that is a matter which is done in the framing of the tariff in Sydney.
232. Can you give us the cost of a train of 500 tons from Wallsend, together with the cost of shipment, and the amount received from the Company for it? The train would be only about 160 or 170 tons.
233. *Chairman.*] You have the ascertained cost per mile for haulage? The cost per mile for all trains is about 4s. It would be about £3 or £3 5s. for about 160 tons.
234. From Wallsend to the ship—that would include the shipment? Yes.
235. *Mr. Garrard.*] What, then, would be about the charge for that to the Wallsend Company? About £6 10s.—10d. per ton.
236. The whole of that profit, then, goes to the credit of the railway, and nothing goes to a sinking fund, or to pay interest on the harbour improvements? It all goes to the railway.
237. *Mr. Suttor.*] Can you give us any information as to the export of wool from Newcastle, or as to the amount of wool brought down by train? No, I cannot. I was summoned to Sydney hurriedly, and all my information is in Newcastle; but Captain Paton is present, and might give the information.
238. *Mr. Garrard.*] You do not ship wool from your trucks, do you; you simply deliver to the consignees, who take delivery from the truck? We bundle it out of the truck into the dumping shed.
239. *Chairman.*] And the dumping shed is on the wharf? Yes.
240. *Mr. Kethel.*] So that these improvements now before the Committee do not affect the wool trade? No.

Captain John Jackson, Manager of the Public Wharves at Sydney, sworn and examined:—

- Captain J. Jackson.
31 Aug., 1888.
241. *Chairman.*] What is your name? John Jackson.
242. What position do you hold? Manager of the public wharves at Sydney.
243. Do your functions extend to Newcastle as well as Sydney? Sometimes, not always.
244. You exercise a supervision there? Whenever the Treasury requires my attendance there, I go.
245. You have some knowledge of the shipment of coal there? Not very much.
246. What is principally your work down there, then? I have been down there reporting on the Stockton wharves, and I was appointed to a Commission that inquired into the shipping facilities for inward shipping at Newcastle.
247. Have you any figures or other information that will enable you to say what the revenue derived from the shipping trade at Newcastle is? Yes; the shipment of coal amounts to about 1,750,000 tons, and at 4d. per ton at the cranes this would make £29,000. Out of this £29,000 is a sum of £14,000 which is paid to the contractor for shipping the coal. Then there are harbour, light, and pilot dues, £35,000, and tonnage dues £7,000, or £71,000 altogether.
248. What year does this represent? Last year.
249. Do you recollect what the amount for the year before was? I do not.
250. And what is about the annual expenditure in keeping up those works? About £55,000.
251. Would the difference be a clear profit to the State? No; these are the expenses including 4 per cent. on loan. There is a loan of £462,000, and 4 per cent. on that amount would be about £18,000.
252. Does it include that? Yes.
253. And repairs also; there must be some estimate for repairs that would not include renewals? No; only the allowance for wear and tear, or depreciation.
254. This estimate of £71,000 includes everything—exports generally? No; there is no export wharfage—no export or import. This is only craneage.
255. That would be coal only? Coal only.
256. *Mr. Watson.*] Are your duties in connection with the Wharfage and Tonnage Rates Act in Sydney? Yes.
257. Does that Act apply to Newcastle? It should.
258. Why was it withdrawn? I think it was withdrawn by yourself.
259. But it was in operation in Newcastle? I think so.
260. For how long? A month or two, I think. I know that it was cancelled at Newcastle, Wollongong and Kiama at the same time.
261. There is no export duty on wool at Newcastle? No, on no goods.
262. *Mr. Kethel.*] How is the item of tonnage made up? At the rate of a half penny per ton per day for ships loading while they lie at the wharves; that is on the gross tonnage.
263. The pilotage would be for services rendered? Yes; that is 8d. per ton.
264. Are there any statistics available to show us the amount of goods that have been landed on and shipped from the public wharves at Newcastle upon which wharfage could be levied? Yes. I have some statistics for 1886 in my office. At that time inward wharfage alone would amount to a little over £6,000; and the outward wharfage on wool alone to £1,000, at the rate of 4d. per bale.
265. *Mr. Watson.*] Do you know why wharfage should not be levied inward and outward at Newcastle the same as at Sydney? I do not see any reason why it should not; it would only be just.
266. *Chairman.*] You understand generally the work proposed to be carried out at Bullock Island? I do not know very much about it.
267. But I suppose during your visits to Newcastle your attention has been called to the necessity for increased accommodation? There is no doubt that more accommodation is required. Lately several of the cranes on the Newcastle side have been taken away to make an import and export wharf for goods other than coal.
268. *Mr. Kethel.*] That is, the wharf from the Market wharf downwards is to be devoted to merchandise? Yes.

269. *Chairman.*] You know nothing about the dredge service there, I suppose? No.
270. Do you know how many dredges there are there? I think three.
271. Do you know what the annual expenditure on them is, and whether they are kept continuously at work? No. I know that the last flood caused a silting up near the Stockton wharf of about 4 feet, and that gave a great deal of work.
272. You have no record of the annual cost? No.
273. *Mr. Kethel.*] Is the cost of the dredge service, or any part of it, charged in the £55,000 of expenses mentioned by you? The dredge service at Newcastle is, I think, about £15,000 a year, and is included in the £55,000.
274. *Mr. Humphery.*] Is the £29,000 for craneage charges collected by the Customs or by the Railway Department? By the Railway Department.
275. Was it included in the amount stated by Mr. Neild in the returns he gave? Yes.
276. What is the charge for using the cranes? Fourpence per ton.
277. You mentioned a sum of £14,000 for maintaining the cranes? Yes; that is paid to the contractor.
278. Then there is a profit on the difference between £14,000 and £29,000—that is in connection with the cranes already in use? Yes.
279. *Mr. Kethel.*] Will you furnish the Committee at its next meeting with a memorandum showing the imports and exports for 1886 referred to just now in your evidence? Yes.

Captain
J. Jackson.
31 Aug., 1888.

Robert Hickson, Esq., Acting Engineer-in-Chief for Harbours and Rivers, recalled and further examined:—

280. *Chairman.*] Are all the plans and specifications showing details of these works ready? No; all of them are not ready yet. Our estimate is based on the old plans.
281. And you propose to carry out these works on the same scale as the others? Yes; they are estimated on the same scale. I can give you at once the plans upon which the present proposals have been based.
282. That is, in regard to the excavation, the piling, and other work connected with it? Yes.
283. They are based on the same estimate as the other works? Yes; they are actually slightly less in regard to the estimate.
284. Will you let us have the plans at the next meeting of the Committee? Yes.

R. Hickson,
Esq.
31 Aug., 1888.

TUESDAY, 4 SEPTEMBER, 1888.

Present:—

The Honorable JOHN LACKEY (CHAIRMAN).

The Hon. WILLIAM HENRY SUTOR.

The Hon. JAMES WATSON.

The Hon. FREDERICK THOMAS HUMPHERY.

SYDNEY SMITH, Esq.

ALEXANDER KETHEL, Esq.

JOHN RENDELL STREET, Esq.

JACOB GARRARD, Esq.

The Committee further considered the proposed Harbour Improvements at Newcastle.

Mr. John Dixon, Inspector of Collieries in the Northern District, sworn and examined:—

285. *Chairman.*] Your name is? John Dixon.
286. And you are? Inspector of Collieries.
287. In carrying out the duties of your office, where are you mostly located? At Newcastle.
288. Do you exercise a supervision over the collieries generally? In the Northern District.
289. In carrying out the functions of your office, do you have to attend at all to the shipping of coal? No, not at all.
290. As an observer, or one interested in the coal trade, do you ever pay any attention to the shipping of coal at Newcastle? Well, I do pay some sort of attention as to how the harbour is going on. I have known the port for thirty-one years.
291. Have you been made aware of the circumstances under which you have been called here to-day—that is, as to the propriety of erecting additional works at Bullock Island for the purpose of carrying on the coal trade? The first intimation I had of it (I was called down here by a wire) was when I came here this morning.
292. You are aware, at all events, that it is proposed to construct new works at Bullock Island? Yes; I have heard it talked of in the Newcastle District.
293. Have you given attention to the proposal to open up shipping facilities for coal at Sydney as well as at Newcastle? Not at Sydney.
294. Have you not given attention to the probabilities of Newcastle being relieved by the shipment of coal at Sydney; at Darling Harbour for instance; or at North Shore? All my attention has been given to making Newcastle the proper place for the shipping of coal.
295. Have you heard it suggested at different times that the Northern Railway line may be used for the conveyance of coals for shipment? Oh, yes; I have heard it suggested.
296. You are aware of the output from the different coal-mines in the neighbourhood of Newcastle? Yes; I am aware of what most of them can do.
297. And of the life of the mines? Yes.
298. I mean the period that the mines are likely to last? Yes.
299. I suppose you are of opinion that the life of the mines in the Newcastle district is of a sufficient character to warrant the Committee in recommending these proposed works to be carried out? I certainly am of that opinion.
300. You think they will last a number of years? A great number of years.
301. Have any mines shown any signs of giving out, or of not being able to furnish the usual supply? No, none of them.

Mr. John
Dixon.
4 Sept., 1888.

Mr. John Dixon.
4 Sept., 1888.

302. *Mr. Suttor.*] I suppose it is a matter of calculation as to how long the mines will last without being exhausted? It is a very difficult matter to calculate. A great many persons think that a large quantity of coal can be obtained seaward, and I am one of these; and also that coal is likely to be got for a great length along the coast, going towards the south.

303. Then you think that practically, as far as we are concerned, these mines are inexhaustible? As far as my own opinion is concerned, I look forward to Newcastle having the same output, or increasing that output, for at least thirty years. I see nothing to hinder it, because there is plenty of coal about Newcastle that has not been touched.

304. *Mr. Garrard.*] On the basis of the present output? On the basis of the present output.

305. *Chairman.*] Have you made any estimate of the quantity of coal still in the Newcastle District generally? No.

306. No approximate estimate? No; but I know of seams practically untouched that have never yet sent a cart-load to market.

307. You say that you hold the opinion that the Newcastle seams extend under the sea? Yes, I do.

308. Are there instances of that in the old country? Where I come from, yes,—in the county of Northumberland and the county of Durham. I know where there are workings from 3 to 4 miles under the sea, and practically inexhaustible. They will go as far as a man can breathe.

309. What depths are the pits there? Some of them about 700 feet, and there is another near Sunderland 600 yards.

310. *Mr. Watson.*] You said just now that you had no evidence of any mines running out? Yes.

311. What about the Waratah mine? That has just tapped a new field again.

312. But the old mine? That worked out; but there are many thousands of tons to be got out of that mine yet from the pillars, and that is only a patch in the old Waratah Estate.

313. I suppose it is a kind of break in the seam? It is a break in the seam, but not of the same thickness. There has been a sort of break or washout. They are in the same seam now, but more in the dip of it.

314. *Mr. Kethel.*] In your calculation of the thirty years' supply of coal, do you confine yourself to the coal-fields in the Newcastle basin, or do you include the coal-fields of Lake Macquarie? I may say this: that I take in what is known as the Four-mile Creek.

315. *Chairman.*] How far is that from Newcastle? I think about 20 miles. I take Lake Macquarie, and the Hunter as far as Four-mile Creek. That is my estimate, taking in West Wallsend, Monkwearmouth, and back to the mountains.

316. Then, calculating at the rate of the present output, that would be about 60,000,000 of tons? Yes.

317. *Mr. Garrard.*] Irrespective of the coal under the sea? No; we must put that in too.

318. Suppose you exclude the estimate of the coal under the sea, how long do you think it would be before the coal supply worked out? I would not give it such a long period.

319. How much? That is difficult to say. There might be faults.

320. Would the exclusion of the coal under the sea bring it down to a twenty years' supply? I do not think it would.

321. *Mr. Kethel.*] Where are these seams to which you allude as having not yet been tapped? There are seams up Four-mile Creek.

322. That is beyond Maitland? That is beyond Maitland. They have simply been sunk to or bored to, and practically there has not been a load taken away from them yet. I believe there is a very large field of coal there. Then there is West Wallsend; that is barely opened yet.

323. Have you considered as to the probable extension of the Stockton seam away north to Port Stephens and to Raymond Terrace? It is my opinion that it does not extend that way. I believe I can limit the Stockton seam.

324. Then your estimate is simply confined to the Valley of the Hunter? Yes.

325. *Mr. Suttor.*] How many square miles of country are there in this estimate of yours? I cannot say; but it extends from Lake Macquarie back to the Hunter, and from the mountains out to West Wallsend.

326. Can you give us a rough estimate? Well, it would be about 12 by 20.

327. About 1,240 square miles? Yes.

328. How many square miles have been worked out? I could not estimate that without having the plans to enable me to calculate.

329. *Chairman.*] You think the coal resources of the district generally are quite sufficient to justify a reasonable expenditure for shipping facilities? I do.

330. You do not know the nature of the improvements that are proposed to be carried out? No; but I know what is proposed to be carried out at Bullock Island, that is with regard to reclaiming some land.

331. *Mr. Suttor.*] Do you think that the whole of the area of country you mentioned will be worked out in thirty years? I could not say, but I reckon it will last thirty years at the rate of the present output.

332. Not more than that? I could not say that, because you cannot say what will come into the market. I have of course seen many changes in Newcastle during the thirty years I have known it.

333. *Mr. Kethel.*] What is the deepest seam at present worked in the Newcastle coal-field? From 270 to 300 feet below the surface, except West Wallsend, which is 498 feet from the surface.

334. Is that the same seam which is worked further north, or a separate seam? The same as is worked by the A.A. Company, Wallsend, Burwood, and Minmi—what we call the No. 6 or Borehole seam.

335. Have you any reason to believe that there are any workable seams underlying this one? I believe so. We know of a seam 3-feet in thickness underlying the present one.

336. Would it pay to work a 3-feet seam at that depth? Yes.

337. You have reason to believe that there are workable seams below that depth? I believe so.

338. *Mr. Garrard.*] Is this 3-feet seam, which is under the present Borehole seam, included in your calculation? No; I am simply calculating the Borehole seam.

339. What is the distance between the Borehole seam and the 3-feet seam? About 30 or 40 feet, and I believe it is the intention of the A. A. Company to work it from its sea-pit. It will be a fiery seam, but it will be worked some day, no doubt.

340. And there may be seams which are workable lower than that? Yes.

341. That will considerably extend the life of the Newcastle coal-pits? Yes.

342. *Mr. Sydney Smith.*] Do I understand that in your calculation you are including only the mines now being worked? The present seam now being worked—the Borehole seam. There is another seam, called the Burwood seam, which was worked years ago, and no doubt will be worked again. 343.

343. *Mr. Kethel.*] Is that the seam behind Merewether's old house? Yes; it is workable there, and it is workable at South Waratah, and I believe it will be found workable in other places in the district?
344. Do you include in your estimate the output of the Great Northern mine and Cockle Creek? I was not including the Great Northern—not the present seam they are working.
345. *Mr. Street.*] Have you any knowledge of the insufficiency of the present cranes to carry on the trade of Newcastle. Do you know of your own knowledge that more accommodation is required to carry on the trade of the port? Of my own knowledge I have known vessels this year to lie there sixteen weeks. They could not get a berth at the cranes.
346. You believe there are not enough shipping facilities to work the trade? I believe there are not enough shipping facilities to work the trade as it should be worked. There is plenty of coal, and men to get it, but the ships cannot obtain it and get away.
347. *Mr. Watson.*] With reference to that vessel which lay there for sixteen weeks, was it not waiting for a particular coal? Well, it was like this: the vessel was lying under charter for a particular coal, but if a vessel came in connected with the intercolonial trade this intercolonial craft was loaded, and the other had to lie where she was. If there had been cranes enough the intercolonial trade would not have interfered with this vessel.
348. But was there this particular coal to load this vessel? Yes; there were vessels under charter for two coals,—Greta and Wallsend:

Mr.
John Dixon.
4 Sept., 1888.

George Alfred Tillett, Esq., Assistant Engineer for Harbours and Rivers, sworn and examined:—

G. A. Tillett,
Esq.
4 Sept., 1888.

349. *Chairman.*] You have brought plans connected with the proposed harbour works at Bullock Island? Yes. This plan which I produce represents the general type of the works proposed at Bullock Island.
350. And the proposed new work? Well, the proposed new work will be the same.
351. But are there no specific plans for the new work? No, none have been yet prepared.
352. The estimate then has been arrived at on the old plans? Yes; the new works will be of the same class.
353. Does that apply to the dredging and filling up, and the piling, and so on? Well, the plans in connection with the Bullock Island wharf will be the same as these.
354. And are the estimates based exactly upon the same cost? Yes.
355. Both in regard to the stone and wood work and dredging? Yes.
356. You know the general estimate of the Bullock Island work at present proposed? Yes.
357. And you regard that as a fairly approximate estimate? Yes.
358. *Mr. Watson.*] Then, as a matter of fact, you have no plans and specifications ready for this work? No.
359. And if the Committee concurred in the work as proposed you could not carry it out? No, not until we had the plans; but we should simply have to make tracings of these old plans, that is all.
360. *Mr. Suttor.*] What is the reason why the plans and specifications have not been prepared? As a rule, we never prepare plans and specifications until the money for the work has been voted.
361. What will the preparation of the plans and specifications cost? On an average, from 2 to 3 per cent. of the value of the work they represent.
362. And these works are expected to cost £112,000;—would the plans and specifications cost 3 per cent. on that amount? Not on such large works; perhaps not $\frac{1}{4}$ per cent. on a large sum like that.
363. I suppose the item of the cost of getting out the plans is something in consideration of the money not being voted? That would be one reason why the plans are not made out. We have all the materials necessary for forming a very accurate estimate of the work; but until the money is voted for carrying out the work it would be almost absurd to prepare plans for it.
364. *Chairman.*] You say you never do prepare plans until the money is voted for the work? No.
365. And that is the reason why it has not been done in this case? If we did prepare plans, we should have no further information on which to base the estimates than we have at the present time. If there were anything new to be done, it would require a further examination of the locality; but in the present case it is simply a continuation of the wharf.
366. The same class of soil is to be removed, I suppose; you do not anticipate meeting with rock where you did not meet it in the other case? No; we know it does not exist.
367. But if it did exist it would make the cost very much greater? Yes.
368. Do you know whether it is proposed to carry out the work by contract or by day labour? By contract; but the dredging will be done by day-work.
369. *Mr. Kethel.*] What is the class of work by which this is to be done? Piling.
370. Ordinary piling? Ordinary piling, of ironbark and turpentine.
371. Do you intend to sheath it with copper? Whatever timber is used would be sheathed with copper from the ground-line.
372. And would you have caps and joists and hardwood planking as on wooden walls? Yes.
373. And what kind of retaining wall would you have to prevent the soil from falling in at the back of the wharf? At the back of the timber work there would be a rough retaining wall of hand-packed ballast, and at the back of this retaining wall the ordinary dredge material.
374. Where would you obtain the stones from to make the facing? The greater part of the stone would be obtained at Bullock Island from ship's ballast.
375. What does it cost? I think nothing.
376. Do the ships deposit it there at their own cost, or do the Government men deposit it? The ships get rid of it themselves.
377. Then the greater part of the stone material, or the whole of it, would be obtained free of cost from ships visiting Newcastle? Yes.
378. And the whole of the earth required for filling-in purposes would come from the dredging in that part of the harbour proposed to be deepened? Yes.
379. There would necessarily have to be some stone foundations on which to put the hydraulic cranes; how would you have them founded? On iron cylinders sunk to a solid foundation and filled with concrete.
380. *Mr. Garrard.*] What is your estimate of the cost per ton for dredging? The actual cost is about 6d. per ton.

- G. A. Tillett Esq. 381. And what does it cost to deliver the silt? We have a price that has always been paid of 5d. per ton for a 40 yards' run, and 3d. per ton for each 40 yards after the first 40 yards.
- 4 Sept., 1888. 382. Is the 6d. per ton for the work done by your best dredge, or is it distributed over the whole of the plant there? It is distributed over all the dredging plant in Newcastle.
383. It is not confined to the dredge "Newcastle" only, but relates to the whole dredging plant at Newcastle? Yes.

Charles Augustus Goodchap, Esq., Commissioner for Railways, sworn and examined:—

- C. A. Goodchap, Esq. 384. *Chairman.*] Your name is Charles Augustus Goodchap? Yes.
- 4 Sept., 1888. 385. You hold the position of Commissioner for Railways? Yes.
386. And as such you have had a good deal to do in exercising a surveillance over the shipment of coal? Yes.
387. And in the conveyance of the coal from the mines to the shipping port? Yes.
388. Are you aware that they are erecting new coal cranes at Bullock Island? Yes; hydraulic cranes.
389. From what you know of the circumstances of the trade, do you think that the cranes proposed to be erected there will be required? Certainly.
390. Great inconvenience has been felt up to the present time through not having sufficient cranes, I suppose? No. We have had cranes at Newcastle which supplied the actual necessities of the traffic; but these have recently been taken away, with a view to giving ordinary merchandise those facilities it requires; and additional cranes were required at Bullock Island to replace the facilities granted at Newcastle. I am not prepared to say there has been any want of facilities; in fact, the facilities, so far, have always been in excess of the requirements.
391. But, through the removal of the cranes from Newcastle, the proposed cranes will be required at Bullock Island? Yes.
392. And they will have full work? Yes; they are absolutely necessary.
393. The railway line is not constructed the whole distance from Sydney to Newcastle, is it? There is a small break at Mullet Creek of 4 miles.
394. Is there any coal coming down on that Northern line now? No.
395. Do you look forward to a coal trade coming to Sydney in connection with the Northern railway line? Yes, I think there will be a good trade in coal, but it will not affect the established mines that now do business with Newcastle in a very large degree. I think the coal that will be brought over this portion of the Northern railway will be the coal developed at Lake Macquarie, and between that and the Hawkesbury River.
396. You think there will be sufficient coal this side of Newcastle without going to the old mines? I think the railway between Newcastle and Sydney will be used principally in bringing coal from mines yet to be developed. I think the present mines will continue to use the harbour of Newcastle and the shipping appliances at Bullock Island.
397. Have there not been considerable coal deposits discovered at Gosford and in its neighbourhood? Yes.
398. Would that come to Sydney? Yes.
399. And coal also from the neighbourhood of Lake Macquarie? Yes.
400. Is it likely that in the winter season and stormy times coals would be sent by rail to Sydney to meet immediate requirements? The railway might be used occasionally to meet hurried requirements, but I do not think storms are so severe at Newcastle as to prevent the use of the usual appliances.
401. But, on the whole, you think the proposed works at Newcastle are necessary? Yes.
402. *Mr. Watson.*] When do you expect to have the completed railway line opened to Waratah? I think it will be opened in February next.
403. Do you think the opening of that line will divert any of the coal traffic from Newcastle to Sydney? To a limited extent.
404. But not to interfere with these new cranes? No.
405. At what rate will you be able to carry coals to Sydney? Not under 5s. per ton.
406. And the present rate by sea is 4s.? Yes. But there is this difference in bringing it by rail. It is handled only once, and when it is sent by sea it is handled twice. That makes it small, and brings about a difference which is estimated at 1s. 6d. per ton.
407. That would be a difference in favour of the railway? To that extent.
408. Would that not be an inducement to people to send coal by rail? I think the difference between 5s. to Sydney and 4s. by sea would be immaterial.
409. But suppose you bring coal to Darling Harbour, so that it could be shipped at once? I am quite satisfied that coal will never be shipped from Darling Harbour.
410. But that was the original intention? Yes; I believe so. I think Mr. Moriarty erected some cranes there for the shipment of coal, but they have never been availed of. It is quite impossible to bring coal on a line which is used as a suburban line, and as an ordinary through line for ordinary merchandise and passenger traffic. A coal traffic could not be conducted on such a line.
411. But it was originally intended to have the line between Homebush and Waratah a double line? Yes.
412. And that was altered? Yes; but, although it has been made for the present a single line, the bridges and tunnels have been constructed for a double line.
413. Suppose the cranes had not been removed from the Newcastle side of the harbour to give facilities for the import and export of merchandise, would the shipping facilities have been sufficient for the present requirements? Yes, for the present requirements, but they are increasing year by year.
414. You are looking to the future? Yes; and there is also a proposal to remove the staiths, which are considered a great inconvenience.
415. At one time wharfage was collected at Newcastle, was it not? Yes, for a short time.
416. It was found inconvenient on account of the railways? Yes.
417. It diverted a good deal of traffic to Morpeth? Yes; and to the A. A. Company.
418. *Mr. Sydney Smith.*] Have you made any calculation of the cost from Newcastle to Sydney; I presume you calculate the cost of 5s. a ton as the cost from Newcastle to Sydney? It was in my mind that the Government would construct a railway to Long Nose Point, and I was calculating in that direction and from Lake Macquarie. It is 100 miles from Newcastle to Sydney, and the grades on that line are very severe. It would be absolutely necessary to charge at least 1d. a ton per mile to cover working expenses.

419. *Mr. Suttor.*] You know it is proposed to make a railway from Tempe to Long Nose? Yes.
420. Was there any suggestion to make that line a coal line? It is to be used, as I understand, exclusively for coals and minerals generally.
421. Carrying coals from the Illawarra Line and the Northern Line? Principally from the Illawarra Line, but coal will also come from the Western Line, and from the lines in the southern district, as distinguished from the southern coast district.
422. As you said before that it is not likely coal would be brought from Newcastle to Sydney, this line would not be used for the northern coal? I think coal will be brought, but from mines not now developed.
423. South of Lake Macquarie? Yes.
424. *Mr. Garrard.*] In reference to the management of the wharves at Newcastle, do I understand that the Harbours and Rivers erect and superintend the repairs of these cranes and wharves? No; the lessee keeps the cranes in repair.
425. But the Harbours and Rivers erect them, and hand them over to your Department, and then you let them out to the lessee? Yes.
426. What revenue do you get from him? We receive no revenue from the lessee. The cost of shipping is included in the charge for hauling the coal, and we have to pay the lessee 1½d. or 2d. per ton for all coal shipped by him at the cranes.
427. What charge for shipment does he make? He makes no charge, we include it in the haulage.
428. And he contracts to work these cranes, and do all the repairs? Yes.
429. Except the main pumping stations? No; he pays the wages of the firemen and stokers.
430. The cost of the erection of these wharves and cranes is not put against the expenditure on the railways. You have a free gift of these in the first instance? I think so.
431. And nothing is put by for a sinking fund, or to meet the interest on the loan? No.
432. Do you not think that some portion of that ought to be charged against the Railway revenue? I certainly think so.
433. In other words they are a free gift to the Railway Department? Well, they belong to the State, and the Railway Department makes use of them.
434. If you had to provide a sinking fund or the interest on the capital invested in these wharves, would that not increase your price for haulage? Yes.
435. *Mr. Kethel.*] Do the Railway authorities levy any wharfage rates of any kind on goods landed by a ship at Newcastle on the wharves? No.
436. Do they at Sydney, at Darling Harbour? The Darling Harbour wharf is one under the Treasury, and is not under the Railway Department.
437. Is it not a fact that when goods are landed on the Darling Harbour wharf, and shipped on trucks consigned to the interior, you charge wharfage to the consignee? I think we collect it on behalf of the Treasury.
438. *Mr. Garrard.*] You spoke of the old coal wharf from which the cranes have been removed as being devoted to the import and export of other goods? Yes.
439. Is that wharf still under the Railway Department? I believe it is still a public wharf.
440. The Railway Department's wharf? Well, that is a debateable question; it was at one time a railway wharf, but it was proclaimed a public wharf.
441. Has it been proclaimed a public wharf? Yes.
442. Who is supposed to collect the revenue? The Treasury. They issued a proclamation rescinding the collection of wharfage dues.
443. And re-investing the wharf in your name? No.

C. A.
Goodchap.
Esq.
Sept., 1888.

Captain John Jackson, Manager of the Public Wharves at Sydney, sworn and further examined:—

444. *Mr. Kethel.*] Will you explain to the Committee the returns handed in by you with reference to the amount of wharfage rates that would be realized at Newcastle if the rates were collected on the same basis as the charges at Sydney? The return shows that the approximate amount of wharfage on imports for the year 1886, if collected, would be £5,758 13s. 8d., and the outward wharfage for the same period, if collected, would be £1,274 15s. 4d. This does not include any cargo brought to Newcastle or taken from Newcastle by Sydney steamers.
445. As these are the returns for 1886, have you any means of arriving at an approximation of the amount, if the rates were collected, on the same basis during the present year;—have you any means of forming an estimate of that? No. Taking into consideration the number of ships that have arrived, I should say that the revenue which could be collected on goods going into Newcastle this year would be close on to £10,000.

Capt.
J. Jackson.
Sept., 1888.

THURSDAY, 13 SEPTEMBER, 1888.

Present:—

JOSEPH PALMER ABBOTT, Esq., (VICE CHAIRMAN).

The Hon. WILLIAM HENRY SUTTOR.

The Hon. JAMES WATSON.

The Hon. FREDERICK THOMAS HUMPHERY.

SYDNEY SMITH, Esq.

ALEXANDER KETHEL, Esq.

JOHN RENDELL STREET, Esq.

JACOB GARRARD, Esq.

The Committee further considered the proposed Harbour Improvements at Newcastle.

T. W. E. David, Esq., Geological Surveyor, sworn and examined:—

446. *Mr. Suttor.*] Have you a knowledge of the Newcastle coal-field? Yes. I have been engaged about two years preparing geological maps of the Maitland and Greta coal-mines and the East Maitland coal-measures, which extend within a few miles of the Newcastle field.
447. Can you give a rough estimate, in square miles, of the area of those fields? I am not prepared at all for what I am wanted this afternoon. I have not made any calculations, but I can state roughly what it is. From the entrance to Lake Macquarie up to Greta there are about 570 square miles. That is only taking the measures as far as Branxton, but they extend a great deal further west,—about 33 miles along the line up the Hunter from Newcastle.

T. W. E.
David, Esq.
13 Sept., 1888.

- T. W. E. David, Esq.
13 Sept., 1888.
448. Do the coal-measures extend beyond Branxton? Yes; at least as far as Rix's Creek. That would add considerably to the area.
449. Can you give us any idea as to the extent of the coal underlying that area? There are three seams of coal,—the upper or Newcastle series; the middle or East Maitland series; and the lower or Greta series. Those three series are not all continuous over that area, but where one series is absent another takes its place. It would take some time to calculate the amount of coal per square mile throughout the area, but I have just calculated it for about half that area. The Greta coal-measures would furnish a daily output of 40,000 tons for about 200 years. That is the Greta or lower series.
450. Have you any idea what the other series would yield? I may say that my estimate is taking the areas where I think the Greta series would be workable, because a considerable part of that area of the Greta series would be too deep to work. In making an estimate of 40,000 tons daily, I am only taking account of the Greta measures where the seams are within workable reach.
451. What is the quantity in the middle series? The middle coal-measures, or East Maitland coal-measures, speaking approximately, would furnish a daily output of 20,000 tons for 100 years. I am not sufficiently well acquainted with the upper series to give an estimate. So large an area of the upper series in the neighbourhood of Newcastle has been worked that I have not the necessary information for calculating the amount of coal in the unworked areas.
452. Do you think any system of coal-mining could be carried out under the sea in the neighbourhood of Newcastle, as I presume the seams extend under the sea? Yes, they are dipping underneath the sea. I should think the probability is that they could be worked at least a mile or two miles seawards.
453. Would not that give an enormously increased area of coal-fields, if you take that into account? That would come under the head of the upper series, which I have not calculated. I have not sufficient acquaintance with the worked areas to form even an approximate estimate.
454. Is the Greta series the lowest known? No; there is another series below it. At the only places where they show up at the surface they are so disturbed by intrusive igneous rocks that no attempt has been made to work them. Those measures below the Greta series occur at Stroud, Karua River, and Port Stephens.
455. What is the approximate depth of that series below the Greta series? There is greater unconformity between these Lepidodendron series. The Lepidodendron beds about Stroud and Port Stephens are much older than the Greta measures, or the middle and Newcastle measures.
456. Are they in such a position that they can be worked at a future date? They will not be workable about Newcastle. They would be far too deep at any point to the south of the Hunter River. The neighbourhood of Stroud or Port Stephens is the nearest place. One seam has been opened in this series, 7 miles on the road from Raymond Terrace to Stroud. The seam was 6 feet thick, but rather inferior.
457. What is the present output at Newcastle? I have no idea.
458. Can you give us any idea how long the Newcastle coal-fields can be worked under the present system? Not further than the particulars I have already given of the Greta and East Maitland series.

John Mackenzie, Esq., Examiner of Coal-fields, sworn and examined:—

- John Mackenzie, Esq.
13 Sept., 1888.
459. *Mr. Suttor.* Are you the Examiner of Coal-fields? Yes.
460. Are you acquainted with the coal-fields in the Newcastle District? Yes.
461. Can you give the Committee any idea of the extent and probable duration of those coal-measures, taking them all north of Lake Macquarie? They continue from Newcastle on to Gunnedah in the north-west.
462. What is your opinion generally as to the coal-fields about Newcastle? It is all one coal-field, in my opinion, from Newcastle to Wollongong. It dips under Sydney and comes up again on the Wollongong side.
463. Take from Lake Macquarie as far as the Hunter River, and the same distance beyond the Hunter, what supply of coal will be obtained from that area? For what purpose do you mean?
464. Commercial purposes? I should say it will last for almost an unlimited time, because at the present time the only seam of coal worked is the Borehole seam. That is the best seam of coal for household, steam, gas, blacksmith, and cooking purposes. But you must recollect that a time will come—seemingly quickly—when Newcastle and other places will be great manufacturing centres. There are other seams of coal that it will not now pay to work for steam or household purposes, but which will be used for stationary engines, and the smelting of iron, copper, silver, and other minerals; and in my opinion, as far as Newcastle itself is concerned, it is impossible for me or anyone else to say how long this coal may last for export, &c., from Newcastle harbour.
465. A previous witness gave evidence to this effect—“As far as my opinion is concerned, I look forward to Newcastle having a large output, and increasing it too, for at least thirty years.” Do you agree with that opinion? They are speaking of the Borehole seam. I am speaking of other seams which at present are not marketable for steam, gas, or household purposes.
466. What do you think will be the life of the Borehole seam? That entirely depends upon the distance from Newcastle which you speak of. It is really impossible to answer a question of this kind as to the continuance of a seam which at the present time is being worked from 8ft. to 4ft. 6in., but which may be worked in future at 4ft. 6in. only. There is a great area which at present is not considered workable.
467. Does the Borehole seam extend all over the field? No; it changes its character when you go southward. At Lake Macquarie a bore was put down by the Australian Joint Stock Bank, and the Borehole seam was proved to be of no value. It is utterly impossible to say how far the seam is going to extend. If it is a question respecting Newcastle harbour, I can say that I believe myself, as far as we can see at the present time, it does not depend upon the Borehole seam only. It will depend upon the industries that will be started in that district. There is no doubt that manufactures will be started there with which no other place in New South Wales can contend.
468. But will not those industries depend upon the vitality or inexhaustibleness of the coal-field? Yes. There are seams of coal there which at the present time you cannot sell at any price. You cannot sell coal from those seams because the coal that is now required is for steamers, locomotives, household, and gas purposes. But a time will come when seams of coal which are not so valuable as the Borehole seam, and which would not now command any sale at all, will be used for the engines employed for manufacturing purposes.

John
Mackenzie,
Esq.

13 Sept., 1888.

469. Have you made any estimate in your own mind as to the future of Newcastle, and how long it will take to exhaust the coal-fields? Nobody at the present time can say when they will be exhausted. You must not say that when the Borehole seam is exhausted the Newcastle harbour will be no good. My opinion is that industries will be started there which will make seams of coal now of no value of great value.

470. Can you not give the Committee any definite opinion? My opinion, as far as the Borehole seam is concerned, is that it will last for the next forty or fifty years, if you take it 20 miles away from Newcastle.

471. Is that the uppermost seam? It is the best-known lower seam. I have seen remarks made with respect to seams below the Borehole seam; but in my opinion there is no seam likely to be of any value at all below the Borehole seam at a less depth than 2,000 feet.

472. Are there seams above the Borehole seam? Yes; there are seams above it which we must not judge according to the present demand. We must look to the future. There must be manufactures in the Newcastle District, and those upper seams will be used for stationary engines for manufactures of all kinds. That must naturally be the case sooner or later.

473. Are those seams at present not suitable for domestic purposes? There is quite sufficient for the next thirty years to be obtained from the present seam.

474. *Vice-Chairman.*] Can you not say how long the seams now worked for marketable coal are likely to last, taking the present output as the basis? There is only one seam at and near Newcastle, and that is the Borehole.

475. You have referred to the coal now marketable;—how long will that last? That depends upon how far you go out of Newcastle.

476. Up to Greta? As far as Greta is concerned, I do not profess to give any opinion. It is dipping there to a very great depth, and I think when you get 30 miles away from Newcastle it is going a long way.

477. *Mr. Garrard.*] Do you know the quantity of coal taken away from Newcastle since the field was first opened? I cannot say from memory.

478. Taking Lake Macquarie as the southern limit of the field, and Port Stephens as the northern, and the western boundary 30 miles from the coast, how long do you think that the coal-measures will last at the rate of the present output? A borehole was put down at Lake Macquarie by the A.J.S. Bank and there was no seam of coal there of any value.

479. Well, there will be so much less to estimate. I am giving you that as a boundary? I tell you that there is nothing there of any value as far as the Borehole seam is concerned, and there is nothing at Port Stephens; but that does not say that I can tell you the number of tons between the two places.

480. Do you know the annual output at Newcastle just now? Over 2,000,000 tons.

481. Have you any idea how long that output is likely to last with the seams now being worked? The present output will last there, you may say, for the next fifty years. But I say it is not the seam of coal at present worked which has to be considered. There will be great manufacturing industries established.

PARLIAMENTARY STANDING COMMITTEE ON PUBLIC WORKS.

Harbour Improvements at Newcastle.

APPENDIX.

A.

[To Evidence of Captain John Jackson.]

Sir, Public Wharves Office, Circular Quay, 4 September, 1888.
I have the honor to enclose a statement of the approximate wharfage dues on Imports and Exports, other than coal, at the Port of Newcastle, for the year 1886, if collected. Owing to the fact that neither weights nor measurement are given in the statistical returns, it is not possible to make it more exact. It is, however, within a very few pounds of the truth.

I have, &c.,

JOHN JACKSON,

Manager Public Wharves.

The Secretary to the Parliamentary Works Committee.

IMPORTS to Newcastle, with approximate amount of Wharfage, for the year 1886 :—

		At	£ s. d.
Acetic Acids	8 cases	6d. per case	0 4 0
Tartaric Acids	30 "	6d. " "	0 15 0
Aerated Waters	698 dozen	1d. " dozen	2 18 2
Other Acids	734 cases	6d. " package	18 7 0
Agricultural Implements	287 "	4d. " "	4 15 8
Anchors	17 tons	1s. 8d. " ton	1 8 4
Alum	5 cwt.	1s. 8d. " "	0 0 5
Apparel (wearing)	152 packages	9d. " package	5 14 0
Guns	18 cases	6d. " case	0 9 0
Gun Caps	7 "	6d. " "	0 3 6
Cartridge Cases	15 packages	2d. " package	0 2 6
Shot	4 "	2d. " "	0 0 8
Arrowroot	21 cases	2d. " case	0 3 6
Bags and Sacks	14 bales	9d. " bale	0 10 6
Paper Bags	5 "	9d. " "	0 3 9
Calico Bags	3 "	9d. " "	0 2 3
Baking Powders	133 packages	2d. " "	1 2 2
Basket and Brush Ware	64 "	9d. " package	2 8 0
Beer (in wood)	205½ hogsheads	6d. " hogshead	5 2 9
Beer (in bottles)	6,658 cases	4d. " case	110 19 4
Blacking	164 packages	4d. " package	2 14 8
Biscuits	1 ton 11 cwt. 12 lb.	1s. 8d. " ton	0 2 7
Blue	426 packages	2d. " package	3 11 0
Bricks (building)	39,000	1s. 8d. " 500	6 10 0
Bricks (fire)	51,180	3s. 9d. " 1,000	9 12 0
Brushware	16 packages	9d. " package	0 12 0
Butter	2,199 cwt. 8 lb.	1d. " cwt.	9 3 3
Candles	4,108 boxes	1d. " box	17 2 4
Bi-carbonate of Soda	4,108 packages	2d. " package	34 4 8
Carts and Waggons	398	2s. 6d. "	49 15 0
Cement	12,325 casks	4d. per cask	205 8 4
Cheese	1,849 cwt.	1d. " cwt.	7 14 1
Glue	33 packages	6d. " package	0 16 6
Barley	281 bushels	3d. " bushel	0 15 8
Maize	16 "	3d. " "	0 0 11
Oats	87,636 "	3d. " "	243 8 8
Peas	401 kegs	2d. " keg	3 6 10
Pearl Barley	2,088 bushels	3d. " bushel	5 16 0
Pollard	92,682 "	3d. " "	257 9 0
Sharps	31,930 "	3d. " "	88 13 10
Wheat	25,735 "	3d. " "	71 9 8
Grease	118 cwt.	1d. " cwt.	0 9 10
Groats	28 cases	2d. " case	0 4 8
Hardware	6,356 packages	6d. " package	158 18 0
Hay and Chaff	3,296 tons	1s. 8d. " ton	274 13 4
Hops	2-10 cwt.	3d. " cwt.	0 0 7
Hop Bitters	50 cases	2d. " case	0 8 4
Musical Instruments	47 "	9d. " "	1 15 3
Castings	478 "	1d. each	1 19 10
Galvanized Iron	978 tons 3 cwt. 2 qr. 15 lb.	1s. 8d. per ton	81 10 3
Iron	36 tons 10 cwt. 2 qr. 10 lb.	1s. 8d. " "	3 0 10
Bolts and Nuts	82 tons 17 cwt. 3 qr. 15 lb.	1s. 8d. " "	8 8 2
Chains	7 tons 3 cwt. 2 qr. 14 lb.	1s. 8d. " "	0 12 3
Tanks	252 tanks	2d. each	25 4 0
Wire	136 tons	1s. 8d. per ton	11 6 8
Wire, (galvanized)	4 tons 15 cwt. 1 qr. 2 lb.	1s. 8d. " "	0 7 10
Iron and Steel	2,509 tons	1s. 8d. " "	209 1 8
Jams and Jellies	2,112 cases	2d. " case	17 12 0
Coffee	3 tons 8 cwt. 1 qr. 22 lb.	1s. 8d. per ton	0 5 8
Chocolate and Cocoa	524 packages	2d. " package	4 7 4
Canvas	17 bales	9d. " bale	0 12 9
Confectionery	71 packages	3d. " package	0 17 9
Rope and Cordage	102 tons 2 cwt. 2 qr. 7 lb.	1s. 8d. " ton	8 10 2
Cordials	91½ dozen pints	1d. " dozen	0 7 8
Cordials	15 dozen half-pints	1d. " "	0 0 8
Cotton (raw)	178 bales	9d. " bale	6 13 6
Cream Tartar	134 cases	6d. " case	3 7 0

IMPORTS to Newcastle—continued.

		At	£ s. d.
Cutlery	39 packages	4d. per package	0 13 0
Corn-flour	62 "	2d. " "	0 10 4
Dates	39 "	2d. " "	0 6 6
Doors	202 "	1d. " door	0 16 10
Drapery	2,561 packages	9d. " package	96 0 9
Drugs	193 "	6d. " "	4 16 6
Earthenware	4 casks	1s. 0d. " cask	0 4 0
Effervescing Powder	14 packages	6d. " package	0 7 0
Farinaceous Food	31 "	2d. " "	0 5 2
Fish	1,723 cases	2d. " case	14 7 2
Floorcloth and Oilcloth	41 packages	1s. 0d. " package	2 1 0
Flour	12,744½ tons	1s. 8d. " ton	1,062 0 10
Fruits (bottled)	279 cases	2d. " case	2 6 6
Fruits (dried)	2,995 packages	2d. " package	24 19 2
Fruits (green)	830 "	1d. " "	3 9 2
Furniture	286 "	9d. " "	10 14 6
Gas-fittings	575 "	6d. " "	14 7 6
Ginger	69 cases	2d. " case	0 11 6
Glass (looking)	2 packages	1s. 0d. " package	0 2 0
Glass (window)	1,154 cases	2d. " case	9 12 4
Glass (plate)	148 "	1s. 0d. " case	7 8 0
Glassware	76 packages	1s. 0d. " package	3 16 0
Jewellery	3 cases	6d. " case	0 1 6
Lampware	4 packages	6d. " package	0 2 0
Lead	71 tons	1s. 8d. " ton	5 18 4
Leather	3 packages	9d. " package	0 2 3
Boots and Shoes	11 "	3d. " "	0 2 9
Lime-juice	10 "	2d. " "	0 1 8
Horses	7 "	1s. 8d. each	0 11 8
Olive Oil	2 casks	3d. " "	0 0 6
Olive Oil (quarts)	9 cases	2d. " "	0 1 6
Olive Oil (pints)	8 "	2d. " "	0 1 4
Olive Oil (½-pints)	8 "	2d. " "	0 1 4
Hair-oil	35 "	2d. " "	0 5 10
Hair-oil (¾-pints)	34 "	2d. " "	0 5 8
Hair-oil (½-pints)	21 "	2d. " "	0 3 6
Other Bulk Oils	10 "	2d. per case	0 1 8
Paints	175 tons	1s. 8d. " ton	14 11 8
Putty	10 "	1s. 8d. " "	0 16 8
Paperhangings	182 bales	9d. " bale	6 16 6
Pepper and Spices	78 cases	2d. " case	0 13 0
Pickles and Sauces	5,600 "	2d. " "	46 13 4
Pictures	10 packages	9d. " package	0 7 6
Paper	38 "	9d. " "	1 8 6
Pitch, Tar, &c.	285 barrels	3d. " barrel	3 11 3
Plants and Seeds	48 packages	4d. " package	0 16 0
Potatoes	6,656 tons	1s. 8d. " ton	554 13 4
Preserves	90 cases	2d. " case	0 15 0
Bacon and Hams	54 "	4d. " "	0 18 0
Preserved Meats	292 "	2d. " "	2 8 8
Meats (Extract)	12 "	2d. " "	0 2 0
Preserved Vegetables	20 cases	2d. " "	0 3 4
Green Vegetables	74 packages	2d. " package	0 12 4
Onions	510 tons	1s. 8d. " ton	42 10 0
Rice	131 "	1s. 8d. " "	10 18 4
Saddlery and Harness	136 packages	9d. " package	5 2 0
Sago	5 cases	2d. " case	0 0 10
Salt	3,186 tons 10 cwt. 2 lb	1s. 8d. " ton	265 10 10
Saltpetre	11 tons	1s. 8d. " "	0 18 4
Epsom Salts	65 cases	6d. " case	1 12 6
Fruit-salt	30 "	6d. " "	0 15 0
Sarsaparilla	25 "	6d. " "	0 12 6
Ship-chandlery	11 packages	6d. " package	0 5 6
Shooks and Staves	22 "	6d. " "	0 11 0
Silverplate-ware	13 "	6d. " "	0 6 6
Slates	65,757 "	1s. 8d. " 500	11 0 0
Soaps (fancy)	56 cases	2d. " case	0 8 4
Other Soaps	238 "	2d. " "	1 19 8
Lode Crystals	331 tons 2 cwt. 26 lb	1s. 8d. " ton	27 11 8
Brandy	286 hogsheads	6d. " hogshead	7 3 0
Geneva	7,343 cases	½d. " case	15 5 11
Gin	897 "	½d. " "	1 17 5
Methylated Spirits	82 "	½d. " "	0 3 5
Perfumed Spirits	22 "	6d. " "	0 11 0
Rum	210 hogsheads	6d. " hogshead	5 5 0
Whisky	5,429 cases	2d. " case	45 4 10
All others	5 hogsheads	6d. " hogshead	0 2 6
Starch	726 cases	2d. " case	6 1 0
Paper	100 bales	9d. " bale	3 15 0
Brown Paper	11 "	9d. " "	0 8 3
Writing-paper	60 cases	9d. " case	2 5 0
Advertising matter	30 "	9d. " "	1 2 6
Books	121 packages	4d. " package	2 0 4
Sundries	65 "	2d. " "	0 10 10
Building-stone	74 tons	1s. 8d. " ton	6 3 4
Flags	500 "	1s. 8d. " "	41 13 4
Steel Rods	1,267 "	1s. 8d. " "	105 11 8
Sugar (raw)	667 "	1s. 8d. " "	55 11 8
Sugar (refined)	141 "	1s. 8d. " "	11 15 0
Sulphur	9 tons 7 cwt.	1s. 8d. " "	0 15 8
Sundries (packages)	15,323 packages	2d. " package	127 13 10
Tallow	488 tons 18 cwt.	1s. 8d. " ton	40 12 6
Tapioca and Limoline	40 cases	2d. " case	0 6 8

IMPORTS to Newcastle—continued.

		At	£ s. d.
Pigs	3	3d. each	0 0 9
Machinery	11,864 packages	6d. per package	296 12 0
Malt	8,056½ bushels	3d. " bushel	22 7 6
Marble	84 packages	9d. " package	3 3 0
Matches	992 cases	2d. " case	8 5 4
Mats and Matting	13 packages	9d. " package	0 9 9
Milk	1,916 cases	2d. " case	15 19 4
Mustard	309 "	2d. " "	2 11 6
Nails	82 tons 10 cwt.	1s. 8d. " ton	6 17 6
Nuts	86 cases	2d. " case	0 14 4
Oakum	163 bales	9d. " bale	6 2 3
Oatmeal	20 packages	3d. " package	0 5 0
Carriers' Oil	4 casks	3d. " cask	0 1 0
Castor Oil (in bulk)	460 cases	2d. " case	3 16 8
Castor Oil (in quarts)	1 case	2d. " "	0 0 2
Castor Oil (in pints)	508 cases	2d. " "	4 4 8
Castor Oil (in ½-pints)	1,152 "	2d. " "	9 12 0
Cod-liver Oil	2 "	6d. " "	0 1 0
China Oil	30 "	2d. " "	0 5 0
Salad Oil	639 "	2d. " "	5 5 0
Salad Oil (in quarts)	5 "	2d. " "	0 0 10
Salad Oil (in pints)	30 "	2d. " "	0 5 0
Salad Oil (in ½-pints)	60 "	2d. " "	0 10 0
Salad Oil (in ¼-pints)	8 "	2d. " "	0 1 4
Lucca Oil	3 "	2d. " "	0 0 6
Essential Oils	10 "	6d. " "	0 5 0
Colza Oil	20 packages	2d. " package	0 3 4
Kerosene Oil	870 cases	2d. " case	7 5 0
Linseed Oil	5,708 "	2d. " "	47 11 4
Vegetable Oil	165 "	2d. " "	1 7 6
Palm Oil	2 casks	6d. " cask	0 1 0
Tea Oil	108 cases	2d. " case	0 18 0
St. Jacob's Oil	18 "	6d. " "	0 9 0
Mineral Oil	615 "	2d. " "	5 2 6
Tea	1,163 packages	3d. " package	14 10 9
Dressed Timber	2,794 loads	1s. 8d. per load	232 16 8
Rough Timber	2,638 "	1s. 8d. " "	219 16 8
Palings	70 "	1s. 8d. " "	5 16 8
Laths	373,600	4d. " 1,000	6 4 6
Tin Plates	1,103 boxes	2d. " box	9 3 10
Tobacco	155 cwt.	2d. " cwt.	1 5 10
Fancy Toys	20 packages	9d. " package	0 15 0
Cigars	90 cwt.	2d. " cwt.	0 15 0
Turpentine	100 cases	2d. " case	0 16 8
Woodware	85 packages	9d. " package	3 3 9
Varnish	80 cases	2d. " case	0 13 4
Maccaroni	10 "	2d. " "	0 1 8
Vinegar	380 barrels	3d. " barrel	4 15 0
Wax	4 cases	2d. " case	0 0 8
Whiting and Chalk	2,135 barrels	4d. " barrel	35 11 8
Wines (still)	90 hogsheads	6d. " hogshead	2 5 0
Wines (sparkling)	323 cases	2d. " case	2 13 10
Woolpacks	3 bales	1s. 0d. " bale	3 0 0
Wheels and Axles	644 packages	6d. " package	16 2 0
Yellow Metal	7 tons (sheets)	1s. 8d. " ton	0 11 8
Nails	1 ton 8 cwt.	1s. 8d. " "	0 2 4
Zinc	2 tons	1s. 8d. " "	0 3 4
			£5,758 13 8

EXPORTS from Newcastle in 1886.

		At	£ s. d.
Bonedust	475 tons	10d. per ton	19 15 10
Bark	68 "	10d. " "	3 5 0
Bricks, Building	16,000 "	10d. " 500	1 6 8
Carriage Material	11,433 packages	1d. " package	47 13 2
Copper	333 tons	10d. " ton	13 17 6
Coke	2,198 "	10d. " "	91 11 8
Green Fruit	233 packages	1d. " package	0 19 5
Flour	20 tons	10d. " ton	0 16 8
Hardware	9 packages	2d. " package	0 1 6
Hardwood	41,975 pieces	10d. " per 600 feet	2 18 4
Hay and Chaff	157 tons	10d. " ton	6 10 10
Leather	32 bales	4d. " bale	0 10 8
Horses	14	10d. each	0 11 8
Cattle	38	10d. " "	1 11 8
Sheep	1,612	1½d. " "	10 1 6
Lime	8 tons	10d. per ton	0 6 8
Machinery	100 packages	3d. " package	1 5 0
Mohair	2 bales	4d. " bale	0 0 8
Maize	1,350 bushels	½d. " bushel	1 17 6
Oats	849 "	½d. " "	1 3 6
Oysters	11 bags	1d. " bag	0 0 11
Olieum	32 tons 10 cwt. 1 qr. 19 lb.	10d. " ton	1 7 1
Potatoes	10 tons	10d. " "	0 8 4
Sundries	1,433 packages	1d. " package	5 19 7
Skins	35 bales	10d. " bale	1 9 2
Soap	5 tons	10d. " ton	0 4 2
Shooks and Staves	150 packages	1d. " package	0 12 6
Timber	459,296 feet	10d. " 600 feet	34 7 11
Tin	3 tons	10d. " ton	0 2 6
Tallow	570 "	10d. " "	23 15 0
Wine	11 hogsheads	3d. " hogshead	0 2 9
Wool	60,000 bales	4d. " bale	1,000 0 0
			£1,274 15 4

B.

[To Evidence of C. A. Goodchap, Esq.]

Sir,

Department of Railways, Sydney, 10 September, 1888.

When giving evidence on the 4th instant, before the Parliamentary Committee on Public Works, with reference to the proposed basin at Bullock Island, Newcastle, I contented myself with answering the questions which were put to me, and although I have a very strong opinion as to the indirect benefits which are likely to accrue from the adoption of that scheme, it did not occur to me to volunteer any statement on that head. But I am not satisfied that I should be discharging my duty if I refrained from directing the attention of the Committee to these advantages which might otherwise be entirely overlooked.

I beg, therefore, to place in your hands a few remarks on the subject, for such use as the Committee may consider expedient.

The basin referred to will be of immense importance in improving the shipping facilities of the port. Under existing circumstances ships (foreign going) are often delayed for want of room two or three weeks, and even more before they can get coal. This does not arise from want of cranes (which are quite equal to do all they have been called upon to do, and perhaps a little more), but to the inadequacy of the means of berthing vessels. Moreover, the existing berthing space is often not available in the case of large ships when the tides do not supply a sufficient depth of water. This disadvantage will be obviated, and the berthing facilities largely improved and extended by this basin.

But indirectly the formation of the basin can be made instrumental in the reclamation of land and the creation of much-needed water-frontage at Honeysuckle Point.

There is a large area there awash at high tide, and through it a channel has been formed. If the silt dredged from the basin were used to raise this land above the action of the tides (say) 4 feet and the channel referred to deepened some 10 feet, there would be available for sale a considerable area of land with water-frontage, the proceeds of which would probably recoup all the outlay required to carry out the entire scheme. The Government would thus have secured two important public requirements with the ultimate outlay of very little money, if indeed the balance did not prove (if a Dr. and Cr. account were kept) to be on the Cr. side of the account.

I have, &c.,

CHAS. A. GOODCHAP,
Commissioner for Railways.

The Chairman, Parliamentary Standing Committee on Public Works.

C.

[To Evidence of Mr. John Dixon.]

Sir,

Custom House, Newcastle, 4 September, 1888.

In compliance with the request of Mr. Dixon, Inspector of Collieries, I beg to enclose herewith a return showing the export of coal from Newcastle to foreign and intercolonial ports during the period from 1st January to 31st August, 1888.

I have, &c.,

WILLIAM R. LOGAN,
Sub-Collector of Customs.

Harrie Wood, Esq., Under Secretary for Mines, Sydney.

MEMO. showing the Export of Coal from Newcastle to Foreign and Intercolonial Ports from 1st January to 31st August, 1888.

Where Exported to.	Tons.	Where Exported to.	Tons.
Victoria	531,753	India	27,480
New Zealand	111,752	Phillipine Islands	27,546
South Australia	60,450	Peru	9,186
Queensland	3,496	Sandwich Islands	15,676
Tasmania	28,595	Chili	72,063
Western Australia	8,285	South America	8,819
Fiji	5,959	New Hebrides	894
Hong Kong	35,288	South Sea Islands	1,436
Java	28,373	Africa	400
New Caledonia	6,238	Ceylon	1,685
Singapore	17,879		
Mauritius	6,731	Total	1,273,426
United States	263,442		

WILLIAM R. LOGAN,
Sub-Collector of Customs.

Custom House, Newcastle, 4 September, 1888.

D.

[To Evidence of T. W. E. David, Esq.]

Sir,

As requested by your secretary yesterday, I beg to supplement the evidence given by me, before your Committee, with regard to the probable duration of coal in the Newcastle District, as follows:—

(a) In my evidence I divided the productive coal-measures into three groups—

1. Upper, or Newcastle measures.
2. Middle, or East Maitland measures.
3. Lower, or Greta measures.

A fourth group of coal-measures exists below the Greta, in a formation known as the Lepidodendron series, typically developed at Stroud, the Karua River, and near Port Stephens, &c.; but as no coal has as yet been profitably worked from this formation it has been left out of consideration in making the calculations as to the probable yield of the coal-measures in the Newcastle District. My rough estimate of the probable yield of the East Maitland and Greta coal-measures, within the prescribed area (viz., north and south from Lake Macquarie Heads to Fullerton Cove, and east and west from 1½ miles east of the South Pacific coast to Branxton), has already been given, namely, about 20,000 tons daily for 100 years for the East Maitland coal-measures, and 40,000 tons daily for 200 years for the Greta coal-measures. I have, since giving my evidence, checked the above approximate estimate, and consider it tolerably correct. As regards the probable yield of the Newcastle coal-measures, my calculations show that the unworked areas of the Borehole, Burwood, and Great Northern (Donaldson's) seams would furnish in the aggregate an output of at least 2,000,000 (two million) tons annually for 200 years.

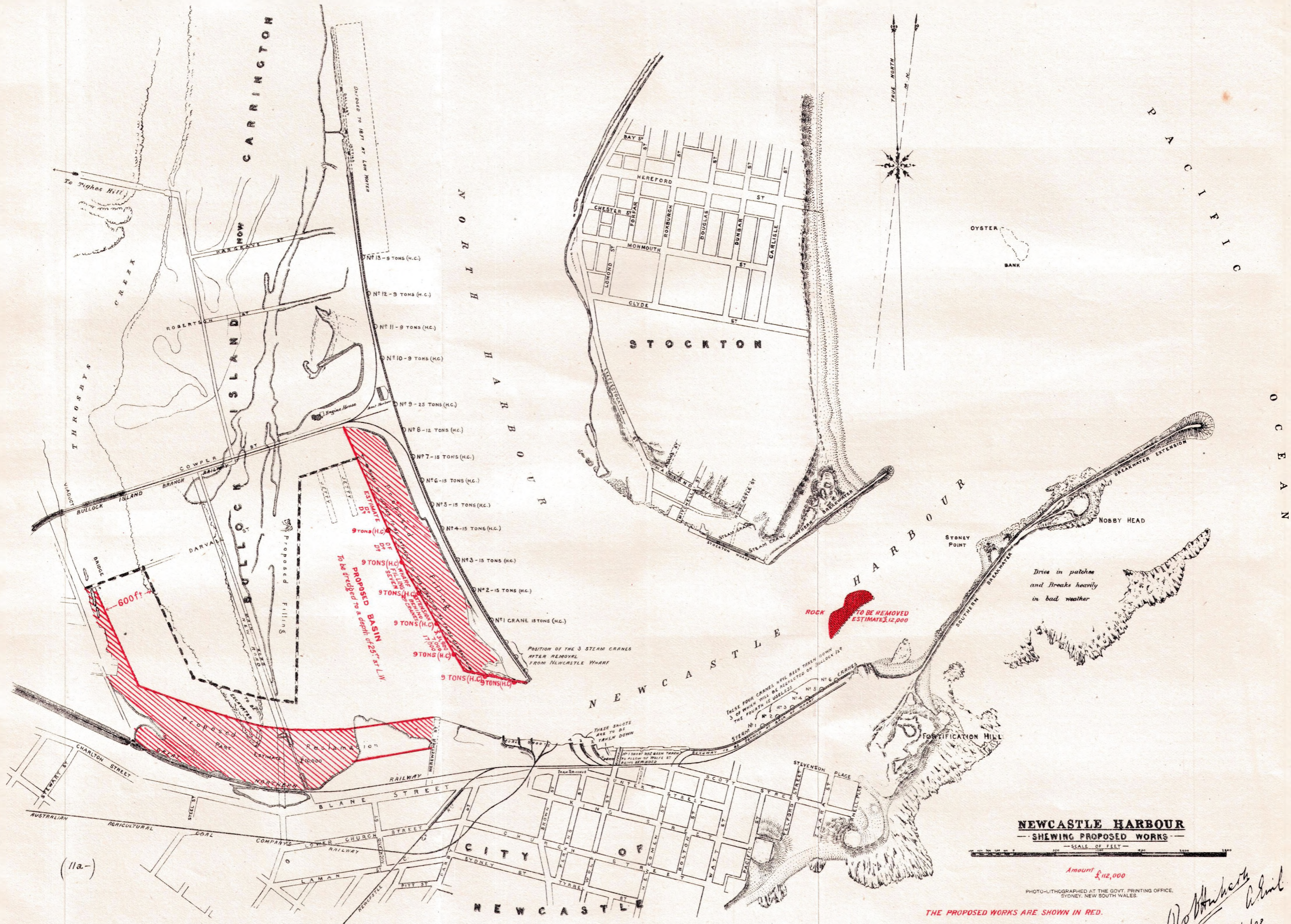
(b) As regards the northerly extension of the northern coal-field, I omitted to mention, when giving evidence, that this field does not cease at Singleton and Rix's Creek, but continues on, with slight breaks, first in a north-west, then in a north-north-east, direction to the Queensland border. Within this area I have seen a 7-ft. seam of workable coal at Piercefield, near Muswellbrook; two workable seams of 7 feet each near Gunnedah; and a 30-ft. seam, of which at least 7 feet was workable, at Ashford, near Inverell.

I have, &c.,

T. W. EDGEWORTH DAVID, B.A., F.G.S.,
Government Geological Surveyor,
Department of Mines, 25/9/88.

The Honorable the Chairman, Parliamentary Standing Committee on Public Works.

[One Plan.]



(11a-)

Robt. H. Smith
29/9/22

1888.

LEGISLATIVE ASSEMBLY.
NEW SOUTH WALES.

NEWCASTLE HARBOUR IMPROVEMENTS BILL.

(MESSAGE No. 4.)

Ordered by the Legislative Assembly to be printed, 6 December, 1888.

CARRINGTON,

Governor.

Message No. 4.

In accordance with the provisions contained in the 54th section of the Constitution Act, the Governor recommends, for the consideration of the Legislative Assembly, the expediency of making provision to meet the requisite expenses in connection with a Bill to sanction the carrying out of certain harbour improvements at Newcastle, in the county of Northumberland.

Government House,

Sydney, 29th November, 1888.

1888.

NEW SOUTH WALES.

PARLIAMENTARY STANDING COMMITTEE ON
PUBLIC WORKS.

REPORT

TOGETHER WITH

MINUTES OF EVIDENCE

AND

APPENDIX

ON

IMPROVEMENTS TO CIRCULAR QUAY.

Presented to Parliament in accordance with the provisions of the Public Works Act,
51 Vic. No. 37, section 8.

SYDNEY: CHARLES POTTER, GOVERNMENT PRINTER.

NAMES OF THE MEMBERS OF THE COMMITTEE.

LEGISLATIVE COUNCIL.

The Honorable JOHN LACKEY, Chairman.
 The Honorable GEORGE CAMPBELL.
 The Honorable WILLIAM HENRY SUTTOR.
 The Honorable JAMES WATSON.
 The Honorable FREDERICK THOMAS HUMPHERY.

LEGISLATIVE ASSEMBLY.

JOSEPH PALMER ABBOTT, Esquire, Vice-Chairman.
 JAMES NIXON BRUNKER, Esquire.
 HENRY COPELAND, Esquire.
 ALEXANDER KETHEL, Esquire.
 JOHN RENDELL STREET, Esquire.
 THOMAS MICHAEL SLATTERY, Esquire.
 JACOB GARRARD, Esquire.
 SYDNEY SMITH, Esquire.

[James Nixon Brunker, Esquire, by reason of his accepting the office of Minister for Lands, did not take his seat as a member of the Committee.]

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APPENDIX.

To evidence of Alfred Lamb, Esq.	A
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„ James Powell, Esq.	C
Plan, showing the Proposed Improvements to the Circular Quay, as they were submitted to the Committee, and also the alteration in the Messageries Maritimes Company's Wharf, referred to in the resolution agreed to by the Committee.	

In the course of their inquiry concerning these proposed improvements, the Committee examined a large number of witnesses, including merchants well acquainted with the shipping trade of Sydney, and owners or representatives of the owners of private wharves, their desire being to elicit full information, and have the subject of the wharfage accommodation of Sydney Harbour, and the necessity or otherwise of improving the Circular Quay as proposed, placed before them in all the aspects from which it may be viewed.

Necessarily, as is always the case, where matters are regarded from different points of view, the evidence will be found to some extent conflicting, but a careful examination of it will show that it is very much in favour of the improvements, and that even the testimony of those who came before the Committee hostile to the proposals is certainly not so unfavourable as to induce the belief that what is proposed to be done should not be carried out.

The strongest evidence given in opposition to the improvements came from three witnesses, two of whom have had a long experience in relation to wharfage matters in Sydney, and are still in positions which entitle them to speak with some authority on the subject. They are Mr. Alfred Lamb, a private wharfowner and a member of the Private Wharfowners' Association, and Mr. James Powell, Collector of Customs. The third witness directly opposed to the improvements is Mr. E. C. Batt, the representative of a company who are expending a large sum of money in providing extensive wharfage accommodation at the site of the old A.S.N. Co.'s Works, Pyrmont. Yet each of these three gentlemen, or at least the two former, notwithstanding that they expressed themselves generally as opposed to the Government expending money to increase the wharfage accommodation of the port, will be found to have admitted the necessity of providing for the objects which it is principally intended by the proposed improvements to secure. The first of the improvements is the transference of the vessels and men of the Marine Board, and the boats and men of the Custom House, from the eastern to the western side of the Quay. No objection is raised by these witnesses to that. The second of the improvements is the construction of two new berths for sailing vessels on the western side of the Quay, in place of the old wooden wharf at present there, used partly by the P. & O. Co., and partly by the Port Jackson S.S. Co. This is objected to by the three witnesses referred to on the general ground that it unnecessarily increases the wharfage accommodation of the port, and, further, that it is likely to assist in bringing about a return to the system of injurious competition among wharfowners in which the prominent feature was a reckless practice of giving rebates. Mr. Lamb, however, when questioned (*Question 365*) as to the advisableness of doing something to restore the wharf on the western side of the Quay, it being now in a condition of very much decay, admits that any expenditure to make the wharves more substantial in their present shape would be judicious. Furthermore, he says, (*Question 389*) that if the wharves on the western side were set apart for vessels with general merchandise—which it is the intention to do—they would probably be rather sought after by agents; and (*Questions 396–399*) that the Circular Quay being Government property, and a considerable quantity of material being imported by the Government in sailing vessels, it is desirable to have berths for sailing vessels on the western side. Mr. Powell is opposed to the new berths on the western side, but he, too, agrees (*Questions 979–980*) that, if the present wharf is in a dilapidated condition and should be renewed, the renewal of the wharf ought to be carried out, and, further, if it be necessary to renew the wharf an improvement in its present style should be adopted. The evidence of Mr. Batt is less important than that of Mr. Lamb or Mr. Powell by reason of the fact, as he himself states, that he has had nothing to do with commerce relating to shipping, except as an auctioneer having to do with wharf property and its sale; but he, also, though appearing before the Committee to protest, on behalf of his Company, against the Government spending money in improving their wharf properties, has nothing direct to urge against the proposed new berths for sailing vessels. Questioned as to whether he could point out on the plan before the Committee any portion of the proposed improvements which he thought should not be constructed, he answered (*Question 1062*), "I do not think so, for the reason that I have been more concerned with the general idea than trying to dissect the plans proposed by the Government." And, again, when asked (*Question 1064*) what portion of the proposed expenditure should not be incurred, he said he had not sufficiently studied the plan to answer the question,

The

The third of the proposed improvements is the alteration in the arrangements for the ferry traffic, and there is no objection on the part of these witnesses to that. Neither does there in reality appear to be—except, perhaps, by Mr. Batt, who, however, as already pointed out, merely objects generally to any Government wharfage improvement—to the fourth of the proposals, and one of the most prominent of the series, on the eastern side of the Quay: the additional accommodation for the mail steamers. “No doubt,” says Mr. Lamb, in answer to a question (*Question 364*), “an expenditure for such a purpose as the wharf for the P. & O. Co. is quite justifiable, because an income is assured before the work is constructed; the P. & O. Co. and the Orient Co. require special accommodation.” And Mr. Powell gives evidence to the same effect. “Any extensions of a remunerative character,” he remarks in a long statement he made to the Committee (*pages 34–35*), “required by the Government tenants at the Circular Quay should be favourably entertained; the full wharfage is paid by the importers of goods landed on the leased sections, and the question of rebate cannot enter.” Moreover, in his reply to a question (*Question 973*), he says, “The lengthening of the wharves for the lessees is, no doubt, a necessary work”; and (*Question 978*), when asked what portion of the whole of the improvements should not be carried out, he answers, “The portion on the west side” (which in his reply to *Questions 979–980*, already referred to, he admitted should be made). * * * * “All the other improvements, I think, should be carried out.” From this it will be seen that even the witnesses who, in a general sense, appeared antagonistic to the proposed improvements, are found, when their evidence is sifted, if not actually to concur in the proposals, to at least admit that they are of a character which it would not be unwise to adopt.

The form in which the Committee conducted their inquiry relative to these proposed works may be stated as follows:—

- (1.) The nature of the proposed improvements.
- (2.) The purposes for which the improvements are intended.
- (3.) Evidence in justification of the improvements—
 - (a) As to present accommodation for shipping at the Circular Quay.
 - (b) As to the present condition and the probable growth of the shipping trade.
 - (c) As to the condition of the harbour ferry traffic.
 - (d) As to the amount of revenue derived from the present accommodation, and the amount expected to be obtained from the improvements.
- (4.) Evidence against the improvements—
 - (a) As to the wharfage accommodation generally in Sydney Harbour, and whether it is sufficient for present and future requirements.
 - (b) As to whether the improvements would be carried out if the Circular Quay were owned by, or in the hands of, private persons.

The nature of the proposed improvements has already been stated.

The purposes for which the improvements are intended have to some extent also been referred to, but they require some further explanation in order that they may be clearly understood. The removal of the vessels and men of the Marine Board, and of the boats and men of the Custom House, from the eastern to the western side of the Quay, is necessary in consequence of the proposal to build the new wharf on the eastern side for the accommodation of the steamers of the P. & O. Co. The new boat sheds and slips will be constructed on the property recently purchased by the Government. The two new berths on the western side of the Quay are intended for the use of sailing vessels, the accommodation for those vessels at the Circular Quay at the present time being, it is alleged, insufficient, and the berths are also proposed as an improvement on the present old wharf, which is declared to be in such a worn-out condition that it must either be renewed or abandoned. The change in the arrangements for the accommodation of the ferry traffic is intended chiefly to lessen the danger which now exists through the necessity for the ferry steamers to cross each other in their trips to and from the Quay. The new wharf on the eastern side of the Quay, for the accommodation of the P. & O. Co., is to afford increased wharfage space to that company, in accordance with an understanding between the Government and the company, by which they are occupying their present wharf, which is regarded as a temporary one, until a permanent wharf for their use is built; and the lengthening of the Orient Co.’s wharf to the extent of

50 feet is for the purpose of making the length of that wharf more in accordance than it is at present with the length of the company's steamers. Part of the new wharf, which is to be built for the P. & O. Co., was intended for the use of the Messageries Maritimes Co., their present accommodation being somewhat interfered with by the proposed extension for the benefit of the Orient Co., but this arrangement is shown by evidence to be less desirable than an alteration in the plan relating to the improvements on the eastern side of the Quay, by which the wharf of the Messageries Maritimes Co. will be widened, and the accommodation made sufficient for their steamers.

Referring now to the evidence in justification of the proposed improvements, it will be found that the general body of the witnesses are emphatically of opinion that they should be carried out. First, as to the accommodation at present available for shipping at the Circular Quay. Captain Hixson, President of the Marine Board, thinks the proposed works necessary (*Question 56*), as "we certainly require more accommodation for shipping than we have at the present time, for large steamers especially"; and he considers (*Question 60*), that by these proposals the Circular Quay will be utilized to its fullest extent; and (*Question 65*), that "£120,000 is not an exorbitant amount of money for so great a scheme." Captain Pettit, Harbour-Master, regards the works as a great improvement on the present state of things, and he does not think that space could be economized better than by this plan. Captain Jackson, Manager of the Public Wharves, states that complaints are made at the present time of the want of accommodation, and that it is considered by shipping people that the works proposed will meet their requirements at the Circular Quay, to which they are always inclined to give a preference over other wharves. Mr. Angus Moir, Clerk of Works at the Circular Quay, thinks (*Question 217*) the works are very essential, and points out that the old wharf—meaning the wharf on the western side of the Quay—is completely gone underneath. Captain Thomas Summerbell, traffic manager of the North Shore Steam Ferry Co., says (*Questions 268-269*) he has very often been impressed with the necessity for increased accommodation for ocean-going steamers, and he thinks the proposed improvements will answer everything that is wanted. Mr. G. S. Yuill, manager of the Orient S.S. Co., complains that the wharf at present used by the steamers of his company is too short, and prejudicial to the proper working of the steamers. Furthermore, he states that the wharf occupied by this company is the only one in Sydney Harbour where the Orient steamers can lie with safety, and that there is no private wharf that affords such accommodation. Mr. James Weir, agent for the P. & O. Co., thinks the intended improvements necessary for the general accommodation of the port, and says that what is proposed to be done for the P. & O. Co.'s vessels is absolutely necessary to enable the company to carry on their increasing trade. Mr. Thomas Littlejohn, the Hon. S. A. Joseph, M.L.C., and Mr. R. G. Vallack, each engaged in extensive mercantile business in Sydney, and having much to do with shipping, also favour the proposals. The first-named thinks the improvements are exceedingly desirable. Mr. Joseph, who is President of the Sydney Chamber of Commerce, is of a similar opinion, and states (*Question 598*) that he has always preferred sending his ships to the Circular Quay, and (*Question 600*) that the same preference is shown by the captains of ships coming to Sydney. "We have a difficulty," he says, in answer to another question (*Question 613*), "in obtaining berths at the Circular Quay, where we require them very often." Mr. Vallack, who a few years ago was a prominent member of an association formed in Sydney to bring about a general improvement in the wharfage accommodation of the port, considers the Government will be perfectly justified in incurring this expenditure, as the money will be well spent.

The present condition of the shipping trade of Sydney is shown by the evidence to be of a satisfactorily progressive character, and its growth to very much larger dimensions than are now apparent is undoubtedly assured. All the witnesses examined agree upon this point, and it will be found from the evidence given by the representatives of the large steamship companies, whose vessels are berthed at the Circular Quay, that in the building of new steamers there is a tendency to increase their length and their tonnage very considerably.

As to the present condition of the harbour ferry traffic, and the proposed alterations in regard to the accommodation for the ferry steamers, it is perhaps sufficient

sufficient to say that the representatives of the North Shore Steam Ferry Co. and the Watson's Bay Co. are favourable to the changes, and that the Port Jackson Steam Ferry Co. are apparently not unfavourable, as, though no witness on their behalf was examined the manager of the company was invited to attend before the Committee and give evidence on the subject. The opinion of persons unconnected with the ferry companies, and who may be considered to represent the public, will be found in the evidence of the other witnesses who appeared before the Committee, and that opinion supports what it is proposed to do.

The question of revenue is dealt with chiefly in the evidence of Captain Jackson, who, as an officer of the Treasury, has much to do with its collection. The proposed works, he says (*Question 164*), will bring in a large revenue. The revenue from the Circular Quay last year, excluding the A.S.N. Co.'s wharf, was £24,000; this year, including the A.S.N. Co.'s wharf, it will be £42,000. Each of the proposed new berths will produce a revenue of £2,510 14s. 3d., that being the average of each berth at the Quay. The large steamship companies who lease wharves at the Quay pay each an annual rent of £2,500, and, in addition to this, wharfage rates on all goods landed and shipped are collected, which increases the sum received annually to between £5,000 and £6,000. The steam ferry companies also pay annual rentals. At the same time the expense of managing the Circular Quay is apparently very small, the amount for last year, including all wages, being £1,691. Mr. Alfred Lamb endeavours in his evidence to point out that the revenue derived from the Circular Quay may be seriously affected whenever there is a return by private wharfowners to a system of giving rebates; but the fact that the private wharfowners have entered into an arrangement with the Government not to give rebates shows at least that there will be no return to a rebate system if it can be avoided, and Mr. Lamb admits (*Question 422*) that the berths at the Quay, leased to the large steamship companies, "yield very handsomely to the Government," and with regard to leased berths the question of rebates has nothing to do. The character of Mr. Powell's evidence on this point is much to the same effect. It will also be found from the evidence given by Captain Jackson (*Questions 531-533*) that when the rebate system was at its height the Circular Quay was in advance of the private wharves, for, while private wharfowners were giving from 50 to 75 per cent., the Circular Quay could maintain its position by giving only 25 per cent.; and this circumstance appears to have induced the private wharfowners to wait upon the Colonial Treasurer and get him to cease giving rebates, on condition that they also abandoned the practice. There does not appear in the evidence anything to prove that the Government would not be similarly successful in any future competition of this kind.

The evidence against the proposed improvements came principally from witnesses whose names and statements have been referred to in what has already been said; but in dealing with the subdivisions of this portion of the plan followed by the Committee in their inquiry, there are one or two points worthy of notice, and to which attention has not yet been drawn. The evidence elicited with reference to the wharfage accommodation generally, in Sydney Harbour, disclosed the fact that though there are a large number of private wharves, some of them considerably improved, the Circular Quay is the most liked, more particularly because of the ease with which goods can be conveyed to or from the wharves. But the position of the private wharves is best shown in the evidence of Mr. E. C. Batt, who, it will be remembered, appeared before the Committee as the representative of a company providing extensive wharfage accommodation at Pyrmont. Questioned as to whether he was aware before his company commenced their enterprise that there was more wharfage accommodation in the harbour than was required, he said (*Question 1071*)—"I visited all the private wharves, and judged for myself of their facilities; I found they were so many years behind the time that I would not have the slightest hesitation, if there were three times as much accommodation as at present, in going on with our proposed plan I think they are bound to go to the wall in any case. I do not wonder at people going to the Circular Quay with their ships instead of to private wharves." Mr. R. G. Vallack is unquestionably of opinion that the present wharfage accommodation here is behind the wharfage accommodation of other parts of the world.

As to whether the proposed improvements would be carried out if the Circular Quay were owned by or in the hands of private persons, the evidence of most of the unofficial witnesses goes to show that they would. Mr. Littlejohn states (*Question 572*) he is sure that if this property belonged to private individuals it would have been improved to the extent proposed long ago. Mr. S. A. Joseph is of a similar opinion; he has very little doubt (*Question 588*) that the improvements would have been made years ago. Mr. R. G. Vallack mentions (*Question 682*) that not long since a syndicate of capitalists were prepared, if they could obtain certain powers from the Government, to carry out a general system of improved wharfage accommodation for Sydney, and were ready to deposit £100,000 or £150,000 as a guarantee for the completion of the work. He says also (*Question 691*) that if the project of improving the Circular Quay were put before the public as a matter to be taken up by them in shares, the shares would be appropriated in a few days, as "the possibility of the requirements of the port, and the natural accommodation and facilities afforded by Sydney Cove, are simply incalculable." Generally, too, it is admitted that the Government being the owners of the Circular Quay, and the property being the most advantageously situated for wharfage purposes, it is their duty to improve it and make the most they can of it.

The amendment in the plan representing the improvements laid before the Committee, intended to give the necessary accommodation to the steamers of the Messageries Maritimes Co., is based chiefly upon statements made by M. Conil, principal agent of the company. His evidence is to the effect that the company are building four or five new steamers for the trade with Sydney, and that, as each of these steamers will be 500 feet long, it will be necessary to have the berthing accommodation at present used by the company's steamers extended. The plan of the proposed improvements at the Quay provided for extended accommodation at the Messageries berth, but the proposed extension, instead of being any advantage, would, according to M. Conil, be positively dangerous to the safety of the vessels, as it would not be possible for the steamers to lie for anything like their whole length close alongside the wharf. It was to do away with this difficulty that the Committee decided to recommend such an alteration in the plan of the improvements as would give the Messageries Co. the accommodation they require. The additional cost is comparatively trifling, and the company are prepared to pay an increased rental.

The Committee have agreed to the following resolution which on Thursday, 4th October, was moved by Mr. Garrard and seconded by Mr. Suttor:—

"That the Committee consider it expedient the proposed improvements to the Circular Quay be carried out, but recommend the alteration of the design of the wharf for the Messageries Maritimes Co., on the eastern side, at a cost not exceeding £5,000, as shown on the amended plan."

JOHN LACKEY,

Chairman.

Office of the Parliamentary Standing Committee on Public Works,
22nd October, 1888.

PARLIAMENTARY STANDING COMMITTEE ON PUBLIC WORKS.

MINUTES OF EVIDENCE.

IMPROVEMENTS TO THE CIRCULAR QUAY.

TUESDAY, 4 SEPTEMBER, 1888.

Present:—

The Honorable JOHN LACKEY (CHAIRMAN).

The Hon. WILLIAM HENRY SUTTOR.

The Hon. JAMES WATSON.

The Hon. FREDERICK THOMAS HUMPHERY.

SYDNEY SMITH, Esq.

ALEXANDER KETHEL, Esq.

JOHN RENDELL STREET, Esq.

JACOB GARRARD, Esq.

The Committee proceeded to consider the proposed Improvements to the Circular Quay.

Joseph Barling, Esq., Under Secretary for Public Works, sworn and examined:—

1. *Chairman.*] Your name is Joseph Barling? Yes.
2. And you are Under Secretary for Works? Yes.
3. You have come to give us some evidence with regard to the proposed improvements to the Circular Quay? Yes.
4. What do those improvements consist of? The plan produced embraces the whole of the improvements intended to be executed under the vote taken for the Circular Quay. These improvements consist, on the western side, of arrangements for accommodating the vessels and men belonging to the Marine Board, and the boats and men belonging to the Custom House, required by reason of the necessity for the removal of the present boat-sheds on the eastern side, to make room for other works which will be described further on. These will be constructed on the land lately purchased by the Crown. It is further proposed to remove the old wooden wharf on the western side, and to construct in place thereof a roadway, to be paved with wood blocks on concrete. In front of this will be two new berths, constructed of timber, each 450 feet in length, alongside of which will be a depth of water of 27 feet at low-water spring tides. On the southern side of the quay it is proposed to construct a new jetty for the Watson's Bay and other boats, 130 feet in length and 50 feet in width, and one for the Port Jackson S.S. Company, also 130 feet in length and 50 feet in width. These two new jetties will be fronting the Circular Quay, between Elizabeth-street and Phillip-street. The present floating jetty at Phillip-street is to be removed about 75 feet to the east. On the eastern side of the quay a new wharf is being constructed 624 feet in length, and also a new dock for the horse-ferry to North Shore, at the back of which wharf will be formed, and covered with wooden blocks, a road extending from the back of the Messageries Company's Wharf to the extreme of Macquarie Point. The present Orient Company's Wharf being insufficient for the large class of vessels using it, it is proposed to lengthen it 50 feet. Mr. Tillett, Assistant Engineer, on behalf of the Acting Engineer-in-Chief for Harbours and Rivers, who is absent from Sydney to-day, will be prepared to give a detailed description of the scheme which I have briefly sketched out. Captain Hixson, President of the Marine Board, and the Harbour Master are in attendance, and will give evidence as to the necessity for the proposed improvements. Captain Jackson will follow on the same lines, and will also be prepared to give information to the Committee on the financial aspect of the question. Mr. Moir, the Clerk of Works, under the Assistant Engineer-in-charge of the Circular Quay improvements, who is also absent from town, will be in attendance to give evidence as to the dilapidated state of the western side of the quay. That is a brief outline of what we propose, and of the evidence we propose to bring before the Committee.
5. The gross sum for the carrying out of this work is £120,000? £120,000.
6. *Mr. Garrard.*] What is the present contract for the work at the P. & O. Company's Wharf? That I have left to the Engineer to deal with.
7. *Mr. Humphery.*] Have you not already let a contract for a portion of this work? Yes, we have, for wharf extension; but that was let before the Public Works Committee came into existence, the work was so urgent.
8. Do you know the amount of the contract? I think it comes to £13,000; but you will have that answer from the Engineer.
9. *Mr. Suttor.*] Is that a part of the £120,000? Yes.
10. *Mr. Garrard.*] You say that contract was let before the Public Works Committee came into existence? Yes.
11. But since the Public Works Act came into existence? I think not; but I will produce evidence on that point. I will produce the bond and see. The date of the bond was the 17th of May, 1888, and the Public Works Act was assented to on the 5th June.

J. Barling,
Esq.

4 Sept., 1888.

George Alfred Tillett, Esq., Assistant Engineer for Harbours and Rivers, sworn and examined:—

- G. A. Tillett, Esq.
4 Sept., 1888.
12. *Chairman.*] Have you the plans of the proposed Circular Quay improvements? The only plan is that which is exhibited before the Committee. That is the only plan prepared with reference to the new works.
13. Have any plans been prepared with reference to the works now being carried out? The working plans have been prepared for the most northern improvement on the eastern side of the Circular Quay.
14. And the work is being carried out under those plans? Yes.
15. You have not the detailed plans of the work to be carried out altogether under this expenditure? No; some of the plans are in progress.
16. Can you describe to the Committee the nature of the work by that plan which you exhibit to us? On the western side of the quay arrangements are proposed for the accommodation of the Marine Board. Their vessels, seven in number, will be accommodated at the jetties or under the shed represented on this plan, and their ordinary pulling-boats also.
17. *Mr. Garrard.*] Is the slip to be worked by steam-power? By steam-power. There will be a retaining wall in the direction indicated on the plan formed of concrete, and extended to what is now the Mercantile rowing-shed. Then there will be some small establishments for the accommodation of the Custom-house men and their boats. The whole of these improvements are to be erected on the land lately purchased by the Crown. There is an addition to one of the old A.S.N. Co.'s jetties marked upon the plan, but it is not intended to be carried out now, and is not included in the £120,000. Then we propose to remove the whole of the old timber wharf, as shown on the plan, and replace it by a roadway consisting of iron piers and girders carrying buckle-plates; on the buckle-plates concrete will be spread, and on the concrete wooden blocks. The wharf will be constructed of timber, and will give two berths each 450 feet in length, and there will be 27 feet of water there at low tide. By the erection of these two berths the wharf now used by the Manly Beach steamers will be destroyed, and in place of it the Manly Beach steamers will be provided with a jetty at the south extreme of the Circular Quay, and the Watson's Bay boats in another position. The present floating jetty will be moved 75 feet. There is a lengthening of the Orient Company's wharf shown on this plan, but it is not included in the present vote. The Messageries Company's wharf will also be extended. The present site of the horse-ferry to North Shore will be destroyed by the new wharf, and the new wharf and the new horse-ferry will be at the extreme north point on the eastern side of the quay.
18. *Chairman.*] That embraces the whole of the works? With the filling in of the roadway and the wooden blocking right up to the point—that embraces the whole of the works to cost the £120,000.
19. *Mr. Kethel.*] Does that wooden blocking form part of the contract now proceeding, or is it included in the vote we are now considering? Part of the vote.
20. *Mr. Garrard.*] What is the estimate of cost of the addition to the Orient Company's wharf and the A.S.N. Co.'s pier, which you say is not included in this vote? The Orient Company's wharf, £1,200; and the estimated cost of the extension to one of the A.S.N. Co.'s jetties is £1,500.
21. You are not providing any facilities at either of these big berths for the unloading of locomotive boilers, or any other goods of that kind? No, nothing in the shape of cranes.
22. Has the attention of the Department been drawn to the necessity for such a thing? Not up to the present.
23. The new wharves on the western side are, I presume, for sailing vessels? For sailing vessels.
24. They usually bring these heavy goods? Yes; but no provision has been made for that.
25. What is your opinion with regard to this—do you think it is desirable, or a necessity, that there should be facilities for the unloading of these heavy goods? It may be desirable, but it is not a necessity.
26. Have you ever witnessed the unloading from vessels of large packages, such as locomotive boilers? I have.
27. Did it not afflict your righteous soul, as a technical man, to see it? It seemed a very tedious process; but there seemed to be no absolute necessity for cranes. In addition to what I have already explained, it is intended to erect three more iron sheds exactly of the same character as those which are on the eastern side of the Circular Quay. It is proposed to erect two on the western side and one on the eastern side.
28. Is your estimate of the cost based on the contract already let for the P. & O. Co.'s work? The estimate was made before that contract was let. It is based on the cost of the Messageries and Orient Companies' wharves and from the Orient Company's wharf south.
29. Which you consider to be proper estimates on which to base the present? Yes.
30. *Mr. Suttor.*] Are the new sheds included in the estimate of £120,000? Yes; the cost of the three sheds already erected has been £3,500 each shed.
31. *Mr. Garrard.*] Can you produce the drawings and specifications of the P. & O. Company's wharf now in course of erection? I can.
32. *Chairman.*] Can you put them on the table for inspection? Yes.
33. *Mr. Kethel.*] What distance do you intend to encroach on the waters of the harbour on the western side beyond the present line of the wharf? 50 feet.
34. Outwards? Yes, from the line of the present wharf.
35. Is that along the whole length of the proposed wharf from the northern end? On the northern end, and gradually reducing it to 15 feet at the southern extremity.
36. These jetties intended for the accommodation of the Customs and the Marine Board launches and boats,—are they to be constructed of wooden piles? Wooden piles.
37. Sheathed with metal? Sheathed with copper.
38. Do I understand, in connection with the proposed berths, the piles are to be iron? No, wooden; but the roadway at the back will be formed of iron cylinders with iron girders and buckle-plates, concrete being placed on the top, and then wooden blocks.
39. What is the nature of the wall at the back of that, at the water-line; is there a wall there at present? I think there is, though it is not worthy of the name of a wall. It is simply ballast.
40. Has that not something to do with the nuisance arising at the Circular Quay—does not the sewage come down by way of the old Tank Stream and catch on this old wall? I think it is very probable.
41. *Mr. Street.*] Can you tell me what increase of berth accommodation this will give? The increased accommodation will be two berths each of 450 feet, and a berth of 624 feet.

42. That will be about 1,500 feet more berthing accommodation than at the present time? Not more than there is at the present time. There will be 600 feet more than at the present time, but there will be 900 feet of additional berthing arranged and made more convenient than at the present time.
43. You really only increase the berthing by 600 feet;—will it increase it more? It will really increase it more, because the old wharf is quite unsafe at present. It will have to be pulled down whether these berths are constructed or not. We have now been repairing it, although what has been done to it can hardly be said to have been repairing it. If a plank has broken away, we have patched it up. Last year it became a question whether we should not barricade it.
44. *Mr. Garrard.*] I suppose the arrangement on the eastern side allows you to avail yourself of the frontage better than now? This echelon plan will allow vessels to overlap each other.
45. *Mr. Kethel.*] I understand the iron cylinders with iron girders between and with a floor of wooden blocks will be somewhat similar to what the Railway Department has carried out on the Redfern bridge? Yes; in widening the tunnel there.
46. The work you contemplate in widening the roadway at the Circular Quay would be somewhat similar to that? Yes. In arriving at the estimates of that we got it in this way: A very similar work has been carried out in Bombay Harbour, the exact cost of which was £70 per square of 100 feet. Taking into consideration the rate of wages at Bombay and the rate here, we have allowed £88 per square of 100 feet.

G. A. Tillet,
Esq.
4 Sept., 1888.

Captain Francis Hixson, President of the Marine Board, sworn and examined:—

47. *Chairman.*] Your name is? Francis Hixson.
48. You are Harbour Master of the Port of Sydney? I am President of the Marine Board.
49. And as President of the Marine Board you have a good deal to do with harbour improvements? Yes.
50. Are you officially consulted with reference to proposed improvements in the harbour;—is the Marine Board officially consulted? No; the Board have no power over the construction of public works.
51. But with reference to public works of this sort, is it usual to take evidence from the Chairman or members of the Board as to the necessity of the work? No.
52. Well, that is our object now, to ask you to give some evidence with reference to the proposed work at the Circular Quay shown on this plan. It is proposed to make an expenditure of £120,000 on different works shown on this plan. Has your attention been called to these works in any way before? Yes; I have seen that plan.
53. And you are to some extent aware of the nature of the works proposed? Yes.
54. You are aware that some of the works are now in progress—that on the P. & O. Company's side of the quay? Yes.
55. And there are some works going on on the other extreme point? I do not think those works are commenced yet.
56. From the experience you have had of the work of the port, do you think that these proposed works are necessary? I think they are. We certainly require more accommodation for shipping than we have at the present time, for large steamers especially.
57. Do you think the design proposed here a desirable one? Yes; I think it is a very good design.
58. You have had considerable experience in maritime works? Yes.
59. And the vessels of the present day require more accommodation than before? Yes. The tendency of the age is to have larger vessels—to increase the length of the vessels; and, therefore, to have additional and longer wharves than we have previously been accustomed to.
60. And do you think this project, if carried out here, will give the required accommodation? I think the present proposal is utilizing the Circular Quay to the fullest extent.
61. You think it is a fair adjustment of the wharfage accommodation to the different Companies, that is, to the different classes of business to be carried on, to the different mail steamers and ferry boats, and to the ordinary mercantile vessels—you think that the accommodation is proportionately arranged? Yes; I think it is a very fair proposal.
62. With reference to the ferry accommodation, do you think the proposal will meet that? I am not so sure of that. It is to a certain extent good; but I rather object to so many big steamers being concentrated at one place. I would rather see the North Shore steamers go to the western side, and the Port Jackson Company to where the North Shore steamers are now. I think we should distribute the traffic as much as we can.
63. *Mr. Kethel.*] That is only a matter of detail, and might be arranged afterwards? Yes, altogether a matter of detail. It would not interfere with the proposal on the plan.
64. *Chairman.*] You have not made any estimate of the cost of the work—any approximate estimate, I suppose? No; that is not my province.
65. Would you think the amount proposed to be expended on these works a reasonable one? Having in view the necessity for this increased wharfage accommodation for the P. & O. Company's vessels, the Orient Co.'s vessels, the Messageries Co.'s vessels, and for sailing vessels on the western side, I think that £120,000 is not an exorbitant amount of money for so great a scheme. There is a large revenue coming in from these vessels to pay interest on such a sum, and the jetties at the head of the cove are also remunerative. I think good interest will come from money expended on Circular Quay improvements.
66. Of course the depth of water is quite sufficient to meet the requirements of vessels at the present time? Yes; the water has been deepened to a greater extent than by nature.
67. We have had it in evidence here that on the western side they have a depth of 27 feet? Yes; that is at low-water.
68. I suppose it would be the same, or deeper, on the other side? We have 27 feet at all these new wharves, you might say.
69. The water is susceptible of being dredged to any depth, I suppose, or is it a rocky bottom? Mostly rock.
70. *Mr. Kethel.*] That is on the east side? On both sides. There might be considerable patches of mud, but it is mostly rock. A good deal of it has been blasted already.
71. Have you, as President of the Marine Board, or has the Board, been consulted as to the disposal of the space on the north-west corner of the cove? I have been consulted with regard to that.

Captain F.
Hixson.
4 Sept., 1888.

- Captain
F. Hixson
4 Sept., 1888.
72. And do the arrangements meet with your approval? It is about the best that can be done for us. They are turning us away from our old place near the P. & O. Company, and what they are doing for our future accommodation will answer reasonably well.
73. Could you suggest any improvement on the general scheme proposed, so as to make it more efficient? I do not know that I could. I have always been in favour of leaving the head of the cove for passenger steamers, and the other portion for big ships.
74. Would you be in favour of moving the Mercantile rowing-shed? No; we studiously left that there.
75. Is there water enough in that little bay for your requirements? Scarcely; it will have to be dredged, and the rock will have to be blasted.
76. That is between the present A. S. N. Company's wharf and the Mercantile rowing-shed? Yes.
77. *Mr. Suttor.*] Do you think there will be any danger in the concentration of the ferry traffic to which you alluded just now? I do not think it is attended with positive danger. The steamers have to proceed at reduced speed, and I do not think danger will arise such as might arise if the boats were navigated recklessly.
78. *Mr. Garrard.*] You are of opinion that it will conduce to the safety of the public if the Port Jackson steamers are brought over to the eastern side? Certainly; if you do away with the necessity for the Manly Beach and North Shore steamers to cross each other, you do away with a certain amount of risk to the travelling public.
79. You have seen the construction of the new wharves for the Orient and the Messageries Companies,—did the way in which they were constructed meet with your approval? Yes. I think they are well constructed and serviceable wharves. I do not profess to have considered the details thoroughly.
80. Do you know whether there has been any great drawback to the wharves here owing to there being nothing on them for the lifting out of heavy weights from vessels? Very great inconvenience.
81. Do you not think it would be an improvement if there were some provision on the wharves to lift heavy weights? A very great improvement.
82. Has not every port you have known some facilities of that kind? I believe they have, but we have nothing of the sort around the Circular Quay.
83. Are you aware whether there are any facilities of the kind on the banks of the Yarra? Yes; I know they have them there.
84. At present the ships coming here have to use their own tackle for the purpose? Altogether.
85. Does that not obstruct the traffic on the wharf? Yes; and not only that, but the trouble of rigging up the purchases on the vessels is very great.
86. *Chairman.*] You could not say from your own knowledge what return these works would yield to the Treasury on the amount expended upon them? No; I could not give you an idea, but Captain Jackson will be able to give you information with regard to that.
87. Has the question ever occurred to you whether it is wise for the Government to undertake works of this description;—whether it would not be better to leave them to private enterprise—to private wharf-owners or owners of wharf-frontages? Yes; I have studied that question. We are in a peculiar position here. There is a certain amount of the foreshores here in the possession of the Government, which is utilized by the Government in making wharves, while there is also a certain amount of wharfage owned by private proprietors, and consequently there is a clashing of interest.
88. You hardly know whether, if the Government declined to provide accommodation of this sort, private proprietors would be found to undertake it? The fact is that Sydney Cove and Woolloomooloo Bay give greater accommodation than any other bays in the harbour. Shipping are anxious to go to the Circular Quay or to Woolloomooloo Bay, because of the facilities for getting their goods away, compared with the facilities on the wharves in Darling Harbour; and the expense to importers is less at the Circular Quay and at Woolloomooloo Bay than at private wharves.
89. *Mr. Garrard.*] Did you ever see a proposal to construct a jetty approximately to the point on the plan represented as you observe by the letter "Y"? Yes.
90. You do not think that a feasible proposal? I do not think, considering the ferry traffic in Sydney Cove, that it would answer.
91. *Mr. Kethel.*] In what respect do you consider there are greater facilities at the Circular Quay than at private wharves? I mean in regard to the haulage from where the goods are delivered to the places where they have to be stored in town.
92. Are you not aware that most of the private wharves in Sydney have warehouses and sheds to a greater extent than the Government have at the Circular Quay for the protection of goods? Yes; I suppose they have.
93. Then the extra facilities merchants would have at the Circular Quay would be the easy access and easy gradients—no hills to pull up, for instance? That is all I mean. I know that as a rule agents of ships are anxious to get them into the Circular Quay.
94. Since there have been weather-sheds built? Yes.

Captain Henry Pettit, Harbour Master of Sydney, sworn and examined:—

- Captain
H. Pettit.
4 Sept., 1888.
95. *Chairman.*] Your name is? Henry Pettit.
96. You are Deputy Harbour Master or Harbour Master for Sydney? Harbour Master.
97. And in the performance of the duties belonging to your office you have, I presume, often brought under your observation the necessity for increased shipping accommodation? Very often.
98. Have you been made aware of the proposed improvements at the Circular Quay? I saw the plans in Mr. Barling's room this morning.
99. You never saw them before? No, never before.
100. You have heard of the proposed works at the Circular Quay—before? Yes, I have heard of them before.
101. You have seen that plan which is exhibited here? Yes.
102. You know the proposed works represented on that plan? Yes.
103. Do you think, from your observation, that these works are necessary? I think it will be a great improvement on the present state of things.

Captain
H. Pettit.
4 Sept., 1838.

104. It will give greater facilities to commerce and to the large vessels coming here now? Yes; and instead of giving accommodation to one of the P. & O. Company's steamers it will give accommodation for two; that is, taking the present Manly Beach wharf in.

105. You have had considerable experience in maritime matters in your time? Yes, a great deal.

106. You have been in different parts of the world, I suppose? No; I am a native of the Colony. My experience has been principally in Sydney.

107. If you were asked to give an opinion as to the proposed design, would your opinion coincide with what is here proposed? I do not think you could economise space better than is shown on this plan.

108. Are you aware of the gross amount of the vote that is required or intended to be set apart for the construction of these works? No; I have not heard the amount of the vote for it.

109. Have you heard any opinion expressed by seafaring men as to the character of the improvements? No, there is such a difference of opinion on that matter on the part of nautical men as to what is the best to do; but really my own experience here with regard to the class of vessels coming shows that the wharves which would have been suitable twenty years ago would not suit them at all now. They want considerable frontage and room; and in-and-out berths, such as the A.S.N. Company's old wharves, would not be suitable for the long ships coming here now with hatches so spread out as they are to take in cargo. A long frontage, such as is proposed in these improvements, gives them an opportunity for discharging and taking in cargo at one time.

110. Then by this plan they could go on loading at one hatch and unloading from another? Yes; in the space these two new berths would give most of the discharging hatches of the steamers would come in and could be worked. There are some boats that have their saloons amidships and the discharging hatches fore and aft. It would be awkward for them. You would have to put them to the longest jetties; but still the plan proposed would give the best accommodation. Then for sailing vessels you could accommodate four large ships, having them stern to stern. You might have four sailing ships bringing a London cargo, or two large steamers.

111. *Mr. Kethel.*] Are you aware that the new berth which is being formed on the north-east corner of the quay is to be 624 feet in length? Yes.

112. Do you not think that it is too long for one ship, and that such a length could be better utilized;—are there any steamers coming here upwards of 600 feet in length? The present steamers coming here run to 500 feet, but they do not want the whole of their ship to be accommodated. Certainly it is a long space to be taken up on the side of the quay. Still I do not see how you could make two berths of it for that class of steamers; and that particular berth is rather an exposed one. There is a tide there, and with a strong westerly gale it is a lee shore, and you get the whole force of the tide.

113. And you think by having that extra length you can keep the ship sufficiently into the southward to keep her out of the tide, and somewhat out of the wind? Yes.

114. *Mr. Garrard.*] I suppose some of that extreme length is to give a site for the horse-ferryboats? Yes; the northern end forms a dock. Then there is a portion of the wharf there which is to be utilized for the Messageries' boats, and that company talks of sending boats here over 500 feet in length.

115. What is their length now? About 430 or 440 feet long.

116. And you understand that they are building boats 500 feet? The captains have told me that the company is building boats of 500 feet.

117. So it will be absolutely necessary to have extra space for them? In that new berth they will have about 500 feet. It will give them a full 500 feet, without interfering with the lower berth.

118. The berths on the western side are probably for sailing vessels? They can be applied to either one or the other—sailing vessels or steamers.

119. Has your attention ever been directed to the want of appliances for unloading heavy weights, such as locomotives, from vessels at the Circular Quay? There are no appliances for that. Vessels are obliged to put up a derrick.

120. Which occupies a considerable time, and interrupts traffic on the wharf? Very often.

121. Do you think that, if proper appliances for unloading heavy weights were put there, it would be a very great facility? I think so. We used to have to employ an anchor and a good strong rope to guy the locomotive from the ship, and then lower away on tackles to get them off.

122. I suppose you entirely agree with bringing the Port Jackson Company from the western side of the quay to the eastern? I think there will not be so much crossing.

123. You mean that, for the traffic going down the harbour, the berthing accommodation should be on the eastern side? I think so. It keeps the outgoing boat on the proper side and the incoming boat on hers.

124. *Mr. Kethel.*] And you approve of the general arrangements for these improvements;—can you suggest any alteration in the design which you think would be an improvement, to assist in the berthing and navigation and general commerce of the quay? The present plan, I think, will accommodate the present class of vessels coming to the port, and will facilitate their operations.

125. You cannot suggest anything better? I could not suggest anything better. Of course you know in-and-out jetties would give a greater amount of accommodation than is provided by giving vessels breast frontages.

126. Would not the application of that principle give you a couple more berths? Yes, you could certainly make more berths; but whether, by adopting the saw-tooth principle, you could accommodate the number of hatches which are in the vessels we have now is another matter. It is such a different thing from the old class of vessels of some twenty years ago.

127. *Mr. Garrard.*] Do you not think that taking the horse-ferry boats so far out to the point, subject to the tide and to the north-easters, will render it difficult for them to make the dock? No doubt it is a very exposed place, and you are subject to the tide, and then the sewer empties there.

128. Do you not think if the dock were brought further into the cove it would be safer for the vessels and for the ordinary traffic? Well, by a mechanical contrivance, and by the end of the proposed wharf projecting, they might be given some protection, but it is certainly not a nice place for them.

129. *Chairman.*] There is hardly any alternative is there? No. This plan utilizes the space.

130. And then it is nearest to the point where the service is carried on at the other side of the water? Yes. No doubt by putting out good substantial jetties, well fended and protected, the boats could get in, but they will have to be worked very handily there. It is the one bad place we have in the harbour.

- Captain
H. Pettit.
4 Sept., 1888.
131. *Mr. Garrard.*] In fact, between Fort Macquarie and Kirribilli is one of the narrowest and most dangerous parts in our harbour? Yes.
132. And, therefore, to decrease the width increases the danger? Yes; but this does not decrease the width.
133. What is the length of these horse-ferry boats? The Binalong, the last new one, must be a vessel of over 120 feet. She is a very large boat, with great beam.
134. Therefore, if the dock is only 60 feet long, she will be projecting out for 50 or 60 feet? Well she is over 100 feet in length.
135. *Mr. Kethel.*] I understand that there is a shoal extending out at that point to the tinted line shown on the plan, and all vessels in the fair-way will have to keep out beyond that? Yes. I think the horse-boats will be within what is known as the buoy.
136. And no ocean-going vessel comes within that buoy? No.
137. Do you know the distance between the buoy and the retaining-wall? I should say 70 or 80 feet.
138. Do you remember how this wall was built, how far the reef of rocks extended, or was the wall built as far as the reef of rocks extended? The foundation-stones of the retaining-wall were laid at dead low water, spring tides, and any inequalities in the rocks were filled up with concrete or other substantial matter. The reef of rocks extends from low-water-mark about 60 feet, varying in places.
139. So that the fair-way of the harbour has never been further off than now, in consequence of the rocks? There has been nothing added to, or taken away from, the width of the harbour there.
140. Has the effect of the sewer emptying there been to fill up the harbour at that point? No doubt there has been a lot of silt deposited from the sewer there.
141. *Chairman.*] Is that sewer taken out at all into the harbour? About 50 feet, and it is supposed that the scour takes the stuff away.
142. The sewer was originally emptied near the bank? Yes, until the larger sewer was carried out.
143. *Mr. Kethel.*] Then this wharf will not encroach on the navigable waters of the harbour, nor, when the stern of a boat projects, will it interfere with any vessel in the fair-way? I do not think so; but if you had two colliers discharging coal outside a big steamer there it would make a perceptible difference in the width.
144. But otherwise there would be no difference in the fair-way of the harbour? No.
145. *Mr. Garrard.*] Vessels coming up the harbour have no business on this side, have they; they should be on the other side? Yes.
146. Vessels going outside keep on this side? Yes.
147. *Mr. Kethel.*] But vessels beating against a westerly wind keep on both sides? Yes, they do.

Captain John Jackson, Manager of the Public Wharves at Sydney, sworn and examined:—

- Captain
J. Jackson.
4 Sept., 1888.
148. *Chairman.*] Your name is John Jackson? Yes.
149. You are Manager of the Public Wharves at Sydney? Yes.
150. Have you given any attention to the proposed improvements at the Circular Quay? I have.
151. Have you seen any detailed plans of the proposed changes and improvements? Yes.
152. Have you seen the plan exhibited here? Yes.
153. You know the nature of the accommodation proposed to be supplied? I do.
154. And do you think it will meet the requirements of the trade? Yes.
155. You think it is of such a character as will be required? Yes. There is one portion of it which I am not in favour of. I think the ferry jetties might be slightly altered.
156. The way in which the ferry accommodation is proposed you do not quite agree with? No.
157. Do you think when the large wharves are constructed they will give the accommodation required here? The Circular Quay will not give sufficient accommodation; you never can make it give sufficient accommodation.
158. This is intended, is it not, more for the mail boats and the Messageries boats? Yes.
159. According to the design of the works to be carried out, are they of such a character that you concur in them? I do.
160. Some reference has been made to the difficulties experienced by commercial people in loading and unloading large vessels;—are there at the Circular Quay the modern appliances for loading and unloading? No.
161. And that is not included in any of these proposals? No.
162. Do you know the reason why? Well, only that ships prefer using their own tackle, and large steamers have their own cranes.
163. Then permanent cranes would be of no use? Perfectly useless.
164. Have you made any approximate estimate of the cost of these works? I do not know whether the estimated cost is reasonable or not, but I know the works will bring in a large revenue.
165. Have you made any calculation as to what the revenue is likely to be? Yes.
166. You know the gross cost of the works? Yes, and I can give you the revenue for the years 1887 and 1888.
167. Will you state it please under the different heads? Including the Circular Quay as it is at present, and excluding the A.S.N. Co.'s Wharf, the revenue from the Quay for 1887 was £24,000. That is from the north-east end of the wharf to the southern end of the late A.S.N. Co.'s Wharf. And the amount for this present year, including the A.S.N. Co.'s Wharf, will be £42,000.
168. That is estimated on the receipts up to the present time? The actual revenue received up to the 30th June, and paid into the Treasury, was £22,000, and the latter part of the year is always better than the former, because of the busier time.
169. Are there any other items you wish to give to the Committee? No.
170. That embraces the whole? Yes.
171. You come a good deal into contact with shipping people, do you not? Yes.
172. You have heard them complain of a want of accommodation? Yes.
173. And do they seem to concur in the opinion that what is now proposed will be sufficient for them? Well, formerly, they had so little accommodation that they were glad of any they could get.

174. But do they seem to think that the works proposed now will meet their requirements? Yes.
175. Have you heard any adverse opinions expressed by any of the commanders of ships, or by commercial men? No.
176. And you think that, on the whole, the proposed improvements and accommodation are desirable, and the best that can be provided? I do.
177. Have you heard anything said about the Government not permitting somebody else to provide this accommodation? No.
178. *Mr. Sydney Smith.*] You have mentioned that you do not approve of the arrangements for the ferry-boats? Yes.
179. In what way do you not approve of them? I do not approve of the Watson's Bay boats being so far over. That is in the arrangements only. I think they ought to go to the Point—to Macquarie Point or to Dawes' Point. I think the traffic will increase so much that they will have to go to the Point.
180. Does that refer to all the ferry-boats? The ferry-boats that go to Manly and other places.
181. In making your estimate of the revenue, you stated that the amount for 1888, based on the revenue to the end of June, would be £42,000; have you made any estimate of the revenue to be derived from the additional accommodation? I reckon that each berth which will be provided will give £2,510 14s. 3d. That is the average of each berth on the Circular Quay.
182. That will give a total revenue of how much? About £42,000.
183. I am speaking of the additional revenue? You would not get much additional revenue from the western side.
184. *Mr. Garrard.*] You said, in answer to the Chairman just now, that the large modern steamships have steam appliances of their own for lifting heavy weights out of their holds? Yes.
185. What are those appliances usually capable of lifting? About 5 or 6 tons. I do not think more.
186. Have you ever seen locomotive boilers, or any weight of 20 or 30 tons, come out of these steamships? No; such large weights come by sailing vessels.
187. How are they got out of vessels? By derricks.
188. A very cumbersome proceeding? Yes.
189. Do you not think it would be a great convenience if facilities for unloading heavy weights were provided at the Circular Quay? I think it would be if one berth were set apart for them.
190. Have you been to Melbourne lately—since that large crane was erected on the Yarra bank? I was there when it was erected.
191. And you think an appliance of that kind would be of advantage here? I do.
192. *Mr. Kethel.*] How many steamers of the P. & O. Company or the Messageries Company come here in the year? Thirteen from the P. & O. Company.*
193. How much wharfage do you collect from each of them per trip? They vary.
194. Inward and outward together? About £200.
195. Do you collect wharfage on all the goods? Yes.
196. Do you charge the Company for "laying" days when loading outwards? No; they pay £2,500 in lieu of tonnage dues, and then I collect all the wharfage.
197. On all the goods landed and shipped? Just so. That amounts in the case of the P. & O. Co. to about £5,500 a year.
198. So that actually these large berths to be devoted to the ocean mail steamers would, instead of the £2,500 that you have quoted as the average revenue, bring you in a revenue each of £5,500? Fully that.
199. What is the expense of managing the Circular Quay in the matter of wages and repairs? Repairs I am not able to give you.
200. In management? In 1887, £1,691. That includes all wages.
201. And there would be a slight outlay for staging? No; that is the whole of it.
202. *Mr. Sydney Smith.*] What portion of this charge would be for the P. & O. Co.'s berth? I could not distribute it among the berths. It is for the thirteen berths at the quay. We have just as much to do with the Messageries as with the P. & O., or as with any other berth at the Quay.
203. Do you know the amount of the contract for the work that is to be carried out for the P. & O. Co.? I think I saw it in the paper as about £13,000, including the ferry dock.
204. By the erection of that wharf you will get an additional £2,500 a year? You will get about £6,000 for the wharf, including the horse ferry.
205. *Mr. Kethel.*] Have you ever found any difficulty in berthing vessels alongside the wharf by reason of a want of water;—is there ample water for berthing ships? There is plenty of water at all the berths except that opposite the Custom-house, where there is a rock.
206. And that in the new arrangements will not be used for berths? No.
207. It is intended to put the passenger jetties there? It is the only thing it is fit for.
208. *Mr. Street.*] Do you think the projection at the southern end of the proposed P. & O. Co.'s Wharf will be any hindrance to the navigation of the harbour? No.
209. It was said by a former witness that a collier lying outside a steamer there might interfere with the navigation? I do not think it would.

*NOTE (on revision):—The number is twenty-six.

TUESDAY, 11 SEPTEMBER, 1888.

Present:—

The Honorable JOHN LACKEY (CHAIRMAN).

The Hon. WILLIAM HENRY SUTOR.

The Hon. JAMES WATSON.

The Hon. FREDERICK THOMAS HUMPHERY.

SYDNEY SMITH, Esq.

ALEXANDER KETHEL, Esq.

JOHN RENDELL STREET, Esq.

JACOB GARRARD, Esq.

The Committee further considered the proposed Improvements to the Circular Quay.

Mr. A. Moir.

Mr. Angus Moir, Clerk of Works at Circular Quay, sworn and examined:—

11 Sept., 1888.

210. *Chairman.*] Are you Clerk of Works in charge of the improvements now being made at Circular Quay? Yes.
211. Describe the nature of the improvements that are being carried out under your supervision? There is a wharf being constructed on the eastern side, where the Peninsular and Oriental boats are to be berthed.
212. Any other work besides that? Nothing at present.
213. Is it proposed to change the ferry wharves? Yes, I believe it is.
214. Is nothing being done on the western side of the quay now? Nothing since a shed was put up for the Peninsular and Oriental Company at its present wharf.
215. Is any work going on at the north-west side for the Marine Board? There is nothing going on there at present.
216. Is it proposed to make improvements there as well? Yes; I believe it is.
217. From your knowledge of the requirements of the trade, are you of opinion that the works proposed are essential? I think they are very essential. The old wharf is completely gone underneath.
218. Are the steamers coming here now much larger, and do they consequently require more space? Yes.
219. Are these works intended, among other things, to provide for that? Yes. When the improvements are made, the accommodation will answer very well.
220. What length of ship will this new wharf accommodate? A ship 525 feet long.
221. What will be the depth of water at low tide? With a little dredging we can easily get 30 feet.
222. What is the depth now? Where the P. & O. boats lie now there is about 28 feet at low-water.
223. How long have you occupied the position of Clerk of Works? Nine years last June.
224. During that time, have you seen the strides made by our trade and commerce? Yes.
225. Are you aware that there is a necessity for increased accommodation? Yes; we do want more accommodation.
226. As Clerk of Works, are your duties confined to carrying out the works, apart from designing them? Yes.
227. Have you merely to see that certain works are carried out according to the plans submitted to you? Yes.
228. *Mr. Kethel.*] What class of work are you carrying out on the eastern side where the wharf is being constructed—piles or stone? Piles.
229. Is it your opinion that such work is just as suitable for the purpose as an iron wharf with cylinders. Have you any experience as to the duration or cost of iron wharves? There is no doubt that an iron wharf would stand the longest.
230. How long, in your opinion, will a well-built wooden wharf last, under reasonable circumstances, if it is built as you are building this one, the piles being protected with sheathing? I should say fifty years.
231. Have you had any experience in the construction of iron wharves, on cylinders filled with concrete, similar to that at the head of Darling Harbour? I have had no experience, except with regard to the wharf you have just mentioned.
232. Do you know anything of the cost of constructing stone wharves, as contrasted with wooden wharves? Stone wharves cost about six times as much as wooden wharves.
233. Do you mean freestone? Yes.
234. If they were constructed of granite, would the cost be still higher? Yes.
235. So that, under the circumstances, is it your opinion, as a practical man, that we are justified in constructing these wooden wharves with driven piles, instead of carrying out more expensive, although more durable, works in iron or stone? I believe that if the piles were coppered right up to the heads, and even on the heads, it would make a great difference in the length of time they would last, because the piles generally go between the caps and high-water. I had experience of that in connection with the piles at Pymont Bridge six months ago. The piles were as good under water as they were the day they were put in.
236. Were they not attacked by the *teredo navalis*? No; the sewage kills that insect.
237. Were the piles protected with metal sheathing? Yes, up to high-water.
238. Where the metal sheathing was intact, even if the water was not filled with ammonia from the sewage, could the *teredo* get at the piles? On a great many of the piles the metal was torn away.
239. *Mr. Street.*] You have spoken of the unsafe condition of the western side of the wharf,—can you explain in what way it is unsafe, and whether it is absolutely necessary that some alterations should be made? All the girders are destroyed by the white ant, except the new girders, which have been put in from time to time.
240. In your opinion, is it absolutely necessary that something should be done to render that wharf safe? Yes. I have many times wondered that it has stood so long.
241. *Mr. Garrard.*] What timber was used in the wharf on the western side? Ironbark.
242. What timber are you now using on the eastern side? Ironbark.
243. Do you adopt any means to protect the timber from the white ant? Where there are any cracks or strains, we use carbolic oil.
244. What contracts are now let? Only for the woodwork.
245. Is the inner wharf stone or concrete? The contract now going on is only for the piles. 246.

246. What is the total cost? £13,000.

247. Are tenders invited for the inner portion? Not that I am aware of.

248. Of what do you purpose making the retaining wall? I do not think there is anything decided. I expect it will be of concrete. Mr.
A. Moir.
11 Sept., 1888.

249. Is it not strange to begin business by accepting a tender for the outside work before accepting one for the inner work? The boat-shed is in the way at present.

250. Do you anticipate that the outer work—the piling and planking—will be finished before the inner work? Yes.

251. How long has this contract been let? About four months.

252. What is the time for completion? Nine months.

253. Is the contractor well on with his work for the time he has had it in hand? He has only got the concrete in for the ferry-landing, and he has six piles in one place and twelve in another.

254. Is it possible for him to finish the work in nine months? I think so.

255. Is there any penalty attached to the contract? I think so.

256. *Mr. Kethel.*] Have you to supervise several other contracts besides this in course of construction in the harbour? Yes.

257. Especially the large works in Darling Harbour? Yes; I devote a large portion of my time to those works. I am only occasionally at the Circular Quay.

258. *Mr. Suttor.*] Is the old wharf built on piles? Yes.

259. What length are they? I can hardly tell; they are all covered with metal.

260. Are they standing well? Some are, and others are not. I have no idea how long they have been down.

261. Are the greater number of the piles in the old wharf quite sound? A good many of them are sound and a good many are bad. Some of them have been taken out.

Captain Thomas Summerbell, Traffic Manager of the North Shore Steam Ferry Company, sworn and examined:—

262. *Chairman.*] Are you Traffic Manager of the North Shore Steam Ferry Company? Yes; I have filled that position for about ten years. Capt. T.
Summerbell
11 Sept., 1888.

263. During that time, have you seen and been made aware of the increased demand for accommodation at the Circular Quay? Yes.

264. Have you felt the pressure very much, so far as your company is concerned? Yes; I have felt it a good deal from time to time.

265. Have you had additional accommodation given to you at various times? I think it is six or seven years since we have had additional accommodation given to us. That is at the head of the cove. Of course the Government are doing great things for us on the eastern side.

266. Do the Government propose to move your jetty? I think they propose to move the Watson's Bay and Manly Beach steamers.

267. Are you aware generally of the design proposed to be carried out by the Government in making these improvements? I have a pretty fair idea.

268. In your experience in connection with the duties of your office, have you been impressed at various times with the necessity for increased accommodation for ocean-going steamers? Very often; I have thought that there ought to be more accommodation for ocean-going steamers.

269. Do you think the accommodation now proposed to be given by the Government will meet the requirements of the trade? I think so. I have carefully noted the reports, and I have seen the plans, and I understand generally what is going to be done. I think the proposed improvements will answer everything that is wanted for many years, that is, so far as the berthing of ships is concerned.

270. Reference has been made to the difference between stone-work and ordinary pile-work;—as a practical man, which do you think it is most desirable for the Government to adopt? Speaking from my own experience, if the water were shallow, of course I would like stone-work. We have adopted that ourselves on our own property. But when there is any depth of water piles carried out in a good substantial manner are cheaper and much quicker; if there are 3 or 4 fathoms of water I should think there would be no objection to piles.

271. How long have the present piles been down at the Circular Quay? I cannot remember with regard to the Circular Quay, but I remember piles being driven in an old wharf which stood for forty years; except a few of them, they were as good as on the first day they were put in; they were ironbark. Turpentine was not used at that time.

272. Do you know the depth of the water in front of these wharves at low tide? At the P. & O. Company's wharf I should say there is about 28 or 30 feet of water.

273. Is that sufficient for present requirements? I think so. It would be a very large vessel that would draw 30 feet.

274. Are there not very large steamers coming here now? Yes.

275. What do they draw? They draw 26 and 27 feet, according to their water-marks.

276. As far as the trade connected with your jetty is concerned, do you think there will be sufficient convenience for carrying it on? I do not think so.

277. Will that not be the case under the proposed new arrangements? As far as I can understand the present proposals, there is to be no alteration in our jetties; that is to say, we are going to remain where we are, and no additions or improvements are to be made.

278. No increased accommodation? No.

279. The only alteration so far as the jetties are concerned will be the removal of the Watson's Bay jetty and the Manly Beach boats? Yes; they will be carried round to the east of us.

280. Does that become necessary through the extension of the wharf on the western side of the cove? Yes. I would like to say in passing that the ferry accommodation is entirely inadequate.

281. *Mr. Suttor.*] Do you think that the proposed works are an improvement on the old accommodation? The shifting of the Watson's Bay and Manly boats to the east is a very great improvement. I would, however, draw attention to the fact that the ferry steamers always will cross each other coming in and going out.

Capt. T.
Summerbell.
11 Sept., 1888.

282. Is there more liability to danger under the new plan? The danger is minimised, no doubt. The Chairman asked me about the accommodation at our jetties; it is entirely inadequate. No. 5 jetty was built five years ago for our boats, but the population has increased two or three fold since then, and our vessels are very much larger. Then we have only half of No. 4 jetty. I am largely interested there. There is very good accommodation for the shipping, but the passenger accommodation is very limited.
283. *Mr. Garrard.*] Is it not the fact that only the Neutral Bay and Mossman's Bay steamers will cross the other steamers? Yes.
284. Will not the ordinary traffic to Milson's Point and Lavender Bay be quite clear? Yes.
285. Do you think it is an improvement to shift the horse-ferry steamers? To answer that question conscientiously I must say it is not; still, what is now being made will answer every purpose. Mr. Darley invited me to his office twice to view the plans, and I offered one or two suggestions, and excellent accommodation is provided. We have got everything we can desire at that place.
286. What is the length of the boats you use there? 130 feet.
287. Will not the extreme end of the boat project into the channel? No.
288. Will it not be very difficult for your boat to make that dock in a strong north-west wind? I do not think so. I shall be extremely blamable if it is so, because the Department honored me by accepting a few suggestions, and I entirely approved of Mr. Darley's plan. I do not anticipate any difficulty.
289. Do you think there is any necessity for so long a berth for one vessel at the new P. and O. Co.'s wharf as is shown on the plan? It seems to me a very great length.
290. If it were possible to reduce it and to bring your dock further in, would it be better? There is no doubt it would be better; but we thought this plan got over all difficulty.
291. *Mr. Kethel.*] I understood you to say that in consequence of the increase in your traffic, and the increase in the size of your vessels, your jetty accommodation is inadequate? Quite so.
292. In what respect would you require that jetty to be altered to meet the increasing demands of your trade? In the length. It is divided into three parts; 40 feet for waiting-rooms, 40 feet for the platform, and 20 feet sloping. The vessels are 130 long, so that the length of the jetty is not sufficient. The stage is sometimes at an angle of 45 degrees, sometimes level, and sometimes it is the reverse way. If we had a floating pontoon there to lengthen the jetty it would get over all the difficulty. Sometimes the time taken up in waiting and screwing a vessel in and out is equal to the time taken in the transit across the harbour.
293. Do I understand you to say that a floating pontoon attached to the end of the jetty would meet all your requirements without carrying out the solid structure to any greater length than at present? That would be a very great improvement.
294. What rent do you pay to the Government for your jetty? £600 a year.
295. I presume that in asking for this additional accommodation you would be prepared to pay a fair amount of extra rent? Yes. I would be very glad to pay for the whole of the other jetty if the Department would let us have it. Then for berthing vessels we should have fender piles, which would greatly assist a vessel coming alongside.
296. How many would you propose to have there? For long vessels like ours we should have at least four.
297. Are not fender piles provided in various parts of the harbour where harbour steamers are berthed? Yes. Balmain has them.
298. Have you commanded ocean-going vessels? Coasting steamers.
299. You are, therefore, familiar with the entrance to our harbour. What is the depth of water on the shoal in the western channel abreast of the Sow and Pigs? I cannot recollect.
300. Questions have been put to other witnesses as to the depth of water alongside the wharves. Do you think the depth of water at the wharves is quite sufficient for any ocean steamers that can enter the port? I cannot recollect the depth of water at the place you have just referred to, but I think it used to be 27 feet or 28 feet. It has been very much deepened since I have been on the coast. The eastern channel has been dredged out.
301. On one or two occasions have ships of war had to wait at the Heads until the tide flowed in order to cross those shoaly places? I have understood such to be the case.
302. Is it your opinion that the depth of water that will exist alongside the berths for large ships at the Circular Quay will be sufficient for any vessel that can cross the shoal at the entrance to the harbour? I can hardly answer that, because I know that a great deal of dredging has been going on of late years. The eastern channel I know has been deepened; but I have not been outside the Heads three times since I have been in the Company's service.

George Skelton Yuill, Esq., Manager of the Orient Steamship Company, sworn and examined:—

- G. S. Yuill,
Esq.
11 Sept., 1888.
303. *Chairman.*] Are you the Manager of the Orient Steamship Company? Yes.
304. Have you had a great deal of experience of the want of accommodation at Circular Quay? Yes; we have suffered, but we have had nothing much to complain of lately.
305. Is additional accommodation now proposed to be provided? Yes; it is proposed to add a small piece to our wharf; it has been our complaint that our wharf is too short.
306. Did you find that to be prejudicial to the proper working of the Company's boats? Yes.
307. How long have your boats been trading here? I think we first came here in 1878.
308. Have you ever found any difficulty from an insufficient depth of water? Yes; not at our present wharf, but where the P. & O. Company's boats now lie, we touched twice.
309. Has that place been since deepened? Yes.
310. Is the place where you are now deep enough for practical purposes? Yes; it is a rocky bottom where we are now.
311. Have you any knowledge of the general tendency of the designs proposed by the Government, for the improvements at the Circular Quay? Nothing beyond what I have seen on the plan.
312. Have you formed any opinion as to the necessity for those improvements? The improvements, so far as the eastern side is concerned, seem to be very desirable. It is desirable that the mail steamers should be berthed at the Circular Quay if possible.
313. Have you had much to do with the construction of wharves? Not very much.
314. Would you be prepared to offer any opinion as to whether it would be better or more economical in the long run to build stone wharves or wharves on piles? Of course you must have the front of piles. You could not moor to a stone wall.
315. Will piles last a long time if the work is properly done? I think so. 316.

316. Have you suffered inconvenience in working your vessels, owing to a want of depth of water in any other part of the harbour? This is the only wharf in Sydney Harbour where our vessels could lie with safety. I refer to our present wharf, just opposite to where the P. & O. Company's boats now lie.
317. There are no private wharves giving such accommodation? No.
318. Have private wharves the necessary depth? There is a new wharf being made which will have the required depth.
319. Have you had any offer from private proprietors to give you accommodation? Yes.
320. What do you pay to the Government now for the use of your wharf? £2,500 a year.
321. Is that the rental you have been paying? Yes; but we get no wharfages. The Government get the wharfages besides, which makes the yield £3,000 or £4,000 a year.
322. Would you pay any more for additional accommodation? I do not think we could be asked to pay any more rent. We consider it a very high rent at present.
323. *Mr. Kethel.*] What is the average draught of water by your steamers with the hold full of cargo, and the bunkers full of coal? The largest vessels draw about 26 feet 6 inches.
324. Have your captains always been able to come up and down the harbour at all times, without being detained on account of insufficient depth of water? I do not think they have ever been stopped, but I cannot say exactly.
325. In the changes which have taken place of late years, have the steamers increased their draught of water, or has the change principally been an increase of length? The change has principally been in the length of the vessels. The new steamers draw a little more water than the old ones, but not in proportion to their extra length. Of course there is a great difference between a steamer discharging cargo alongside a wharf, and a steamer going along a channel or entering a port. She can go along on an even keel, or she can go in on a high tide; but when she is discharging cargo, as the cargo is taken out, her engines may put her down 4 or 5 feet astern.
326. Will the addition now proposed to be made to your wharf be sufficient for the requirements of your trade for some years to come? It is still too short.
327. How many hatches do your ships work? Three.
328. What distance are they apart? I think they vary from about 40 feet.
329. It is not your desire that the wharf should extend as far as the ship's bow, but all that you desire is to have the wharf where your farthest gangway is? That is one point; but it is rather dangerous to have too much of a ship's side exposed to a "southerly burster."
330. Do not your vessels lie nearly north and south? We lie about north-east.
331. Is your berth the shortest of the three? Yes; it is much the shortest.
332. Would you prefer to have it a little longer? Yes; it would be very much safer for the ships.
333. *Mr. Garrard.*] Do you prefer the eastern to the western side? Yes.
334. What is the length of your longest vessel? About 485 feet, I think.
335. And you have a 450-foot berth? No; 350 feet.
336. Do you think there is too much of your vessel projecting over the end of the wharf if the wind comes broadside on? Yes; the vessel might easily be torn away from her moorings.
337. In view of the advantages which you think would accrue from having a longer wharf, would you be prepared to pay an increased rent? We pay exactly as much as the Messageries Maritimes Co. do, although they have 480 feet of wharf and we have only 350 feet.
338. Do you not occupy a better position, and have they not to employ a tug? We have always to employ a tug.
339. Is that necessary? Yes. We would be very glad to have the Messageries Maritimes Co.'s berth instead of our present one.
340. Do you think that a small increase of 50 feet should be made on your wharf? I think it is most desirable. I think the vessels are in a dangerous position at present.
341. Has that increase been promised to you? There is nothing in the shape of a promise, but it has been proposed or suggested. We think it is not enough. I think if 50 feet were added to each end it would be enough.
342. Do you think there is a tendency to build still larger vessels? Yes.
343. Do you think their draught of water will increase very much? No. The tendency of the day is to follow the American style, which is to make big steamers, increasing their length.
344. Are not your vessels almost of the American size? No.
345. What is the size of your largest vessel? 6,500 tons. The American vessels are now close on 10,000 tons.
346. Do you know their draught of water? They draw more than ours; I think their largest vessel draws about 27 feet 6 inches.
347. *Mr. Kethel.*] When you speak of American vessels do you refer to the trans-Atlantic steamers? Yes.
348. *Mr. Sydney Smith.*] What is the length of the American vessels you refer to? I think the largest vessel is 520 feet long.
349. And your largest vessel is 485 feet? Yes.

Alfred Lamb, Esq., merchant and wharfowner, sworn and examined:—

350. *Chairman.*] Have you been engaged in commercial pursuits in Sydney for some years? Yes; more particularly in the shipping trade.
351. Are you the owner of a large wharf near Miller's Point? Yes; I have been a wharfowner in the neighbourhood of Miller's Point for the last twenty years.
352. Have you had a great deal of experience as to the accommodation necessary to be provided? Yes; I think I have had as much experience as most people.
353. Have you given any attention to the proposed improvements at the Circular Quay? This is the first time I have seen the plan. I have heard of the proposed extension on the eastern side, sweeping away the Government boat-sheds; I heard of that extension being proceeded with, but I did not know of any proposed extension on the western side until I saw this plan.
354. It is proposed to enlarge the steamers' berths on the western side also, and to remove some of the ferry jetties to the south-eastern side;—do you think that project is necessary? I think that any project

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to increase the safety of the ferry traffic is advisable, but so far as the further extension of wharfage for commercial purposes is concerned, I certainly think it is going a little beyond the times. There will be ample wharf accommodation for mercantile purposes when the P. & O. Co.'s wharf is built for some time to come, because I know that for eight or nine months in the year the present wharves, private and Government, are not half supplied with shipping.

355. Supposing this accommodation were not provided by the Government, do you think that private wharfowners could supply the necessary accommodation for the shipping? I am perfectly certain that private wharfowners are prepared to do more than they are allowed to do. There is so much restriction placed upon the private wharfowners that they are not allowed to provide as much accommodation as they would like to. That has been my experience for twenty years. I built the first wharf round by the battery, and the trouble about putting that out was lamentable. It was the first wharf on piles in that part of the harbour,* and there was no end of difficulty about it; and the difficulty has not lessened. The private wharf-owners would give far more facilities, and they are prepared to do so, if they could get the same privileges as the Government are prepared to exercise themselves. They are not prepared to extend the same privileges to private owners.

356. In whose discretion rests the power of giving authority to extend jetties into the harbour or to improve wharf accommodation? The Minister for Lands under the direction of the Harbours and Rivers Department.

357. There is a joint authority? Yes.

358. Have you to obtain the concurrence of those officials before you can make improvements or extension? Yes; and pay a very heavy annual rent for the privilege.

359. Is this authority regularly exercised by the functionaries to whom you allude? Well, it is hard to say. Sometimes certain people get it, while others do not. It seems to be somewhat irregular.

360. Has it struck you that the traffic has been impeded in places by the injudicious construction of wharves? Up to the present I do not think that is the case except in one direction. Near Pymont Bridge a wharf seems to come out a tremendous distance—about 300 feet, I think. It is a private wharf on the eastern side erected by M'Ilwraith and M'Eachern. It has surprised everybody. If other wharves were run out to the same extent there would be considerable obstruction to the Government's own wharf.

361. In the opinion of commercial men are the Government constructing works which ought to be left to private enterprise? I think people are a good deal divided in opinion. Some people are always glad to see the Government spending money which will give them accommodation at no cost to themselves. On the other hand people who see Government expenditure here, there, and everywhere are of opinion that the Government do interfere with private enterprise. That applies to wharfage extension. Being a wharf-owner and particularly connected with the whole of the private wharves as Chairman of the Wharves Association, I am bound to know that our wharves are almost empty for more than half the year. That makes us feel that wharfage accommodation is superabundant.

362. Have you heard what is the estimated cost of these improvements? No; but I have seen a report in one of the papers.

363. The estimate is £120,000? I thought that applied to the extension on the eastern side for the P. & O. Company.

364. It includes the whole of the works on the eastern and western sides, the removal of these ferry services, and the improvements for the Marine Board? No doubt an expenditure for such a purpose as the wharf for the P. & O. Co., is quite justifiable because an income is assured before the work is constructed. The P. & O. Co., and the Orient Company require special accommodation. But even if it is true that, as Mr. Yuill says, the probability is that the companies will go in for building steamers after the American style, that only applies to the passenger traffic, and those enormous passenger steamers are not likely to come in eight or ten times a month, so that there is no necessity for more accommodation than is now being given. When the P. & O. Co. go to their new berth there will be further accommodation open on the western side.

365. *Mr. Suttor.*] We have heard that the wharf on the western side is very much decayed, and that it is absolutely necessary to restore it. Would it be better to restore that wharf in its present place or to make additions? I think any expenditure now to make the wharves more substantial in their present shape would be judicious expenditure, whereas the other expenditure to my mind is extravagant expenditure. There is no actual necessity for extended wharfage.

366. Do you think private wharfowners would be able to provide wharfage accommodation for very large vessels which come here? As a matter of fact, a very large private wharf is in contemplation. I know a very great effort is being made to bring it to the front. That is at Pymont—the old A.S.N. Company's property. There is accommodation there for seven of the largest vessels of the cargo type coming here. They do a great deal of the work. I have seventeen cargo steamers during the course of a year, and they do not require such enormous accommodation as these passenger boats do. There is this large accommodation being provided at Pymont on the old A.S.N. Company's property. There will be accommodation for at least five large vessels if not more. Then the Government are building a very large wharf there. It is almost completed. That wharf should I think, accommodate five or six vessels when the jetties are out. I have not seen the plan, but I have heard it described. It is near Goodlet & Smith's, this side of Pymont Bridge.

367. *Mr. Garrard.*] Is not that next to the railway line? Vessels are more likely to load and discharge there than at Pymont. Private people are spending money, and the Government are spending money in anticipation of bringing foreign trade there. Whether that is entirely in connection with coal I cannot say. I should say it is not from the appearance of it. It will do for far more than coals. At present there is very large accommodation at Woolloomooloo Bay, and there have not been more than three general cargo vessels per annum there since it has been built, so that it is lying idle to a very large extent.

368. *Mr. Suttor.*] If more encouragement is to be given to private enterprise, the Government should spend much less than they do? Yes.

369. *Mr. Humphery.*] Is it your opinion that in view of the increased length of wharfage for the P. & O. Company and the Orient Company, the present wharfage accommodation at Circular Quay is in excess of requirements? I would not say in excess of requirements; but I am perfectly certain that it is quite ample

* NOTE (on revision):—I have to correct this statement by excepting Macnamara's Wharf, which was built out on piles before I built out Parbury's.

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ample for some time to come. It would strike any stranger not perfectly conversant with what is going on, and particularly people going to North Shore, that the Circular Quay is crowded. But that is because we are now in the thick of the wool season. Then, again, vessels are sent to the Circular Quay just for the purpose of taking business away from private wharfowners, because they will not give the owners or agents rebates. The vessels have been put there simply to coerce private owners to give rebates. Private wharfowners are at present under an arrangement with the Government, by which they will give no concessions to shipowners or agents to put the vessels at their wharves. Therefore the agents send the vessels to the Government wharves in order to coerce the private wharfowners into giving them rebates. That is really why they are filling up the Circular Quay at the present moment. In the months of July and August the quay was very full, and the private wharves were not over full. That is just about the position. A return was placed on the Table of the Assembly about May or June last, in answer to a question put by Mr. Dibbs to the Colonial Treasurer, as to whether rebates were being given to vessels going to the Government wharves. The answer given by Mr. Burns, from a report by Captain Jackson, the manager of the Circular Quay, was that the Government wharves were often empty because private wharfowners were giving rebates, and that unless the Government wharfinger were allowed to give some rebates, concessions, or "tip," really to the agents of the ships, the Government wharves would be empty. That in itself is sufficient proof that there is more wharfage accommodation than is ample at the present moment.

370. Is it your opinion that a large portion of the proposed expenditure of £120,000 is unnecessary? Certainly; and the improvements on the western side could be made for half the money. Looking at the plan, and seeing the extension on the eastern side, I think that about half of the proposed expenditure would be sufficient.

371. Have you had considerable experience in the erection of wharves? Yes; I have built several.

372. Can you state, in your opinion, what ought to cover the cost of extending the Orient Co.'s wharf 50 feet? That is a very small affair.

373. Is it your opinion that it would not cost anything like £120,000 to carry out necessary improvements at the present time? To meet the requirements, it certainly would not.

374. To meet all requirements, including the necessity for making some alteration in the ferry services? The alteration of the ferry services is a very small matter, and a very necessary matter.

375. *Mr. Kethel.*] Is it not a fact that the contracts, or part of the contracts, for converting the land you have referred to at Pymont into spacious wharves and warehouses are let, and are not the works in progress? Yes; the works are in very active progress.

376. Are you aware that it is in contemplation to move some of the large lines of ocean steamers from the Circular Quay to those berths as soon as they are completed? I have heard it contradicted to-day, but I have heard it stated. I can only say that I have not heard it officially. I have heard that an effort will be made to move the whole Orient Company over there. I do not know that it will come about. I do not think the Orient Company will ever be so foolish as to go there while they have such a berth as their present one.

377. As a wharfowner interested, you have expressed the opinion that it is wrong for the Government to enter into competition with private enterprise. But the Government having become possessed of the Sydney Cove wharfage, do you not think they are bound, by every means that their professional advisers can suggest, to improve that property so as to make it suitable to meet the demands of the traffic, even if they do a little wrong to private enterprise? No; because private owners will not lose their money simply because the Government choose to spend public money. Private enterprise will come into severe competition with the Government, which will bring down the Government rates. We have it on record that if private wharfowners give rebates and concessions the Government must do the same; and once it begins there is no limit to it.

378. Has the system of rebates totally ceased under the Private Wharfowners Association? Yes. There are one or two wharves outside the Association which have given rebates.

379. But the wharfowners of Sydney, as a rule, have refused to make any rebate on wharfage rates? Yes.

380. Are you aware whether the Government wharfinger still allows rebates, as he did some few months ago, to the amount of 15 per cent.? No. I have heard from Mr. Burns's own lips that he has strictly prohibited any rebate. I have every reason to believe that that is carried out by Captain Jackson. I am open to conviction. To show what the competition has been among private owners trying to get business, I may say that I have known a shipmaster to be met at the Heads and £100 put in his hands to induce him to go to a certain wharf. He went up and discharged at that wharf, and all that the wharfowners made out of the wharfage was £90, so that they lost £10 on the transaction.

381. *Mr. Garrard.*] The Government did not set that immoral example? I think the Government is as much to blame as anybody else in the matter. What I have related occurred years ago.

382. *Mr. Kethel.*] There is another phase of the question. When the competition between Government and private wharves was at its height some years ago, is it a fact that on frequent occasions 50 per cent. and 75 per cent. rebate was granted to the agents of ships to have them sent to certain wharves? Yes; six years ago that was done. That was going on when the private wharves were in open competition. That is one of the reasons why I worked hard to get all the owners to work together. A few months before that was done—when those rebates were given—these people had their places empty, and they could afford almost to let the ships come for nothing, so as to get their stores filled.

383. Is it your opinion that the wharf accommodation at present will be adequate to meet the whole demands of the traffic for many years to come, except in extending the size of the berths? Yes.

384. Is it a fact that in consequence of the great number of steamers which now conduct the goods traffic, and which are superseding sailing ships, one wharf will now grant as much accommodation for the traffic of the port as three wharves would have granted when the traffic was entirely done by sailing ships? I would not like to say so much as that, because the steamers are so much larger that they take almost as much accommodation to start with as two sailing vessels.

385. Will not a steamer come in with 1,000 tons of cargo and put it all out in a dozen working hours, while a sailing ship would take seven days to put out that cargo, and therefore the same berthing accommodation required for one sailing ship would accommodate two steamers bringing two or three times the amount of cargo? That is the position, provided the berths are made a little larger for the extra size of the steamers. Ships come and stop four or five weeks, but a steamer goes away in a few days. That does not necessitate the enormous accommodation that people imagine. 386.

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386. Have you ever made any comparison between the relative durability of wooden wharves and wharves constructed of ordinary sandstone, and as to which is the most economical to construct, keeping in view the time they will last? I believe that our colonial timber, more particularly turpentine, is quite durable enough for all purposes of the sort. Against stone I have always heard the objection that the harbour is more liable to silt up where there is a stone wall than where the water has a free current under the piles. I can speak from my own experience. Twenty years ago I put down the first turpentine piles to any extent, at Lamb's old wharf, and those piles are standing now almost as good as when they were put down.
387. Is it your experience that turpentine possesses sufficient strength of fibre to bear any strain put upon it, although the fact is it does not nearly possess the strength of ironbark? I think so; it is only necessary to put the piles a little closer. That is more a question for a scientific man; it is a debateable point.
388. *Mr. Street.*] Are you aware that the agents of vessels would always give the preference to the berths at the Circular Quay, owing to the facilities for haulage? There is no doubt it is a popular wharf.
389. If the wharves on the western side were set apart for merchandise vessels, would not those berths be rather sought after by the agents? Probably, on even terms; but a very slight difference would turn the scale. I have seen an enormous steamer go up to Woolloomooloo Bay. Those considerations weigh a great deal.
390. Still it is a popular wharf, more particularly owing to the facilities for haulage? It is popular in some respects; but I have heard shipmasters complain about the open thoroughfare. Agents may like it. Except from the haulage point of view, I do not think it is a more popular place or a more convenient place in any way for a shipmaster, who is really the man to be considered. I do not think it is any advantage to the shipmaster or to the man who really pays the money.
391. Is it not the case that no facilities have been given for unloading heavy weights at the Circular Quay except the old-fashioned way of raising a derrick? Yes.
392. Are proper facilities provided at any other wharves in Sydney? Only at one. There is one heavy lifting machine at Mort's Dock. I think the best plan would be to have a floating crane. If a powerful crane were erected at a particular place several vessels would require it at the same time. There was some scheme here to get up a floating derrick; several people took an interest in it; but they found it would be a very expensive piece of machinery, and the project was abandoned.
393. Is there not such a derrick in the Thames? I think there are several; there is one in the docks.
394. *Mr. Garrard.*] With reference to the question put, by Mr. Street, and the proposal to erect a floating crane, which you have referred to, was not the real obstacle to that project the difficulty in getting such heavy weights up the inclines leading from many of the private wharves? There are not many enormous lifts. There is far more difficulty in getting pieces of machinery from the private wharves than from Circular Quay; but out of forty or fifty ships discharged in a year I do not suppose there are more than four or five heavy pieces.
395. You say that one obstacle to the proposal to get a floating crane was the heavy cost of maintenance;— would it not be better to have one fixed place for such a crane, as they have on the Yarra Bank? I do not think a crane would be a very expensive job if it were fixed, and it would be more of a convenience than otherwise.
396. Are you aware of the quantity of material imported by the Government? It varies very much.
397. You know it is considerable? Yes; it varies.
398. Does not a great deal of the material so imported come by sailing vessel? Yes.
399. Therefore, the Circular Quay being Government property, it is desirable to have berths for sailing vessels on the western side? Yes.
400. I understand you agree that it is desirable to have those improvements on the eastern side for large mail-steamers? Yes.
401. That accommodation is not provided by any private wharfowner at present? No; private wharf-owners can give it, but the mail-steamer companies prefer the Circular Quay, where their vessels can be seen.
402. Is that the reason? I think so.
403. Is there any private wharfowner in Sydney able to give sufficient accommodation—an average of 550 feet? Yes; there is a very fine wharf now in the market which could give that accommodation if the owners were allowed to build out, and were given the facilities given to other people.
404. In reference to building out, for instance, in the bay you refer to, if each wharfowner were allowed to run out a jetty, would they not meet at a point in the harbour between Dawes Point and Moore's Point? No; because it is very much in a bight.
405. The very fact of their running out to an extreme point would render it inevitable that they should come near to each other? That is quite likely, if they got out so far.
406. Have you not noticed a difficulty in berthing vessels at Dalton's Wharf and Moore's Wharf through the jetties extending far out? They might overlap each other, but if they kept within their own water there would be no difficulty.
407. Do you think that the Harbours and Rivers Department sometimes place difficulties in the way of private owners extending their wharves? They place difficulties in some people's way. They do not place difficulties in the way of gentlemen who have run out a wharf at one place.
408. If it is absolutely necessary to renew the wharf on the western side, do you not think the proposed echelon plan would be better than to have a straight berth? I think it is a very nice improvement indeed. I only question the necessity for it.
409. You know a great deal about the traffic of the cove. Do you not think that the shifting of the Manly Beach and Watson's Bay boats is preferable to the present state of things? Yes.
410. There will not be so much crossing of each other's boats? No.
411. Are the A.S.N. Co.'s wharves now used for ocean-going vessels? Yes; since the Government came into possession of them. In their present state they give accommodation for six more vessels of the ordinary size.
412. In any of the wharves in which you are interested, are the piles sheathed, or are they covered with the ordinary bark? It is only the Government who can afford to sheath piles.
413. Do you think it is desirable to sheath piles? No; it is a waste of money.
414. Do you think the natural cover of the bark is far preferable? Yes. I am speaking of turpentine. Ironbark piles require to be sheathed.

415. *Mr. Sydney Smith.*] I understand you have constructed wharves with turpentine piles. What is their life? Fourteen or fifteen years; I know from my own examination. There are other turpentine piles which were put down twenty years ago. I believe they are quite good yet, although I have not examined them for the last four or five years. Those were put down without bark, and I think if the bark were left on them they would last much longer. A. Lamb, Esq.
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416. How much longer? I have not had them down long enough to be able to say.

417. With regard to the improvements now proposed by the Government, supposing this were private property, and the P. & O. Co.'s wharf was not in proper repair, and would have to be renewed, do you not think it would be advisable to make the improvements suggested by the Government? A private wharf-owner would certainly look at the cost and the probable return.

418. You have referred to a return laid on the Table of the House in reply to a question. How long ago was that? It was about May or June last. A question was asked by Mr. Dibbs as to whether it was a fact that the Government Wharfinger was giving rebates for vessels at Circular Quay.

419. You have referred to M'Ilwraith's Wharf, which has been extended into Darling Harbour. Do you not think it is an obstruction to vessels to have a wharf projecting in that way? I think that if all were allowed to do the same thing the harbour would become impassable.

420. Supposing the opposite side were owned by private owners, and they wished to extend their wharves would it not be impossible to do so? They would simply meet. There would be no room to go down to the Government wharves. The present extension will almost make the Government wharf useless in course of time.

421. *Mr. Suttor.*] If you were told that the gross receipts from the Circular Quay were £40,000 per annum, and that the expenditure was only £1,700 per annum, do you think that an expenditure of £120,000 would be justified? It would depend upon whether the receipts are going to be £40,000 per annum.

422. We were told that the receipts this year were estimated to amount to about £40,000, and that the expenditure to collect it was only £1,700? Those receipts include those from the new purchases for which the Government have given a large sum. As for that being a good return for the value of the property there is nothing particularly good in it. At the same time it is being bolstered up now to a certain extent by the assistance of the private owners. If the private owners choose to give concessions we can reduce that very materially. Therefore it is not to be reckoned upon as a fixed rental. I know pretty well what the rentals are, although Mr. Yuill could not give an answer to the question. The Orient Co. and the P. and O. Co. each pay about £2,500 per annum, and the Government collect the wharfages, so that the berths yield very handsomely to the Government, each berth giving £6,000 a year or more. But it is very special accommodation for such large steamers. I say that the further expenditure of £120,000 will not necessarily increase the revenue to such a vast amount as they may expect. It is only an estimate, and we know how estimates are made up.

Mr. William Leslie, manager of the Watson's Bay and South Shore Steam Ferry Co., sworn and examined:—

423. *Chairman.*] Are you the manager of the Watson's Bay Ferry Co.? Yes; I have been the manager since the amalgamation, two and a half years ago. Mr. W. Leslie.
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424. Have you found sufficient accommodation for your trade at all times at the jetty you are using? Yes.

425. Is it proposed to shift your jetty? Yes; to shift it to the east end.

426. Will that give you the same accommodation as you had on the other side? It depends upon the kind of jetty that we are to get.

427. You are not aware of the proposed design of the jetty you are to get? No.

428. Have you sufficient accommodation where you are for the trade carried on? Yes.

429. Your trade is not so great as that of the North Shore Co.? No; it is not a twentieth part.

430. How many steamers have you? Five.

431. Have you given any attention to the proposed improvements at the Quay generally? Myself and Captain Summerbell looked over them on Friday last.

432. You would not be called upon to give special attention to the proposed improvements? No.

433. Do you think it is desirable that the proposed improvements should be made? I think alterations should be made.

434. Are you aware of any inconvenience which the large steamers have suffered? I am not aware of it.

435. *Mr. Kethel.*] Have you noticed the position in which it is intended to place the floating jetty—that is, to move it to the eastward about 100 feet;—when a vessel is berthed there loading or unloading, do you think there will be any room for a passenger steamer to get to and from the floating jetty? There is no room even for the jetty.

436. Assuming that the floating jetty is removed from its present position to the proposed position, 100 yards to the east, will there then be access for passenger boats if a ship is berthed at the place proposed in this plan? I should imagine there would not be any room. The ship would take all the room, unless the ship is kept more astern.

437. In your opinion it would not be judicious to move the floating jetty into the south-east corner unless the ships occupying that berth were kept well astern? Yes; I do not think there would be room in the present plan.

438. *Mr. Garrard.*] How many ships are berthed there? Two at present.

439. What is the length of your present wharf? About 120 feet. Our steamers are 95 feet long. Only one of our vessels can lie alongside at present.

440. By reducing the width of the outer end of your proposed new wharf, would it be possible to obtain three berths where only two berths are shown at present? Yes.

441. Could the same thing be done in the case of the Manly Beach wharf? Their vessels have much more beam than ours, and they are longer.

442. Do you think it is an improvement to shift the ferry steamers from the western to the eastern side? Yes.

443. *Mr. Street.*] As the vessels are berthed at present, is there much difficulty in navigation, coming in and going out? Yes; there is very considerable difficulty.

444. Do you think the traffic is dangerous as the steamers are berthed at present? Yes; it will be considerably improved by shifting the Manly boats. The danger will be lessened. There will be no crossing

Mr. W. Leslie. crossing then, because the Watson's Bay and Manly boats will keep on the eastern side, and the Neutral Bay, North Shore, and Parramatta boats will keep on the western side, and need not cross each other at all. I think that would be a great improvement.
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445. *Mr. Garrard.*] Have you had large experience in various parts of the world? Yes, in these colonies, New Zealand, and at Home.

James Weir, Esq., Agent for the Peninsular & Oriental Steamship Co., sworn and examined:—

J. Weir, Esq. 446. *Chairman.*] Are you the agent of the P. & O. Co.? Yes; I have been so for the last six years.
 11 Sept., 1888. 447. Are you acquainted with the accommodation which the Government intend to provide at the Circular Quay? Yes.
 448. Do you think it is necessary? I do; for the general accommodation of the port.
 449. Do you consider that what is to be done for the P. & O. Co.'s vessels is absolutely necessary? I do.
 450. Are the Government giving you enlarged accommodation? Yes.
 451. Greater than before? We had nothing from the Government before. At the present time we are occupying what is called a temporary wharf, on the understanding that we will be moved to a permanent one as soon as it is built.
 452. Have your captains complained at any time of the difficulty of utilizing the wharfage accommodation on account of the insufficient depth of water? Yes; when we were at the old A.S.N. Co.'s wharf we suffered very much from that.
 453. Is that the case, since you have been at the present wharf? No; that is only a matter of a few months.
 454. Have you sufficient depth of water where you are now? Plenty.
 455. Do you think that the proposed accommodation will be of considerable value in carrying out your increased trade? Yes.
 456. Is it your opinion that the trade of this port is increasing and is likely to increase, and that therefore more accommodation is necessary? Yes.
 457. What is your opinion about the propriety of the Government constructing these works, and entering into competition with private enterprise. Have you heard that the Government are doing more than they should? I have not heard much of that.
 458. It is the fact that the Government own the principal frontages to the Circular Quay, and they being the proprietors, do you not think it is their duty to make the frontages as accessible as they can? Certainly; I think, as far as I can offer an opinion, that it would be the duty of the Government to provide a certain amount of accommodation.
 459. Have you given any attention to the proposed improvements generally? No; I would have done so if I thought I should be called upon to give evidence, but I am aware of what has been proposed.
 460. *Mr. Suttor.*] Would you rather deal with the Government or with private individuals in leasing or using wharves? It depends upon circumstances. I am quite ready to deal with the Government, but that would entirely depend upon circumstances. I may tell you in connection with that that the rents charged by the Government, which we are paying now, are considerably more than we were paying to the old A.S.N. Co. We then rented that wharf at £2,350 per annum,* and our wharfages were on an average, during my time, about £3,000 per annum, so that really we had a margin. But in dealing with the Government we shall have to pay £2,500 per annum and sacrifice all the wharfages. Of course that is a wonderful difference.
 461. The Government derive no other revenue from the berth you use besides the amount you pay? No; except the wharfages before referred to, and it is quite enough.
 462. *Mr. Kethel.*] When your Company occupied the old A.S.N. Co.'s wharf, did you collect the wharfages, and will the Government now charge you for your berth and collect the wharfages? Yes.
 463. *Mr. Sydney Smith.*] Is that really the state of the case? I can only give you an idea based on my experience at the time we collected the wharfages ourselves, and I think the average was quite £3,000 per annum.
 464. Did that include everything which the Government got from the berth, including your rental? The A.S.N. Co. received the rent, and my Company the wharfages, but the Government renting a wharf to us would receive the wharfages and an additional £2,500 for rent.
 465. Besides the £3,000? Yes; so that it ought to be a source of revenue to the Government of nearly £6,000 a year.
 466. *Mr. Garrard.*] What is the length of your longest ship? I think about 485 feet.
 467. Is that the largest of the fleet? Yes. We go on increasing in size, and it is difficult to say what it may ultimately be. The next may be 500 feet.
 468. Have the Government in their provisional agreement undertaken to give you 624 feet? No, 500 feet.
 469. Then if 624 feet is in course of construction to give a berth for your vessels, and you are only to get 500 feet, there will be 124 feet to spare? That is not for us. It is for some other Government purpose. We shall only get 500 feet. I think it is in contemplation to alter the Messageries Maritimes Co.'s berth.
 470. *Mr. Kethel.*] Have any of your steamers of the deepest draught ever experienced any difficulty in getting in or out of the berths, or in getting up and down the harbour? I cannot say that they have.
 471. Have you known the masters of any of them to have been obstructed by the reef at the Sow and Pigs? No. They know it is there, and the pilots keep out of its way.
 472. There is a shallow bar across the channel. Will the depth of water alongside your new berth be quite sufficient for any vessel that comes in? It will have to be deepened very considerably. I am not prepared to say what it is at present, but I think it is very little, 22 feet or so.
 473. Will 28 feet be ample? Yes; 28 feet will be sufficient, but 30 feet would be better.
 474. It will not hurt if they touch, as it is a soft silt bottom? We do not like them to touch at all.
 475. *Mr. Garrard.*] Can you tell us the length of the Messageries Maritimes Co.'s boats? No; but they are something over 400 feet. I may tell you in connection with that that they are building four steamers at the present time for this trade, and they will be 500 feet long. Robert

* NOTE (on revision):—Including £150 Municipal taxes.

Robert Hickson, Esq., M.I.C.E., Acting Engineer-in-Chief for Harbours and Rivers, sworn and examined:

476. *Chairman.*] Are you superintending the construction of the proposed improvements at the Circular Quay? Yes.

477. What is the length of the accommodation given to the Messageries Maritimes Co.? 480 feet.

478. Will that be sufficient to accommodate their steamers? That is what they have now. We are taking 50 feet off that, and giving it to the Orient Co., which will involve the Messageries Maritimes Co. going further over to the P. & O. Co.

479. Will they be able to do that? Yes; they can project over it a little.

480. Will that be a safe position for the steamer? I think so. It is only 24 feet beyond the present wharf. That will leave 600 feet of wharf; 500 is for the P. & O. Co., and the remaining 100 feet is for small vessels discharging coal.

481. So that you will have a frontage, independently of that used by the P. & O. Co.? Yes, of about 100 feet.

482. *Mr. Garrard.*] For what purpose will these vessels discharge coal? For general purposes. The wharfinger says that some place is wanted at the Circular Quay where small vessels can discharge coal, and he thought this would be the most convenient place.

483. Do you not think that would be very objectionable, coming alongside three lines of mail steamers? It will not be close to the passengers.

484. Do you not think it will be very objectionable? I do not think so.

485. From your experience of Newcastle, do you not know that there have been frequent complaints about bringing coal down past the city to the old wharf, and that one of the arguments used is that the change would get rid of the dirt and dust necessarily connected with this coal export? I cannot say that I ever heard that reason given. The reason for removing the coal trade from there is because the wharf accommodation is required for general cargo purposes.

486. Can you tell us of any place in the world where general merchandise and coal traffic are mixed up together, where there are facilities for separating them? I could not tell you from memory now.

487. One of these berths is for these coal vessels; what is the length of an ordinary brig? 120 feet.

488. She might project 20 feet over the fairway? She would project 20 feet beyond the point.

489. *Mr. Kethel.*] What is the length which you have allowed for the Orient steamers with the new addition? 400 feet.

490. Would it not be possible to change the alignment of the outer line of piles so as to enable the Messageries Maritimes Co.'s berth to be lengthened 50 feet, and to give 500 feet to the Orient Co., without interfering with the general scheme? There are some difficulties in the way. The main difficulty would be this: You would have to bring in the alignment considerably, and carry on another line 100 feet. You would get into shallow water, and you would have an enormous quantity of rock excavation to get deep water in this berth. I think it would alter the general design too much to bring the Messageries Maritimes Co.'s boats into the same line with the Orient Co.'s boats.

491. Do you not think that the coal trade to which it is intended to allot the outer end of that extension could be better conducted at what was recently known as Campbell's Wharf, or at some other wharf? I am hardly able to give an opinion on that point. Captain Jackson will be better able to do so. There is a special reason for that. All this was arranged before I came to town, and there was some special arrangement made by Captain Jackson for putting the coal vessels there. I think he can explain it.

492. Are you aware that the Messageries Maritimes Co. are constructing a number of steamers considerably longer than those at present trading here? Yes.

493. Are they not over 500 feet? They can go in there if they are 500 feet long.

494. *Mr. Sydney Smith.*] I understand you do not propose to extend the Orient Co.'s Wharf at present? Yes; it is proposed in the whole scheme.

495. It is not in this proposal now before us? Yes, it is.

496. I think we have it in evidence that it is not included in the present estimate? I think it is part of the present estimate.

497. Are you aware whether the Orient Co. is asking for additional accommodation? I have not heard.

498. Are you aware whether it has been represented to the Government that their vessels are in great danger on account of having small accommodation? I have not heard that.

499. Do you not think that, in making arrangements now to give additional accommodation to the various companies, it would be advisable to carry out a general scheme so as to give the Orient Co. and the Messageries Co. sufficient accommodation to berth their longest steamers? I think so.

500. Supposing the wharf is constructed as proposed, how would you give the extra accommodation—that is, 450 feet—to the Orient Co.? You cannot give it farther north, but you can in the south. But I think they have sufficient accommodation, because they can overlap at each end. There is 100 feet to spare at the extreme eastern end.

501. *Mr. Garrard.*] I understand that you prefer, if there is a necessity to lengthen the Orient Co.'s berth, to do so at the southern end? Yes; but it is not necessary to lengthen it. On looking over the papers I find that the proposal to add 50 feet to the Orient Co.'s Wharf is included in the estimate of £120,000.

502. *Mr. Kethel.*] Is the extension of the northern jetty at Campbell's Wharf also included in this Vote? Yes.

Captain John Jackson, Manager of the Public Wharves at Sydney, sworn and further examined:—

503. *Mr. Garrard.*] We have it in evidence that a wharf is being provided for the P. & O. Co., whose contract with the Government is for a berth of 500 feet. This berth on the plan, however, is 624 feet, leaving 124 feet extra. It is intended to allow the Messageries Maritimes Co.'s boat to overlap 50 feet, so that there will be a surplus length of 100 feet, which, we are told, is to be used for the purpose of unloading cargoes of coal. Has that been done on your recommendation? No, not absolutely; but it will be done.

504. Do you not think that the unloading of coal will be very objectionable so close to the berths of those large passenger-carrying palaces? I do not think so.

R. Hickson,
Esq.,
M.I.C.E.
11 Sept., 1888

Captain
J. Jackson:
11 Sept., 1888.

- Captain
J. Jackson.
11 Sept., 1888.
505. Do you know any place in the world where coal is handled so close to general cargo and passengers? Not exactly. In this case the wharf will be fenced in, and the way in which coal is now discharged at the Quay is that it is hoisted up and put into the carts.
506. By baskets? Yes.
507. There is the emptying of the baskets into the carts;—would not the prevailing winds have a tendency to blow the dirt and dust on to the P. & O. Co.'s boats? Yes; I admit it would.
508. Are there not also a considerable number of passengers by the horse-ferry who would also be incommoded? Yes, in a measure. The berth would not only be for coal, but also for timber.
509. There are 100 feet available for this purpose;—what is the length of the vessels coming from Newcastle? Not more than 110 or 120 feet.
510. So that they would project 10 or 20 feet? Only the fore hatches.
511. What would be the length of the timber vessels? They are only small ketches.
512. Do you not think it would be undesirable to have coal traffic so near to those floating palaces? Yes; to a certain extent I admit it would be undesirable.
513. If there is no necessity for an additional 100 feet there, and you could bring the ferry-boat 100 feet more under the shelter of the point, would it not be better? I think it would, but the contract is now let.
514. If there is a project to give greater length of berth to the Orient Co., would an increase of the wharf on the southern end be very objectionable? Yes; very much so. It would interfere with the berthing and unberthing of ships inside of it.
515. Would not the same objection apply in extending the wharf at the other end towards the Messageries Maritimes Co.'s berth? Not at all.
516. Is not their berth a kind of dock? They go in from the northern end, but on the other side they will have to come south and go alongside. You could not always get them south, because there would be two vessels lying inside, and perhaps two outside.
517. Do you propose to move the floating jetty to the position marked on the plan? No; it could not be done, because the jetty would be brought right on to the bows of the vessels.
518. Could you shift it further around where it is at present? Yes, but the other wharves would have to be curtailed.
519. In running out a jetty for the Watson's Bay Co., does this plan only provide two berths, one on each side? Yes.
520. Do you think it would be better if the outer end of that wharf were reduced in width, so as to give three berths instead of two? Yes; you could get two small steamers in, and have three berths instead of two.
521. If the Manly Beach Wharf were extended further, do you think there would be any objection? I do not think so.
522. I suppose there is hardly room to do it for them because their boats are wider? Yes.
523. *Mr. Sydney Smith.*] When you were here before did you state that you did not believe at all in the present arrangements for passenger traffic? No, not for the North Shore ferry traffic. I would sooner see it brought on to the western side, because there is a danger of crossing if the North Shore ferry is to be where it is now proposed. The Manly Beach and North Shore ferries come rather too close together under this proposal. The present proposed wharf for the North Shore boats is too large.
524. With regard to the accommodation proposed to be given to the Orient Co., what is the present length of their berth? 320 feet.
525. It is now proposed to give them 50 feet more. What is the longest boat they have? 430 feet.
526. Have you heard them complain of a want of sufficient accommodation? Yes.
527. Will the extra accommodation of 50 feet get rid of the danger? I think so.
528. Do you think there will be no necessity to extend it further for their long boats? No. They have applied for an extension on the southern side, but that is what I object to. If there is any necessity to extend it to the north it could be easily done.
529. *Mr. Kethel.*] It was stated that some of the Orient steamers have hatchways 400 feet apart, and if the new extension only increases the wharf to 380 feet it is evident that one of the hatches will be 20 feet outside the wharf berth. Is it not within your knowledge that the hatchways are 400 feet apart? No; I do not think so. The boats are only 430 feet long.
530. *Mr. Sydney Smith.*] If you extended the Orient Co.'s wharf 50 feet more, would it interfere with the Messageries Maritimes Co.'s wharf? Not if it runs in a certain way.
531. Do you remember a question being asked in the House by Mr. Dibbs as to whether or not the Manager of the Government wharves allowed rebates in the wharfage rates, when Mr. Burns replied that as the private wharfowners allowed rebates the ships landing at the Government wharves would not go to them unless the Manager was also allowed to give rebates? Yes; private wharves at that time were giving rebates of from 50 to 75 per cent. on inward cargo.
532. Did that take place in this year? Yes. I applied to Mr. Burns to allow me to give a rebate up to 25 per cent. The private wharfowners then waited upon Mr. Burns, and asked him to cease giving rebates, on condition that they also ceased from doing so. The matter ended there.
533. It was quite sufficient if you only gave 25 per cent? Yes; we were safe to get the ships at 25 per cent.
534. Is that arrangement now observed by the private wharfowners? I think they are beginning to work through it again slightly.
535. Are the Government aware of that fact? I do not want to acquaint the Treasurer of it just yet. It has not yet come to a proper head.
536. *Mr. Kethel.*] In the face of that fact, do you think we are justified in recommending the Government to expend such an enormous sum of money upon a commercial enterprise which must bring the Government into contact, collision, and opposition with private owners? It would not be opposition to give 25 per cent., while the private wharfowners are giving rebates of 75 per cent.
537. It is opposition in this way: The Government are starting in business as wharfowners, and they have spent during the present year something like £320,000 in purchasing property for which they have no use except to work the wharves for the purpose of making money? They pay for themselves, and give splendid interest.

538. *Mr. Garrard.*] Do you not recognise the fact that the Government are not now entering for the first time into competition with private owners ;—being owners, and having been owners for many years, of large wharf properties, they are, as business men, simply making the best use of them? Yes, without injuring others or cutting below others in the slightest degree.
539. *Mr. Kethel.*] I suppose you are aware that the wharfage accommodation, public and private, in Sydney, is about twice what is required to accommodate the traffic of the port? I do not know that.
540. Since you have been in charge of the Circular Quay, have you ever known a time when all the wharfage accommodation in the harbour has been occupied? I do. I have had ships lying down the harbour a whole week waiting for a berth.
541. At your wharf? No; at any wharf in Sydney.
542. Are you not aware that the splendid Dibbs' wharf has not been more than one-fourth occupied on an average? Repeatedly vessels have been waiting down the harbour for berths. Twenty-eight large home ships were lying in Woolloomooloo Bay in 1885, discharging inward cargoes. They could not be accommodated. Since then the private wharves have been greatly improved.
543. Do you know for what purposes those jetties are to be used which are now being run out in a northerly direction from Pyrmont down the harbour? They are for railway purposes.
544. *Mr. Sydney Smith.*] Will the erection of the wharves at Darling Harbour to a large extent relieve the wharves at Circular Quay? Not at all.
545. Do you know what is proposed to be done at Darling Harbour? It is proposed to bring wool down there.
546. Have you heard of any proposal to unload there all material required for the railways? Yes; but that does not come in at the Circular Quay at present. It has been taken in lighters. For the last two years no railway material has been landed at the Circular Quay wharf.
547. *Chairman.*] How long have you been in charge of the Circular Quay? Four years.
548. Is the trade making annual progress? When I went there the revenue amounted to £7,000 per annum. This year it will be close on £50,000.
549. *Mr. Kethel.*] That will be including the revenue from the recently-acquired A.S.N. Co's. property? Yes.
550. *Chairman.*] Do you believe that the trade of the port is increasing regularly? Yes; and very rapidly.
551. That being the case, I presume you are strongly of opinion that increased accommodation is required? Yes.
552. Going outside the question of competition with private owners, do you think that the Government are quite warranted; as owners of this property, in making adequate accommodation for the shipping? I do.
553. *Mr. Street.*] Do you say that ships coming here would always give the Circular Quay the preference? Yes.
554. Even when there is a difference in the rebates of 25 per cent. as contrasted with 75 per cent.? Yes.
555. What is the reason? Principally on account of the haulage. It is easier to take the goods away.
556. *Chairman.*] It is owing both to your proximity to the business part of the town and the easy grades? Yes. They prefer the Woolloomooloo wharf to the back wharves.
557. *Mr. Kethel.*] During previous years there were bitter complaints from merchants and consignees of goods to the effect that goods when landed from the ship's slings were placed in a public street, over which the authorities had no control, which was open to all prowlers, and where there was no shelter from the weather;—has that objection been removed? It is removed in a great measure. There is no cause of complaint now except on the western side, where the roads are narrow. On the eastern side complaints are very rare.
558. Do you have general cargo on the eastern side? Yes.
559. Was it to remove that objection that weather-sheds were erected at different parts of the Quay? Yes.
560. It was especially on the west side where the greatest complaints were made? Yes. There are complaints occasionally now, because the road is very narrow. It is not sufficient to give accommodation for ships. I think it is only right that when the Government gets a large revenue it should give some protection to the cargo. If it is landed at Woolloomooloo, there is a large shed.
561. *Chairman.*] Is it intended to do ultimately something of the same kind on the western side? Yes. There are three large sheds on the eastern side now.

THURSDAY, 20 SEPTEMBER, 1888.

Present:—

The Honorable JOHN LACKEY (CHAIRMAN).

The Hon. GEORGE CAMPBELL.
The Hon. WILLIAM HENRY SUTTON.
The Hon. JAMES WATSON.
The Hon. FREDERICK THOMAS HUMPHERY.
HENRY COPELAND, Esq.

ALEXANDER KETHEL, Esq.
JOSEPH PALMER ABBOTT, Esq.
JOHN RENDELL STREET, Esq.
JACOB GARRARD, Esq.
SYDNEY SMITH, Esq.

The Committee proceeded to further consider the proposed Improvements to Circular Quay.

[The Chairman reported that Mr. Campbell, Mr. Sutton, and Mr. Abbott had that morning visited the Circular Quay, and examined those parts of the Quay proposed to be altered or improved according to the plan and the evidence before the Committee.]

Thomas Littlejohn, Esq., merchant, sworn and examined:—

562. *Chairman.*] You are engaged in mercantile pursuits in Sydney? Yes.
563. Are you ex-chairman of the Chamber of Commerce? I was chairman five or six years ago.
564. Are you aware of the object for which you have been asked to attend here: that is, to give us some information with reference to the proposed improvements at the Circular Quay? I have some idea of what it is.
565. Are you aware of the nature of those improvements? Yes, to some extent. I have looked round the Quay this week.

Captain
J. Jackson.
11 Sept., 1888.

T. Littlejohn,
Esq.
20 Sept., 1888.

- T. Littlejohn, Esq.
20 Sept., 1888.
566. Of course you know that all the land around the Circular Quay is the property of the Government? Yes.
567. And that the object of this proposal is to improve it to a certain extent? Yes.
568. Have you given special attention to the proposed improvement of the wharfage accommodation? Yes.
569. Have you seen the plan? I have seen a reduced plan, which has been sufficient to acquaint me with the object of the improvements.
570. It is proposed to improve the accommodation especially on the east and west sides, where the P. & O. Co.'s vessels, the Messageries Maritimes Co.'s, and other mails steamers are accommodated, and, in addition to that, it is proposed to alter the traffic as far as the Manly Beach and Watson's Bay trade is concerned? Yes.
571. Do you think that those improvements are essential? I think they are exceedingly desirable.
572. In fact I suppose that if this property belonged to private individuals it would have been improved to this extent long ago? I am sure that is the case.
573. Is there anything in the proposed improvements which you think would militate against the public interest in any way? No. I approve of them generally; but instead of being an extension of wharfage accommodation, as far as the public is concerned, they will diminish it to a certain extent, for this reason: I understand that some of the wharves which used to belong to the old A.S.N. Co. will be taken for the use of the Government, so that there will be a berthage for two vessels at any rate lost there. Then there will be the berthage of one vessel lost opposite Mort's stores at the Circular Quay. That will be the loss of three berths. Instead of these berths you have only one new berth for the P. & O. Co.; so that these improvements are really a restriction of accommodation.
574. Has your attention been directed to the modern improvements in wharfage accommodation generally in other ports besides this? Not as an expert.
575. Do you think that these are reasonable improvements, at all events? Decidedly so. If you would allow me I should like to make one suggestion which has probably been before the Committee. It is this: The road that leads around beyond Hill, Clark, & Co.'s store up to the rocks is a higher level than the road next to the water. I should decidedly recommend that it should be reduced to the same level as the road next the water, for in some places it is four or five feet higher where you go round to the fort. It would be exceedingly inconvenient to leave that road at its present elevation.
576. Could it be done without any very great expense? I think so. Another thing that occurred to me was that it was a great mistake to ever allow Hill, Clark, & Co.'s stores to be erected on that corner.
577. Have you given any attention to the proposed alteration of the wharf adjoining the North Shore boat jetty at the extreme north-eastern end? That is for the horse ferry. It strikes me it is very suitable, and the only drawback to it will be the risk of collision with the Manly and Mossman's Bay boats; but that, I suppose, is not a very serious matter.
578. Is there any other suggestion, as a mercantile man, that you would like to make in reference to these improvements? No; not looking at the improvements as improvements. I do not know whether the mode of delivering cargo occupies the attention of this Committee at all, but there is very great room for improvement in that respect. If the same system which prevails in London at the docks in taking charge of cargo, and seeing that it reaches the proper hands, could be introduced here it would be a great advantage. No doubt it will come in time, as this city is growing so rapidly, but at present the arrangements are of the most primitive and unsatisfactory character.
579. The wharfage accommodation? No; the arrangements for receiving and delivering cargo to the different consignees. Having the wharves on open roadways is an exceedingly objectionable feature.
580. Does it apply to the Government wharves especially or to the wharfage generally? More especially to the Government wharves. Some of the private wharves have gates, and really, on some occasions, they have been able to give very great and satisfactory attention to the proper distribution of the ships' cargoes.
581. Of course in any place the Circular Quay would be regarded as a very valuable public property? Exceedingly so.
582. And in that light would be worthy of any reasonable expenditure that might be made upon it? It would.
583. You think that the proposed improvements are of a tolerably satisfactory character, at all events? Decidedly.
- The Honorable Samuel Aaron Joseph, M.L.C., sworn and examined:—
- Hon. S. A. Joseph, M.L.C.
20 Sept., 1888.
584. *Chairman.* Are you engaged in mercantile pursuits in Sydney and have you been so engaged for many years? Yes.
585. After looking at the plan now before the Committee, and as far as you are able to form an opinion, do you think that the proposed improvements at the Circular Quay are of a desirable character? I do.
586. Do you think that additional wharfage accommodation is necessary? Yes.
587. Do you think that this being a valuable public property it is essential that fair accommodation should be given? Certainly. It is a most desirable wharf property.
588. If the same property were in the hands of private individuals do you think that these improvements or better ones would have been made years ago? I think there is very little doubt of it.
589. Is there anything special in the proposed improvements that you would take exception to in any way as a man of mercantile experience? I think not; except that it does not give any very much increased accommodation.
590. Does it not enlarge the berthage accommodation in places? The new berth of the P. & O. Co. is the increased accommodation, but there will be only berthing room for the same number of ships that there is at present, I think, with that exception.
591. Does it not affect the trade between here and Manly Beach and North Shore by ferry, and remove all the jetties on to one side? Yes; they will not cross the Cove.
592. Do you recollect a proposal some years ago to take a jetty out into the centre of the Cove? Yes.
593. That, of course, was strongly objected to? I remember it; but I do not exactly recollect what the particular objections were.
594. Are you a wharf proprietor at all? No.
595. Are you of opinion that the trade of the port is increasing? Yes, considerably.
596. And is it likely to increase? It must increase.
597. That being the case, is it essential that public property such as this should be fairly and reasonably improved? I have no doubt of it myself.

598. *Mr. Watson.*] The last witness said that the facilities at the Circular Quay are not so great as they are at private wharves—Can you explain that in any way? No; I have never found that to be the case. I have always preferred sending all my ships to the Circular Quay, in preference to other wharves, principally on account of the haulage which is very much easier. The access for drays and all that sort of thing is very much easier than it is at most private wharves.

Hon.
S. A. Joseph,
M.L.C.
20 Sept., 1888.

599. Have you a large number of ships consigned to your firm? Yes.

600. Do you always give the preference if you can to the Circular Quay? Yes; I do not say that there are many greater facilities there, but it is more convenient, and I think that there is no doubt that the captains of ships always prefer going to the Circular Quay rather than to the other wharves.

601. But the Circular Quay could not be enclosed the same as some private wharves are, so as to protect goods landed from vessels? I do not see why it could not be.

602. Take the western side—Is not that on a public street? The wharves are not on a public street.

603. The western side is? I thought the street would be at the back of the wharves.

604. The Government attempted to close it up on one occasion, and they were prevented? I am quite of opinion that all discharging berths should be enclosed sheds, and that those sheds should be closed at night.

605. At the present time when vessels discharge on the western side, must not the goods be removed before night, or they would lie at the mercy of anyone? Yes; there are no sheds there except the P. & O. Co.'s shed.

606. Would it be a great convenience to consignees and shipmasters if there were enclosed sheds? No wharf can be considered complete without enclosed sheds.

607. On the whole do you think the Government are justified in spending £120,000 in improving the Circular Quay at the present time without sheds? I do not think the work would be complete without sheds. I am not prepared to say at once anything about the amount of money, because I have not given it sufficient consideration.

608. Still, do you think that the trade of the port would demand such an expenditure? I think the trade of the port warrants any reasonable expenditure to make the wharfage accommodation compatible with the increasing trade of the port.

609. *Mr. Kethel.*] You have occupied a prominent position in the mercantile community as Chairman of the Chamber of Commerce, and you have taken an active interest in the extension of the railway system into the city? Personally I have not taken an active interest in the extension of the railway into the city.

610. You are aware that there is at present an agitation on the subject, which has been considered several times by the Chamber of Commerce during past years? Yes. I have abstained from taking any prominent part in the question of the city railway extension, from the circumstance that being a Member of the Legislature I considered it better not to give any expression of opinion before it came before me in that place.

611. In relation to that, what I want to allude to is this: Is it wise, in your opinion, for the Government to carry out extensive alterations in the public wharves of the city at present, while the question of the route and system of the city railway has not been decided upon;—would it not be wiser for the Government to wait until Parliament had decided upon the system of railway extension connecting with the various wharves of the city, and then make all the wharfage improvements and extensions harmonize with the proposed system of railway extension? Without giving the matter further consideration it does not strike me at the moment that the railway extension into the city and the improvement of the wharves at the Circular Quay are so very intimately connected. Supposing there were a railway alongside the wharves, ships' cargoes could not be discharged into the railway trucks. In Melbourne there is a very different sort of system. They have there a large central goods depôt, and the railway discharges the whole of the goods into that depôt. They are taken from there by the consignees in whatever way they choose—by vans, carts, or anything of that kind. Precisely in the same way the consignees here take the goods off the wharf. They have an opportunity there of sorting such things as they require to send on by rail into the interior. But the large bulk of the railway traffic in imported goods is in sorted parcels, and not in the large bodies of goods landed from import ships.

612. I understand it to be your opinion that whatever wharfage improvements may be carried out by the Government the railway extension could be modified to suit them without interfering with the utility of the general system. Is it your opinion that if the railway system is extended into the city and connected with the various wharves its utility will not be affected by the present proposed improvements of the Circular Quay, and that the railway might be modified to meet exigencies? I think that great facilities might be afforded by there being a railway in close proximity to the wharves; but I do not think that the absolute question of wharf accommodation is sufficiently intimately connected with the extension of the railway into the city that it should be deferred until some scheme of railway extension is completed.

613. *Mr. Suttor.*] As a large importer, have you any difficulty in securing berths for your vessels coming here? No; I am not in the habit of hearing any complaints. We have a difficulty in obtaining berths at the Circular Quay, where we require them very often. As I have said before, on equal terms we always give the preference to the Circular Quay, unless there is some very great consideration otherwise.

614. Can you give us any idea at what rate the trade of the port is increasing? No; I have not prepared myself with any statistics of that sort. I do not think any opinion I could give would be sufficiently reliable to be of any service.

615. But it is increasing very rapidly? There is no doubt about that.

616. The import and export trade? Yes, and must continue to increase.

617. *Chairman.*] Do you think that wharfage improvements and accommodation are bearing a fair proportion to the increase of trade generally in the Colony;—are they keeping pace with the increased commerce of the Colony? I am inclined to think not. It has been my view for a long time, that there should be a Harbour Trust, and that the whole of the wharves should if possible be under the control of a Harbour Trust, so that they could be all under one general management, and the accommodation then would, under such a trust, be kept up in accordance with the increase of the trade.

618. *Mr. Copeland.*] Do you know the wharfage accommodation at Melbourne, on the Yarra, and at Sandridge and Williamstown? I am not very intimately acquainted with the Yarra accommodation, but I know Williamstown and Sandridge very well.

619. Have you seen the new wharfage accommodation along the Yarra? No.

- Hon. S. A. Joseph, M.L.C.
20 Sept., 1888.
620. Are you aware that recently they have built some 2 miles of wharfage accommodation along the Yarra to the New Cut? No; I have not seen it at all.
621. Would you be prepared to say, that, if the Government carried out these proposed new works, we should then be equal to Melbourne in accommodation for shipping? No. Not being acquainted with that accommodation, I should not be prepared to compare the two.
622. *Mr. Watson.*] If the railway were brought to the Circular Quay for goods traffic, do you think that much goods would go direct from the ships to the interior? I do not.
623. What proportion do you think would go? It might be the effect of considerably altering the trade. It might produce the effect that large importers in the interior would so indent their goods that they would come out in suitable packages to be forwarded direct from the ship to the interior; but from my experience of the trade as it is at present, I do not think that any considerable portion of goods would go direct from ships into the railway to go into the interior at once.
624. At the present time do all the goods imported go direct from the ships into the merchants' stores? Yes.
625. Do none go direct to the country? There is a certain proportion of certain classes of goods which goes direct to the country. A considerable proportion of heavy goods, such as building materials, cement, and that sort of material, goes direct from the ships into the country, but in other branches of trade there are sorted up orders which have to be kept by the importer in stores in Sydney, and sorted up from various orders, in accordance with the requirements of the interior storekeeper.
626. You have stated that you have experienced difficulties in getting berths at the Circular Quay. I presume it has only been in the wool season? Yes, the wool season and the approach of the wool season. I believe the preference is given to ships for the inward berth which are going to load outward from the quay.
627. Is it a fact that a large proportion of the ships coming to Sydney are fixed for different wharves before they leave London? Yes, a great many are.
628. Were it not for that a great many of them would go direct to the Circular Quay in preference to the other wharves? I think they would.
629. *Chairman.*] When you say that large goods are sent frequently direct from the ship's side to the country, are they not sent, as a rule, through the merchants, and has it not been the merchants' convenience that has been consulted? Yes.
630. Such as in the case of large railway contracts? Articles like galvanized iron. A wholesale importer having a parcel of galvanized iron or wire, knowing that he would have to discharge it from the ships, would probably seek some country orders, in order to have these heavy packages sent direct from the ships to the country rather than store them. By doing so he could offer some sort of inducement to the purchaser, because he would save the expense of double cartage, storage, and so forth.
631. But as a rule does merchandise generally go into the importers' stores and warehouses? Yes.
632. And in a very large proportion? Yes.
633. Are you prepared to say what proportion? No.
634. In fact, there are very few importers here who import direct for the interior? There are a considerable number I should think, but not to any large amount of tonnage; the tonnage of those who import direct is small compared with the amount of tonnage which comes into the port.
635. With reference to the railway communication to the Circular Quay, which has been referred to, do you think that a railway constructed to the Circular Quay would afford any very large amount of accommodation to mercantile men for the transit of goods? I do not think so.
636. Supposing that a railway were extended to the Circular Quay, with a certain number of intermediate stations where goods could be deposited, there would be the same expense of loading drays and taking those goods from the intermediate stations as there is at present in taking them from the wharves? The absolute expense of the extra distance which a dray travels is small in comparison with the expense of loading a dray. When the goods are once on a dray it is of very little importance—provided it is a fair road—whether the goods are taken half a mile or three quarters of a mile, or a mile. The extra cost is comparatively small.
- 636½. Does not the same apply pretty generally to the export of wool; wool does not come direct from the station to the ship, but goes into the merchants' stores or the woolbrokers' stores? A considerable quantity of wool goes direct from the railway to the ships. It does not go from the railway to the ships now because it has to go into the dumping store; but if any arrangement could be made whereby the wool could be dumped, the very large quantity of wool clips which are nearly always shipped would hardly ever go into the woolbrokers' stores.
637. Is it only recently that the system of dumping has been adopted on stations in the interior, which enables the clips to be sent direct into the ships from the railway? Yes; very recently, on very large stations.
638. And on very few stations? Yes, a few of the large stations.
639. On not more than half a dozen stations? I am not prepared to say on how many stations. There is a certain number of clips from large stations which come down already dumped, and I should think that if the Railway Department made arrangements for dumping wool at the large country termini there are plenty of station holders who intend to ship their wool; who would bring their wool dumped there, and then it would go direct on board ship.
640. But it would make very little difference to the station owner whether his wool was dumped in the town or in the country? No; the charge would be very much alike. The only saving would be something like 3d. per bale for cartage.

Richard G. Vallack, Esq., merchant, sworn and examined:—

- R. G. Vallack, Esq.
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641. *Chairman.*] Have you been a resident of Sydney for some years? Yes, about 35 years.
642. Have you been engaged in mercantile pursuits? Yes.
643. Has the wharfage accommodation been brought under your notice several times? I was for a long time working in connection with the Committee of the Wharfage Improvement Association, and I presume it is in consequence of my connection with that Association that I have been asked to attend here.
644. When was it formed? Four or five years ago, and it worked persistently for three or four years.
645. Did it result in any specific recommendations? Yes.

646. For wharfage improvement? Not so much perhaps for direct wharfage improvement, although that was always considered, as to urge upon the Government the resumption of all the wharves.

R. G.
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647. Did it make that recommendation? Yes. In fact plans were prepared, and a model is in existence now at the Technological Museum. The model now there was prepared at very great cost, showing the improvements suggested by the Committee.

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648. How far did the water frontage extend which the Committee recommended? The whole of the Darling Harbour frontage on the eastern side.

649. To meet the Government property at the Circular Quay? Yes.

650. How was that Association established? A meeting of citizens was called to consider the want of proper wharfage accommodation in this port, and the result was that, after two or three meetings, a Committee was appointed, of which I was one, and that Committee worked at a considerable expenditure of time and money for a long time. When the matter was laid before Sir John Robertson he asked for some specific and definite proposition, which was made to him. Plans were called for by tender, and premiums were offered. These plans were sent in and submitted to the Government.

651. Did you make any specific recommendation as to the nature of the improvements to be made? Simply that the wharfage should be improved; that it could only be definitely and properly improved in view of future requirements by the resumption of the whole of the water frontages of Darling Harbour. I think it was on the recommendation of the Committee that the Government asked Sir John Coode to report. It was on the recommendation of the Committee that he came here. An estimate was made of the probable cost, and it was submitted to the Government.

652. Do you recollect the amount? No; but it was proved to the satisfaction of practical men on that Committee that it was a very feasible project, and that it would result in profit to the Government; as well as increased accommodation for the port.

653. Was it wholly on the ground of probable sources of profit that the Committee recommended the adoption of this scheme? Not at all. The Committee was appointed by citizens, who met to protest against the want of wharfage accommodation.

654. And they recommended the resumption of the whole of those water frontages? Yes.

655. Did they think that the commerce of the port would be better provided for in the hands of the Government than in the hands of private individuals? Yes; that was the opinion of a large number of commercial men in Sydney.

656. Do you think that since then the Government frontages have been improved in the same proportion as the frontages owned by private individuals? Unquestionably some improvements have been made on private properties since then, but the whole scheme was looked at more particularly with a view to the future development of the port rather than with a view to immediate requirements, although there were matters which required immediate adjustment. Many of the private wharves have since been largely improved, and perhaps as far as their accommodation will permit. But that is not wholly the case, because there are a great many defects in them now.

657. But great improvements have taken place in the wharfage accommodation? I would scarcely say great improvements. Mere individual effort cannot result in any great national benefit.

658. Have the improvements been in keeping with the increased trade of the port? That is perhaps more than I can say.

659. Are you engaged now in mercantile pursuits? Yes. I can only speak of this matter first of all from an importer's point of view. The firm I am connected with probably land 5,000 packages a year, from the United Kingdom chiefly; a great many from China, and a few from the United States. For want of sufficient accommodation we are frequently not only put to great inconvenience, but suffer serious damage to our goods. Not only did we ourselves feel this, but other merchants also, and therefore the meeting I have referred to was held, and action was taken by the Committee on behalf of the meeting.

660. Was this a meeting of the citizens? There were seventy or eighty prominent importers present.

661. It was not a general meeting of the public? No.

662. Have you given any attention to the proposed improvements at the Circular Quay? No. I see the plan now before this Committee.

663. Do you think that the whole of them are necessary? The three large mail companies will be berthed on the eastern side.

664. Will there not also be large freight accommodation on the western side? Yes. It is important to know if they will be provided with sheds for the receipt of cargo.

665. That is the case. What is your opinion respecting that accommodation? It will be necessary for these sheds to cover the whole of the wharfage accommodation where the ships will be berthed. I say that in view of damage sustained last week on the wharf through rain. We had to send tarpaulins to cover our goods.

666. It is not shown on the plan, but I am told that there will be sheds along the whole length. What is your opinion? Looking at it from a merchant's point of view, sheds are an absolute necessity.

667. There is sufficient room for the purpose of enclosing the sheds, so that the goods will be protected from damage? That is our desire, of course.

668. It has been stated that a street runs down on the western side, and that it would prevent the possibility of sheds being constructed there? Possibly so. It is most desirable that sheds should be erected in connection with the immediate discharge of ships. We have no docks here as they have in European countries, from which ships can discharge at once into sheds prepared for their reception. Here we have nothing of the kind, nor has private enterprise launched out largely in that direction. That is what importers largely complain of. I presume there will be some sheds in connection with these wharves, and it is an absolute necessity.

669. Are not a great many of the merchants here wharfowners themselves? Yes.

670. Are your firm wharfowners? No.

671. Have wharfage accommodation and properties increased largely in value during the last few years? No doubt they have.

672. As a State property, do you think the proposed improvements to the Circular Quay are absolutely necessary? Yes; a small basin like that cannot be indefinitely increased in its accommodation. There is an absolute congestion of traffic in that small basin, and large ships completely block the way. I see that it is proposed to move the Manly and other ferry boats towards the eastern side. That is a step in the right direction, but it does not go half far enough; the ferry boats should go outside of it altogether.

- R. G. Vallack, Esq.
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673. But on the whole do you think that the proposed improvements are of a desirable character? I do.
674. Are you aware of the proposed expenditure on those works? No.
675. Then you cannot give any detailed information as to the possibility of the amount being required? No; of course I hold the opinion that money properly expended for absolute improvements is always well spent, either by the Government or by private individuals.
676. Do you think that the trade of the port is gradually increasing? Yes; imports and exports are increasing.
677. And are they likely to increase? Yes; we build our faith on it.
678. *Mr. Copeland.*] Have you any knowledge of the wharfage accommodation in other seaport towns? Not technically; only as I have seen it. I know many of the docks at London, Plymouth, and other places. The English harbours have hardly any deep water-frontage, and docks are a necessity. They have to excavate their docks. Here we have docks already formed, with deep water alongside. Not simply for the protection of goods, but for the convenience of vessels they have had to excavate in England: I have no technical knowledge of wharfage.
679. Are you of opinion that the present wharfage accommodation here is behind the wharfage accommodation of other parts of the world? Most unquestionably. To be convinced of it you have only to see what New Zealand has done in that way. Auckland, Timaru, and several other ports are under Harbour Trusts. I may say in connection with this movement, which we took up on behalf of the merchants, we did suggest to the Government that a Harbour Trust should be formed, and our impression was that a Harbour Trust would be not only the best, but the only, efficient means of providing the necessary accommodation. We did not contemplate that in the immediate future large and expensive works should be constructed; but we looked forward to having all work done towards a given end; that a plan should be decided upon, and that that plan should always be worked to. For instance, you can never by independent individual effort get anything done towards facilitating transit of goods on the steep grades at present existing behind the private wharves. Besides, the wharves, at present, are not continuous. If you want to get from one wharf to another, you have to travel 500 or 600 yards, whereas 50 yards or less should be sufficient.
680. Do you think that the present wharfage accommodation would suffice for twice the present population of the Colony? That involves another consideration. In days gone by, when sailing ships only came here, taking three or four weeks to discharge a given quantity of goods, the wharfage accommodation required was much larger than is now required, when steamers discharge a given quantity in three or four days. If a Messageries Maritimes Co.'s boat comes in too late on Saturday to lodge her manifest, work is begun at half-past 12 on Sunday night and she clears out on Monday afternoon, after putting out 1,000 tons of cargo. A sailing ship, however, will lie at a wharf for three or four weeks, discharging and taking in cargo. In answering this question, that has to be taken into consideration. We have to consider whether or not the carrying trade of the future will not be mainly, if not altogether, carried on by steamers. If the whole of the trade of this port were carried on by steamers—I am speaking now of the ocean-going boats—I daresay that one-third of the wharfage accommodation would be sufficient, as compared with what it should be if the trade were all carried on with sailing ships, which require so much more accommodation, in consequence of the time they take in discharging and receiving cargo, during which time they lie alongside the wharf.
681. From what you know of the progress in marine matters, are not the probabilities such that we are more likely to have goods brought by steamers than by sailing vessels? The steam accommodation for the carriage of goods from Europe is being increased every day. New companies are being formed, and are building new ships.
682. Supposing these works were not carried on by the Government, do you think there is any probability of any congestion of traffic at all;—speaking of the next twelve or fifteen years, during which time we may expect that the population will increase twofold, do you think that if the Government did not take these works in hand, but left it to private enterprise to meet the requirements of the port, there would be any congestion of trade for want of wharfage accommodation? It is difficult to say. Of course if the Government could by one stroke obliterate the Circular Quay, and say that all that traffic must be thrown into Darling Harbour or anywhere else, no doubt trade would be congested. With regard to the means of providing wharfage accommodation, I may say that not long since one of our largest contractors offered on behalf of a syndicate, formed or to be formed, or after consultation with great capitalists, to carry out the works proposed if they could obtain powers from the Government. As a guarantee they were prepared to deposit something like £100,000 or £150,000 for the completion of the work.
683. In what time would they have completed those works? There would have been no necessity for immediate completion. They would only complete the works as the requirements of the port would determine. If, as we suggested, the Government resumed all those frontages, there would have been no necessity for a large and immediate outlay for the construction of wharves so much as for a general and gradual improvement as the requirements of the port would necessitate.
684. Do you think the trade is not suffering from want of accommodation at present? No.
685. Do you think it is not likely to suffer for a few years to come allowing for the natural increase of population? Yes. The very fact of merchandise being brought here by steamer lessens the necessity for additional wharfage accommodation immediately.
686. Do you think the goods will be brought here in steamers in an increasing ratio? Yes; but as the trade of the port expands so the necessity for accommodation will arise. I do not think we have too much accommodation for the shipping here.
687. Are you acquainted with the wharfage accommodation in Melbourne? Not intimately. I know the Yarra, Williamstown, and Sandridge. But I fancy they have a different system there. The ship's officer is no longer responsible when the goods are over the ship's side. The responsibility is then taken by the railway or some other authority. The goods landed in the Bay are not delivered from the ship's side to the merchants. They are brought to Melbourne by train; they are lodged in sheds, and thence delivered. I allude to the large ocean boats which do not go up the river.
688. Do you think there is an immediate necessity for the Government to enter into an expenditure of £120,000 to provide additional wharfage accommodation? I would like to know if you mean the improvement in wharfage accommodation contained in the plan before the Committee. There is scarcely any additional accommodation provided by this proposed plan.

689. Will not improved accommodation give increased accommodation? Looking at this plan I do not think the accommodation is increased by 10 per cent. The Pitt-street wharf is in a dilapidated condition. 690. I presume you are alluding particularly to the amount of space; but the accommodation will consist in the increased number of ships and so forth? Quite so; I understand your question. I think the Government will be perfectly justified in any outlay of this character which will make a permanent improvement in the accommodation of the harbour.

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691. The Government may be justified, but do you think as a business man that the Government are called upon to enter into the expenditure of £120,000 of public money to provide this proposed accommodation? I will answer it in another way: If you were only to put this project before the public I guarantee that you would get £100,000—the value of the wharf—taken up in shares in seven days. The possibility of the requirements of the port, and the natural accommodation and facilities afforded by Sydney Cove are just simply incalculable. The Government will be perfectly justified in incurring this expenditure. As I said just now, the extra wharfage accommodation is not very much, but the necessity for sheds does certainly exist, and they should be erected. The old wharf on the western side is very dilapidated, and will have to be renewed in some form or another very soon. I do not think it would be extravagance to spend £120,000 on the accommodation. It is money well spent.

692. *Mr. Kethel.*] I understand you to say that the cause of the formation of the Wharfage Improvement Association was the fact that the firm with which you are connected and others had suffered serious loss by damage to goods when discharging from ships? Yes.

693. From what cause? Because there was no accommodation on the wharves. Goods were often, even on the Circular Quay, landed in a mud pool until they were taken away by the carts. Then there was such a congestion of ships that it was impossible to get them away.

694. Does that remark apply to the Circular Quay or to the private wharves? To the private wharves and the Circular Quay as it did exist.

695. Then in your opinion all wharves for discharging general cargo should be covered by shelter sheds? Yes.

696. Would that meet your objection? Yes.

697. You are aware, I presume, that the tendency of the improvements at the Circular Quay and other Government wharves is to draw the traffic of the port away from the private to the public wharves? I can scarcely say that. This is the only improvement suggested by the Government that I know of, except at Pymont. What the result of that will be is an unknown quantity.

698. We have it in evidence that the Circular Quay traffic has improved considerably in quantity during the last year or two. We have it also stated in evidence by a gentleman connected with the private wharves that many of the private wharves used for the purposes of foreign shipping are idle for half the year. Under those circumstances do you think it is justifiable on the part of the Government to expend more money to attract the trade of the port to public wharves, and thereby impoverish private wharf-owners and render their properties unprofitable? The Government is already possessed of this property. It is not as if the Government purchased this property for the purpose of coming into competition with private wharf-owners. It is already their property, and in the interests of the port they are bound to improve it.

699. *Mr. Campbell.*] What was the reason for recommending the Government to resume the private wharves? Because it was the general opinion of merchants—and I believe it would be found to be their opinion to-day if they were canvassed—that no one but the Government, or a body such as a Harbour Trust, with powers delegated from the Government for resumption, could ever satisfactorily complete the wharfage accommodation, as a continuous wharfage accommodation, for this port. I do not think any private effort will ever make it what it should be made.

700. Do you think that because the private owners do not provide the necessary accommodation, therefore the Government should take the matter into its hands? Yes. The private owners have awakened to a sense of their responsibility. A few years ago there was an iniquitous system of arranging for ships to come to inaccessible wharves. I have seen ships waiting twenty days for a berth arranged in England before they ever sailed. The particular wharf, on account of the large amount of rebate given, was already full, and there was no room for the ship when she arrived, so that £20,000 or £40,000 worth of goods had to lie idle for three weeks.

701. Was that in the case of private wharves? Yes.

702. Was that one of the reasons? Yes; it was one of the reasons. There came into connection with our arguments—although we did not trouble ourselves with it—the question of railway accommodation for the city. I believe the two will work together. I am not only expressing a private opinion, but also an opinion expressed by many merchants with whom the Committee of which I was a member came in contact. We spent probably £1,500, and lots of our own money as well as our time, to work out this inquiry to a satisfactory issue, and to bring it to a focus, and we were supported by donations from most of the merchants in the city. I daresay I could produce a list of men who gave £10 or £20 two or three times over in furtherance of the object we had in view. I think it shows that those engaged in importing all suffer from the want of accommodation. I think sixty or seventy importing firms subscribed to this object.

703. Was the effect of your action to have the private wharves improved? I think it was.

704. *Mr. Garrard.*] With regard to this new wharf, at the Circular Quay, you are aware that on the eastern side it is proposed to berth the three mail steamers. Do you think it is desirable that with the shipments to and fro from the mail steamers coal should be dealt with in any way by unloading it in close proximity to the steamers? It can be only a private opinion, and it can carry no other weight. Small vessels have always had a berthing place in the south-east corner of the Cove. I would like to know if it is intended to do away with that.

705. It is intended to take the outer end of the P. & O. Co.'s Wharf, where there is 120 ft. to spare, and to use it for the unshipping of coal from small colliers. What is your opinion on that? I would not have made provision for such accommodation; but I do not really know what are the requirements of coal in the immediate neighbourhood.

706. What I want to know is your opinion as to whether it is undesirable to have coal traffic closely associated with those mail steamers which have so much passenger accommodation? I should have thought myself that it was undesirable.

707. *Mr. Suttor.*] Would not the recommendations made by your Committee really give the Government a monopoly of all the wharfage accommodation in Sydney? Certainly it would, but it would have been taken

R. G. Vallack, Esq., taken out of the hands of the Government by the appointment of a Harbour Trust. Harbour Trusts exist in many ports, and one is largely at work in Melbourne. Such trusts have carried out their work very satisfactorily in New Zealand, and in parts of the United Kingdom. Even if it did take the work away from private wharfowners they would get a *quid pro quo*. There is a hardship in depriving a man of his own private property; still private wharfowners, like others, have to give way for the general good. Hardships would ensue, possibly, but I think that the *quid pro quo* for the resumption of the property would be satisfactory in most instances. A great deal of the wharfage property in Sydney is simply that which has been cribbed from the sea. Mr. John Young, who was one of our committeemen, pointed out 600 or 700 ft., reclaimed without saying "by your leave, or with your leave" for the harbour, and it is held by a man having no more title to it than I have.

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708. Has not private competition to some extent been in favour of importers and shipowners? I do not think so. For my part as an individual, I have never known anyone who would grumble at having to pay a fair charge for any accommodation that might be given, if the wharfage rates are fixed by the Government. If the wharfage rates are not sufficient to pay for the accommodation required, I do not think the merchants would grumble at having to pay what is equitable, fair, and sufficient.

709. We have been told here that in consequence of the rebates allowed by the private wharfowners some pressure was brought to bear on the Government to make reductions as well? From reports in the papers and so on, I have seen that it has been the case, and I believe that since then the Government and the private wharfowners have agreed not to allow any rebate at all. That is what I complained of just now: That some few years ago arrangements were made in London for goods to come to certain wharves here without any regard to their suitability; and if you were engaged in importing or landing many goods in this port, and they were put down at an inaccessible wharf where the gradients were very steep and the accommodation very slender, I think you would kick as well as we did. The rebates were made to a very large extent to the charterers or owners of the ships to send them to particular wharves. Rebates I believe were given to the amount of 60 per cent. on the ordinary wharfage rates, which showed either that the wharfowners were receiving too much under ordinary circumstances, or that they were losing money by the arrangements which they made, which is not a reasonable view to take. There is *prima facie* evidence that the rates charged were sufficient for a reasonable amount of accommodation.

710. [Mr. Kethel.] Are you aware of the wharfage rates charged by the Harbour Trust in Melbourne, simply for landing goods on the wharf without shelter? Our Committee did obtain that information, but I do not remember it. The conclusion which we came to roughly was that our wharfage rates are fair, perhaps not excessive, but tending that way rather than the other.

711. Are you not aware that the wharfage rates in Melbourne are more than double those of Sydney, and sometimes treble? I am not in a position to say. I do not know of my own knowledge that they are.

712. Is it not one feature of the Harbour Trust in Melbourne that whilst not giving the slightest accommodation to importers, the charges come to something like 5s. per ton during the present year—Have you any knowledge of that? No. I have never heard complaints against the wharfage rates here as being in any way excessive. In connection with the movement with which I was associated, we never heard that as a grievance from merchants or importers. After a comparison made with the rates charged in various ports, and estimating them all round, the impression remained with me that our wharfage rates are about a fair thing.

713. Did it ever strike you, in arriving at those averages, that the rates charged in Sydney, private and public, are less than in any other part of the world? I do not think so. I am not prepared to deny the statement, but speaking from the general impression on my mind I do not think that is the case. I do not think any objection would be made to increased wharfage rates if increased accommodation were given.

714. Are you acquainted with the Grafton wharf? Yes.

715. Do you know any other wharf anywhere that possesses greater facilities or accommodation than the Grafton wharf, with the exception of a heavy lifting crane? I was about to observe that there is an absence of any appearance of a lifting crane in connection with this scheme of the Government. I did not mention it, because in all probability this wharf will be engrossed by steamers. As they have the power in themselves to put heavy weights over the side, they do not perhaps require the assistance of a hydraulic or other crane. But sailing vessels, not having the same appliances as steamers, would require such assistance. There is an absence of such accommodation in this plan. The Grafton Wharf has been wonderfully improved of late years. But there is a very steep gradient from there up to the city.

716. But only in the case of one or two streets? The Committee to which I have referred intended that one principal object of resumption would be the reduction of those gradients.

717. You alluded just now to the fact that it is your opinion, as one who has taken an active part in the Wharfage Improvement Association movement, that the extension of the railway into the city and its connection with the wharves should form part of a harbour scheme? We were not appointed to consider that question, but it naturally cropped up; and when the design for the wharves which was worked out by Mr. Schultze, Civil Engineer, was perfected, there was provision made to bring the railway around the wharves in Darling Harbour. Of course the Railway Department, we presumed, would have to pay the cost of construction, and bear a proportion of the cost of the accommodation given when the resumption took place, if it ever came about.

718. Do you think it would be wise on the part of the Government, in view of the anticipated extension of the railway to the city and the foreshores, to defer for a time these improvements to the Circular Quay in order that they might be made to harmonize better with the railway? No. I think the day will come when the shipping of the port will be in touch with the railway; but I would not defer the one until the other is an accomplished fact.

719. Was that plan of Mr. Schultze's got up at the request of the Association? We called for competitive designs, giving 100 guineas for the first prize, and fifty guineas for the second. It was not remuneration sufficient for the labour bestowed on the designs, but they were worked out by competent gentlemen with the view of gaining some *éclat*.

720. Was Mr. Schultze's the prize design? Yes.

721. Are you aware that the design if carried out would reduce by two-thirds the wharfage accommodation of Darling Harbour as compared with the present accommodation? That is not true. Although this design was put forward by our Association in consequence of Sir J. Robertson's request that we should submit something

something tangible in the shape of a suggestion, we did not dictate or attempt to dictate to the Government on any particular point. We simply suggested that in the absence of a better plan being proposed something of this kind would meet the requirements of the port. We did not say that it was not capable of improvement.

722. Are you aware whether Sir John Coode has ever reported on the scheme? I believe that Sir John Coode asked for certain information from the Government. Sir John Coode in my presence said, he had spent two whole days in going down the eastern side of Darling Harbour examining the wharves. He was then provided by us with the levels of the various streets below Sussex-street, adjoining those wharves. Those were got from the Town Hall by permission of the Mayor. He then required further information, which it was not in our power to give, with regard to the depth of water in certain localities, the depth of mud, and the distance to which it was necessary to go before the bed-rock was reached. He said he would leave the matter in the hands of the Government to furnish him with certain data. I believe his request is pigeon-holed in the Government Departments to this day, and it was never taken notice of.

723. *Mr. Garrard.*] As it is intended by the Government wharf authorities to keep the berths where the P. & O. Co.'s boats are now moored for cargo sailing vessels, do you not think it would be desirable to have some mechanical appliances there for lifting heavy weights? Unquestionably that is the case. That does not apply to the berths where the steamers go.

724. Is it very desirable, seeing that heavy weights come by sailing vessels, to have lifting appliances there? Yes.

725. *Chairman.*] You say that your firm imports largely;—do you ever send goods direct from the ship's side to the interior? No; very seldom.

726. Do you ever have produce sent through your house to the interior? We are not agents of produce; occasionally we do.

727. Do you ever send wool direct from the interior? That is more than I can answer. It is five or six years ago since we made a speculation in wool. We shipped 300 or 400 bales.

728. Do you ever export tallow, hides, preserved meats, or anything of that sort? No.

729. If the railway system were carried to the Circular Quay and the other wharves, as proposed, do you think goods would be sent from the ship's side generally to the interior? That necessity grows every day. The importers who get their goods direct from the ship's side to the inland towns are growing in number every day. I suppose there would be ten instances of goods going in that way to one instance twelve or fifteen years ago. I have no data to go upon. I know there is a very large number of importing firms. Whether goods go through agents or merchants matters not. They go direct from the ship's side to the interior. The number of these firms is growing every day.

730. What is their number do you think? I think it would be impossible to tell.

731. Are there half-a-dozen whose places of business are in the interior? I could name scores.

732. Who import largely? That is capable of expansion or contraction. The bulk is not large, I dare say; but it is growing. There are six firms in the interior who would probably import (say) 300 or 400 tons a year, and several who would import smaller quantities from 50 tons to 150 or 200 tons.

733. Would they import directly and independently of Sydney merchants? No; many of them through Sydney merchants.

734. It is a mutual advantage to the Sydney merchant and the importer in the interior that the goods should go direct? Yes.

735. Therefore the Sydney merchant is a party to it? Yes.

736. It is not done independently by the country storekeeper? It is; but the merchant is an agent in this matter very likely. Either he may have a direct monetary interest in the goods which are being forwarded, the transactions taking place through him, or he may be simply an agent for the receipt and forwarding of the goods. But the number of importing firms in the interior towns is increasing every day.

737. It has been stated that, at certain times in the year, the wharfage accommodation is more than essential for the requirements of the port;—is that the case? I am not competent to give an opinion upon that point.

738. Is not the shipping trade a fluctuating one? Yes.

739. At certain times of the year are there not a great many more vessels here than at other times, such as during the wool season? Yes; both in exporting and importing there are seasons of the year when there is a greater demand for tonnage than at other seasons.

740. In those busy seasons it is essential to have suitable accommodation? Yes. I take it that the large wool stores built by Hill & Co., by Mort & Co., and Harrison, Devlin, & Co., and others, lie idle for a large portion of the year; but they have to provide accommodation for the busy season when it comes.

741. With reference to the project you spoke of, to which your Association gave the first prize, was it provided in Mr. Schultze's plan that there should be railway communication with all the wharves in Darling Harbour? Yes.

742. So that it did occur to you that there should be that accommodation for all the wharves? It would be a wonderful convenience to all concerned. But it was not simply confined to that. A roadway was to have been formed in connection with those wharves leading direct to the railway. Accommodation for a roadway 120 feet wide was provided for in that plan, to run alongside the wharves. Of course the railway scheme was shown in connection with the model in the Museum, but it was no part of the scheme referred to the Committee which was appointed to consider wharfage improvement.

743. Then in fact the road accommodation had as much to do with it as the railway accommodation? The road accommodation was part of our plan; not so the railway accommodation. The railway accommodation had nothing to do with us, but the roadway was part of our plan, because the resumption contemplated the erection of warehouses in connection with the wharves.

744. If railway communication were carried into the city as asked for, do you think it is essential that the railway accommodation should be conveyed to the different wharves as proposed in that plan? I do think so. Although it was not included in our first idea, I do not think there was any member of the Association who did not give his adhesion to it.

745. For the purposes of export and import? Yes; for the free transport of goods.

746. Do you think that goods would come direct to the different wharves to go to England, America, or Antwerp? Facilities for transport always increase business.

747. It would increase if you had the accommodation? Yes; it would focus there.

748. In the meantime you would have the roads leading to the wharves, and the merchants would get a direct benefit from the road communication? Yes.

M. A. Conil, M. André Conil, Principal Agent for the Compagnie des Messageries Maritimes, sworn and examined:—

20 Sept., 1888.

749. *Chairman.*] Are you the agent of the Messageries Maritimes Co. in Sydney? Yes.
750. Have you been acting in that capacity for some years? Yes; for six years.
751. Do your vessels trade between here and Marseilles? Yes; and they go on to Noumea from here.
752. Do you berth your vessels at the Circular Quay? Yes.
753. Have you seen the plan of improvements now before this Committee? No. I wrote to the Government last July asking for an extension of the Messageries Maritimes wharf to 540 feet. We have now 490 feet. I proposed an extension to 540 feet, because the Company are building four or five new steamers which will be 500 feet long. They will be running next year.
754. How many? Five new steamers for the Australian line. The present wharf cannot receive those new steamers. I see on the plan before the Committee a recess in the wharf which will be very inconvenient for the new steamers when they are coming to or leaving the wharf. I think they should widen the present wharf a certain distance, say 20 or 25 feet.
755. Is that part of the present project? Captain Jackson some time ago showed me a tracing which I now produce. Our present wharf is 490 feet long. It will be necessary to extend it to 540 feet and to widen the wharf, because there is not enough water. It will have to be dredged; but if you widen the wharf there will be sufficient depth of water without dredging. It will then be very easy to come to and leave the wharf. With the recess now shown on the plan it will be very difficult.
- 755½. Have you recommended that to the authorities? Yes.
756. To whom? To Captain Jackson who gave me this plan. He told me it was the intention of the Government to widen the Messageries Maritimes Co.'s wharf, and to extend it sufficiently to accommodate the new steamers. As it is proposed on this plan, however, it will be dangerous for the steamers.
757. Where are the new steamers being built? In the dockyard of the company near Marseilles. All the steamers of the company are built in their own dockyard.
758. Have you found your trade here increasing? Yes; we are satisfied.
759. Do you think that the trade of this port generally is increasing? Yes.
760. And that it is likely to go on increasing? Certainly. Since the beginning of the Messageries Maritimes Co.'s service the trade increases every year.
761. Have your company had any reason to regret their enterprise? No; the company has this year renewed its contract for fifteen years.
762. Do you get a subsidy from your Government? Yes; for fifteen years.
763. Have you any other subsidy besides that? Yes; we have a subsidy for the Brazilian line, for the Mediterranean, Japan, and different places.
764. Do you pay the Government here an annual rental for the use of your wharf? Yes; we pay the Sydney Government £2,500 for the shed and wharf.
765. Do you collect wharfage rates and other dues? The company does not. When I proposed an extension of the wharf the Government replied to me: "We will extend the wharf, and the company will pay a proportionate rent according to the expense for extension."
766. Do you know why the proposed improvement that you suggested has not been recommended? No.
767. *Mr. Humphery.*] The plan you now show will not provide you with the accommodation you require? No.
768. *Mr. Watson.*] As a matter of fact if the plan now before us is recommended by this Committee you will be unable to berth your new steamers? It will be possible, but very dangerous.
769. With a vessel requiring 540ft. will it not be impossible to lie alongside of 490ft.? Yes; it is impossible. The Government have proposed to extend it.
770. *Chairman.*] You will have to back your steamers in? Yes.
771. Under the proposed arrangement can you berth your new steamers? Certainly not, for if the plan proposed by the Government were maintained, our steamers would have great difficulty in coming alongside and leaving the wharf, and the operation would be dangerous.
772. Supposing the P. and O. Company's steamer is lying at the new wharf could you possibly berth one of your new steamers in the place set apart for it on this plan? It would be possible, but it would be dangerous. We should certainly be damaged.
773. *Mr. Suttor.*] For the proposed accommodation would you be prepared to pay extra rent? Certainly. When I wrote to the Government they replied asking that I should pay a rent proportionate to the expense they were put to in providing the additional accommodation. I pay £2,500 a year for 490 feet, and I want 40 or 50 feet more, and I will certainly pay for it in proportion to the expense incurred by the Government.
774. Have you informed the Government of that? Yes. The Colonial Treasurer wrote to me, and I wrote to him that I am prepared to pay.
775. Have you received any reply? No; the Government told me when I asked for an extension that they were prepared to make the extension, but that the Company must pay rent in proportion. I have accepted that. I have received a letter from Captain Jackson stating that the Orient Company have applied for an extension of their wharf by 100 feet, and that that extension can only be done in a northerly direction in front of my company's wharf. I have replied to that letter stating that if the extension is made only on one side it will be inconvenient for our steamers, and that it would be better to extend the Orient Company's wharf 50 feet on one side and 50 feet on the other. Captain Jackson told me some days ago that the Government has decided to put 50 feet on each side.
776. *Mr. Garrard.*] What is the beam of your vessels? Thirty-five feet.
777. *Mr. Copeland.*] Are you inconvenienced at your present wharf? No; because there is nothing before the steamer.
778. As a matter of fact you are not inconvenienced? When the P. & O. Co's. steamer is before us it will be very difficult to come in.
779. *Chairman.*] Your new steamers will be much larger? Yes; very much larger; like the steamer Ormuz. The present steamers will be sent to China. The first new steamer will arrive here in July or August next year.
780. Do you take merchandise as well as passengers from here? Yes; the steamer is always full of merchandise.
781. Do you take much wool? Chiefly wool, for various places—Marseilles, London, and other places.
782. How do you send the goods to London; do you tranship them? We have a cargo boat from Marseilles to London for goods only. When the steamer arrives at Marseilles the steamer tranships the goods for London.
783. And to other ports as well? Yes.
784. Do you bring any goods back again to this Colony in return? Yes; merchandise; the steamers are always full.
785. From all ports? Yes; from London, Belgium, and everywhere.

George

George Alfred Tillet, Esq., Assistant Engineer for Harbours and Rivers, sworn and further examined:—

786. *Chairman.*] Have you had a great deal to do with the proposed improvements at Circular Quay? Yes.

787. What is your office? Assistant Engineer for Harbours and Rivers.

788. Do you make any of the surveys of these proposed works? No.

789. Who actually made the surveys? An officer of the Department named Halligan.

790. The project has been recommended I suppose by the Harbour Master? Principally by the Harbour Master or Captain Jackson.

791. Has your attention been called to the accommodation required by the Messageries Maritimes Co.'s service? Yes.

792. Has it been pointed out to you that the steamers the company are now building are very much larger than the steamers they now use? It has been pointed out that the largest vessel they would probably bring into port would be 500 feet long.

793. Could those vessels be accommodated sufficiently by the project now before this Committee? I think so, without any difficulty.

794. What is the length of the wharf frontage proposed to be given to them? At present it is 480 feet.

795. Their new vessels will be 500 feet long? Yes.

796. Do you think the wharf frontage will accommodate vessels 500 feet long? The proposition is to allow the Messageries Maritimes Co. to occupy a portion of the new berth now being constructed for the P. & O. Co.'s steamers, whereby the Messageries Maritimes Co.'s steamers will have 530 feet frontage. That is to the north of the berth occupied by them at present.

797. How can that be done;—will not the bow of the Messageries Maritimes Co.'s boat protrude over the other wharf? It will be part of the wharf now shown in red on the plan, which is being erected for the P. & O. Co. There is a slight pencil line showing where the Messageries Maritimes Co.'s steamer will extend to. There is sufficient rounding in the bow of the Messageries Maritimes Co.'s steamer to fit into the recess shown in the wharf on the plan.

798. *Mr. Kethel.*] By how many feet will the proposed extension of the Orient Co.'s present berth encroach upon the berth of the Messageries Maritimes Co.'s steamers? If you look at it from that point of view we should be depriving them of 25 feet.

799. And the present length they have is 480 feet? Yes.

800. That will reduce the Messageries Maritimes Co.'s berth to 455 feet? There is only 40 feet taken from them, not 50 feet.

801. *Chairman.*] How many actual feet will the Messageries Maritimes Co. have when the extension of the Orient Co.'s wharf is taken off? 460 feet actually. That is looking at it from Mr. Kethel's point of view. He assumes that we take away part of the Messageries Maritimes Co.'s wharf, whereas we do not actually take any of their frontage. There is plenty of room for the vessel to back in and occupy the whole length of the wharf alluded to.

802. What is the beam of the steamer? 45 feet.

803. How can you take in a vessel of that beam into a recess of 40 feet;—you are to deprive the vessel of at least 30 feet of wharfage; that will leave her only 450 feet;—the new steamers will be 500 feet long and will require a wharf space of 540 feet? Mr. Kethel has taken 500 feet to be the length of the taffrail, whereas the level of the wharf is below the vessel, so that the edge of the taffrail may be taken over the edge of the wharf.

804. *Mr. Garrard.*] At low water would not the rail be level with the wharf? Never.

805. *Mr. Watson.*] There will be only 460 feet for the Messageries Maritimes Co.'s steamer when you take off 40 feet? No; 440 feet.

806. Supposing they bring here vessels 500 feet long, how are they to be berthed in that space? By allowing the vessels to project along the wharf now being built for the P. & O. Co.

807. Then there would be 60 feet to be taken from the P. & O. Co.'s Wharf? Yes.

808. What distance would the Messageries Maritimes Co.'s steamer be from the wharf to allow her to lie along there? The bows of the vessel would fit into the angle.

809. Would the round of the vessel fit in there? Practically she could not lie close to the wharf.

810. *Mr. Garrard.*] How much would it cost to run out a wharf on the echelon principle for the Messageries Maritimes Co.'s line, so as to do away with that provision in the plan for an angle? I could not state it exactly without some measurement.

811. *Mr. Kethel.*] Would it be much expense to so far depart from the present design as to make an echelon wharf, as suggested by Mr. Garrard, in order that the Messageries Maritimes Co.'s boat might overlap the P. & O. Co.'s Wharf in the same way as the Orient Co.'s boat will overlap the Messageries Maritimes Co.'s wharf;—is the bottom rock or mud? Two or three feet of mud with rock underneath it. The proposal you speak of has been gone into, and this matter of berthing the French vessel, as proposed on the plan, has been approved of by Captain Jackson, who has to do with the berthing of vessels. He is fully convinced that the proposed arrangement will meet all the requirements.

812. Are you aware that the agent of the Messageries Maritimes Co. has protested against this arrangement, and declares that it is not sufficient? I am not aware of that.

THURSDAY, 20 SEPTEMBER, 1888.

EVENING SITTING.

Present:—

The Honorable JOHN LACKEY (CHAIRMAN).

The Hon. GEORGE CAMPBELL.

The Hon. WILLIAM HENRY SUTTON.

HENRY COPELAND, Esq.

ALEXANDER KETHEL, Esq.

JOHN RENDELL STREET, Esq.

JACOB GARRARD, Esq.

SYDNEY SMITH, Esq.

The Committee further considered the proposed Improvements to the Circular Quay.

Captain Henry Pettit, Harbour Master at Sydney, sworn and further examined:—

813. *Chairman.*] Are you the Harbour Master of the Port of Sydney? Yes; I have held that office for some years.

814. Have you had considerable experience in matters relating to the berthing of the vessels and the general

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general management of the trade connected with the shipping in the port? Yes; for the best part of my life I have been connected with the harbour work.

815. With reference to the evidence you gave a few evenings ago, we are anxious to have from you some expression of opinion as to an apparent difficulty which has cropped up with regard to the accommodation for the Messageries Maritimes Co. under the proposed improvements. We have been examining M. Conil, the agent of the Company, and he complains that the accommodation proposed to be given to him will not be sufficient for the large vessels the company are now building. Are you aware that they are building vessels larger than those now used? Yes, I have heard that that is the case.

816. Do you know the length of their boats which come here at the present time? 430 feet.

817. The new boats will be 500 feet long? 515 feet I have been told; 500 feet between the perpendiculars.

818. We have been told in evidence that they are likely to have their large boats here in the course of a few months. In that case do you think that the proposed accommodation would be sufficient to meet the requirements of the new steamers? I do not think the present wharf would be suitable for them in its present state.

819. What is the length of their present wharf? The available length they have got is under 500 feet. They have a small portion at the southern end taken up with a landing stage, and the available length of the wharf is, I suppose, about 480 feet.

820. In that case it would be impossible to accommodate vessels 500 feet or over 500 feet long? It might accommodate their hatches, but a portion of the steamers would be projecting over the boundary of their present wharf into shallow water.

821. The bowsprit? The present class of steamers have straight stems, with nothing protruding from the stem.

822. Under these circumstances do you think that the proposed design would be sufficient for those large vessels? Not the present Messageries Maritimes Co.'s berth. They will be larger and will draw more water, and at the northern end of their berth there is only about 15 feet of water at low spring tides. At present they are kept off some 20 feet forward to keep them in sufficient water, even with their present light draught. If their larger boats take in their coal and load to 22 feet they would have to be kept some distance out to prevent them from taking the ground. There would be considerable distance between the steamer and the wharf. She would not touch the wharf at the northern end.

823. The agent of the Messageries Maritimes Co. suggested the propriety of accommodation being provided for him by building out some distance on the echelon principle south of the P. & O. Co.'s berth, so as to allow the bow of his vessel to overlap the P. & O. Co.'s steamer in front? That would make the wharf more easy of access, for I understand from the plan that there is a small portion left between the Messageries Maritimes Co.'s wharf and the proposed new wharf for the P. & O. Co. for the accommodation of small vessels. It will always be a source of trouble to the Messageries Maritimes Co.'s boat, because it will be taken up by coal-laden vessels. If the wharf were taken out in the northern corner on the echelon principle I think it would be far better. At the present time we have a great deal of difficulty in keeping the steamer's propeller clear of the wharf. We have to let go an anchor and ease the steamer in forward. Even with a light breeze from the westward we have great difficulty in berthing the steamer safely.

824. It is your duty to see that these vessels are properly berthed? It is part of my duty. Others may do it, but I am responsible. There are only three of us—myself and two assistants—and we have to do the whole of the removal work of the harbour.

825. Supposing that these proposed improvements were carried out, and the P. & O. Co.'s wharf and the Orient Co.'s wharf were occupied, and you had to find a berth for the large vessels of the Messageries Maritimes Co., could you do it with the arrangements as now proposed? I daresay it could be done by keeping the bow of the French steamer sufficiently far off with an anchor.

826. How would you do it? I should let go an anchor, and not let her bow go near the wharf.

827. Would not that be dangerous? Not dangerous, but inconvenient.

828. Would it not be dangerous in case of a storm? No. With a chain out, and a good anchor and fastening it would be perfectly secure. But there would be a lot of waste space, and there would be water between the ship and the wharf.

829. Then on the whole do you think that even with the proposed present arrangement there would not be much danger in berthing the Messageries Maritimes Co.'s boats? No.

830. Do you think it would be better if the plan were altered as already described? Yes; a great deal better.

831. Can you form an estimate of the probable cost of the alteration? I cannot.

832. Would it necessitate building out behind the P. & O. Co.'s wharf? It would not interfere with the water space in the Cove, because the northern end of the Messageries Maritimes Co.'s berth lies in an indent. If you berthed a ship of the stated tonnage and draft, in order to keep her in deep water, you would have to keep her bow out, and you would get no benefit from that part of the wharf.

833. As a man of large nautical experience, do you think it would be desirable to build out the wharf in the manner proposed? Yes; I think it would be a great improvement for the Messageries Maritimes Co.'s berth.

834. Do you think that it would be a more complete work? Yes. The P. & O. Co.'s boats could moor inside the Messageries Maritimes Co.'s boat's bow.

835. Of course you are aware that the company occupying this wharf pays largely for it, and would be prepared to pay a larger return on the increased outlay if it gets the accommodation asked for? It will be a very beneficial thing for the Messageries Maritimes Co.'s berth if it were built out as suggested at the northern end. I do not know how it would affect the new wharf for the P. & O. Co., but it would be a very great improvement for the Messageries Maritimes Co.

836. Do you think that the space of the P. & O. Co. would be affected by it? No. It would cause them to build a little further out. I do not see how it could affect the P. & O. Co.

837. Their position would be exactly the same as it is now? Yes.

838. *Mr. Garrard.*] Are you aware that the Orient Co. complains of a want of sufficient wharfage to work their hatches, and that, to meet their complaint, this proposed addition is to be made? Yes.

839. If the plan of an echelon wharf, which has been suggested to you, were carried out, is there anything to prevent the Orient Co. from having 90 feet instead of 50 feet;—is it not simply a question of taking it to the

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the northward provided there is sufficient berthing space for the P. & O. boats? The further out you bring the Orient Co.'s wharf the greater will the indent be into which the Messageries Maritimes Co.'s boat will have to be backed, and it will be all the more difficult to keep the propellers clear.

840. There is 120 feet of space more than is required by the Messageries Maritimes Co. and the P. & O. Co., so that the Orient Co.'s wharf might be lengthened at the northern end? Yes.

841. Is it more desirable to lengthen the Orient Co.'s wharf at the northern than at the southern end, because lengthening the southern end would interfere with other vessels? Yes; the northern end would be better.

842. What is the beam of the P. & O. Co.'s boats? 50 feet.

843. If the wharf were run out from 55 feet to 60 feet, would there be plenty of clearance between the P. & O. Co.'s boat's port quarter and the starboard bow of the Messageries Maritimes Co.'s steamer? Yes.

844. Would that be better for getting the vessel in and out? Yes. I would not recommend too much projection at the northern end of the Orient Co.'s wharf. Hauling up a steamer with twin screws in a narrow space would make it very risky for the propellers.

845. If the wharf were kept square I do not see how that could occur? That is true.

846. *Mr. Sydney Smith.*] What is the depth of water at the south end of the P. & O. Co.'s new wharf? It is shallow water, and it will have to be deepened considerably.

847. What is the present depth? At the northern end of the present Messageries Maritimes Co.'s wharf there is 14' or 15 feet of water at low water spring tides. It is rocky formation all along there, with very little silt on it.

848. Would it be very costly to get out? Yes; it would entail blasting and all that sort of thing.

849. How far out does that extend? As you go out the silt is deeper on it.

850. What is the depth of water? 23 feet at low water, and 15 feet alongside the wharf.

851. How many feet of wharf do you require for the P. & O. Co.'s boats? Over 500 feet. Their new boats are just 500 feet long.

852. Supposing the expenditure were too much to carry out the new proposal, how would it answer if we did not extend the P. & O. Co.'s wharf to the full distance south, which is now proposed so as to permit the Messageries Maritimes Co.'s wharf to extend further north? I do not see what could then be done with the vacant space between the two ships.

853. More space is required to accommodate the Messageries Maritimes Co.'s steamers as the present proposed wharf will be too short to accommodate their new boats. Supposing you were not to build out their wharf on the echelon principle, but simply to make it a straight line, would not that give ample room? You might then accommodate the three mail companies, if you allowed them to encroach one on the other.

854. By doing this would you not save expense, and at the same time give better accommodation to the Messageries Maritimes Co.'s boats, while you would not interfere either with the Orient Co. or the P. & O. Co.? That would be a very expensive undertaking. It is rocky formation where the P. & O. Co.'s wharf is being made, and the further you go towards the point, the rock is worse and the water shallower. It is very shallow also at the south end of the P. & O. Co.'s wharf.

855. Do you think that the additional expense would be very great? It is very expensive when you have to drill holes in the rock. From the experience I have had of berthing the steamers, I think that M. Conil's suggestion would be very useful and beneficial to the Messageries Maritimes Co. if it were carried out. It would also give more wharf accommodation, because a certain amount of the space now shown on the plan will be of no use whatever. Owing to the shallow water the steamer will have to lie off, so that that portion of the wharf will be of no use.

856. Is there only 12 feet of water at the south end of the P. & O. Co.'s wharf? About 13 feet or 14 feet. That is at the entrance to the present boat-shed.

857. Will that be of service to the P. & O. Co. any more than to the Messageries Maritimes Co.? I have not seen the boundary to which the P. & O. Co.'s wharf will come, but I suppose from the plan that it will come to the present Government shed for the "Nea."

858. What I wish to ascertain is this: We have at present more than sufficient accommodation for the P. & O. Co.'s boats at the new wharf now being made for them; if, however, that wharf were only extended to about within 60 feet of the northern end of the present Messageries Maritimes Co.'s wharf, would not that allow of sufficient accommodation being given for even the largest vessels that will come alongside the Messageries Maritimes Co.'s wharf? I think so. There is a vacant space at present between the two Cos.' wharves, and I heard the wharf manager say that he intended to use that space for small vessels.

859. That is intended to be set apart at the northern end of the wharf? If there is to be 100 feet to spare between the two berths, then of course the Orient Co. could have a longer space allowed them, and they could go farther northward, and the same would apply to the Messageries Maritimes Co.

860. *Mr. Garrard.*] Would not that plan, which has just been suggested to you, intensify the difficulty of getting steamers in and out? I think so.

861. The further you go into the bight, is it not harder work to moor the ships? Yes. We want to do away with that bight.

862. And the further out you get, the easier it is to work? Yes; without interfering with the working part of the harbour.

863. *Mr. Campbell.*] Have you been consulted about these improvements? No.

864. Has not even your opinion been asked in any way? No.

865. *Chairman.*] Do you think that the improvement suggested by the agent of the Messageries Maritimes Co. would be the most desirable course to adopt? I certainly think it would be a very great improvement for the Messageries Maritimes Co.

866. *Mr. Kethel.*] Do you thoroughly understand what it is that M. Conil requests? Yes.

867. *Chairman.*] That the wharf is to be carried out for some distance on the echelon principle at the south end of the P. & O. Co.'s wharf? I quite understand that.

868. *Mr. Kethel.*] Have you any idea what is the depth of water 50 feet off the northern end of the present Messageries Maritimes Co.'s wharf at the northern angle? About 20 feet at low water spring tides. That is 50 feet out from the present wharf face.

869. Then if the wharf were extended at the northern end (say) 50 feet out, there would be water enough for most steamers to lie alongside without deepening it? I think we could then carry the wharf into deep water, so that there will be no necessity for blasting or dredging.

Captain
H. Pettit.
20 Sept., 1888.

870. The ship's forefoot would be 25 feet out, which would give 75 feet out from the present line, so that the vessel could lie afloat at all times? Yes; and I think it would make a very good job of it.

871. You have stated that if the P. & O. Co.'s wharf is carried into the corner shown on the plan, the rock will have to be blasted in order to make the water deep enough for the stern of the P. & O. Co.'s steamers? Yes.

872. If the Government decide upon keeping out the wharf, as now suggested, would not the money saved by not having to blast away so much rock, largely pay the expense of forming a pile wharf in the manner suggested by M. Conil? There is no doubt it would relieve the cost a great deal. There would not be the expense and long job of drilling holes for the piles in the rock. If you went out 50 or 60 feet you would get into deep water, and there would be no necessity for blasting or dredging.

873. Would there be greater safety and less liability to accident or collision between the stern of the P. & O. Co.'s steamers and the bow of the Messageries Maritimes Co.'s steamers if berthed, as now proposed, than would be the case if the present plan were carried out? I think so.

874. Because, except by accident, it would be impossible for the two ships to come into contact? If the Messageries Maritimes Co.'s boat is kept flush with the company's wharf boundary you could not come into contact.

875. You have stated that you have to keep the bow of the Messageries Maritimes Co.'s boat at present some 15 feet off the wharf, and that, therefore, you have to drop one of the anchors in the stream. But in westerly winds do you not have to drop an anchor off the bow of all the mail steamers before mooring them? As far as the present P. & O. Co.'s berth on the western side is concerned, the anchor is merely let go for convenience in going away. It would entail the employment of two tugs to get the ships off the wharf if we had not an anchor down.

876. With the exception of the Messageries Maritimes Co.'s boats, where an anchor is laid out to keep the ship's bow from striking the rocks, the anchors are laid out for the other mail steamers for convenience and not for safety? Yes; the P. & O. Co.'s boat can lie alongside the western wharf without any risk of touching the ground.

877. *Chairman.*] That does not apply to the eastern wharf? No.

878. The anchor put out in the case of the Messageries Maritimes Co.'s boat is necessary for her safety? Yes.

879. Have the Messageries Maritimes Co.'s boats to lie now some distance off the wharf? When they come from Noumea and are light they can go close in. The vessel is kept as far back as possible, where the depth of water is greatest. When, however, the steamers are full of cargo and loaded with coals they are kept off the wharf with an anchor, or, what is called a "dummy," that is, a floating stage. It would be a great improvement to have a wedge-shaped piece of wharf, coming to nothing at one end and running out 50 feet at the other.

880. The Messageries Maritimes Co.'s steamers could then come up to the wharf loaded or unloaded? Yes. The officer might let go an anchor when the wind would be on the beam, merely to ease the ship, and might have a tug on the quarter, but that would be a matter of handling the ship.

881. Do you think it is desirable that, in view of the value of this State property the most complete improvements should be made? I think the class of ships we have coming to the port cannot be too well accommodated.

882. Do you think that if this frontage we are now talking of, which is to be occupied by the Messageries Maritimes Co. belonged to private individuals, the most complete accommodation would have been given before this time? I think so. I think private people would have heard more of the complaints of the masters and of the people having to do with the steamers.

883. Especially in view of the large return obtained in the shape of rent and wharfage rates? Yes. I think the Government ought to give very good accommodation, for the ships are very valuable and large, and if they came into contact with anything they would be likely to sustain serious damage.

884. As proprietors of this property, do you think that the Government ought to give the necessary accommodation for carrying on the commerce of the port? Yes; I would recommend that to be done.

885. *Mr. Kethel.*] Have you been made acquainted with the details of the proposed accommodation for the launches and boats of the various branches of the public service—the Customs, Police, and Marine Board? I have not been over the ground, but Captain Hixson told me where it was intended to provide that accommodation.

886. Do you know how it is to be laid out? No. I have not seen the plans of the proposed improvements.

887. *Mr. Sydney Smith.*] What is proposed to be done now with regard to dredging at the new wharf in order to make it suitable for the P. & O. Co.;—do you know if that is part of the new contract? It will require a lot of dredging to provide the necessary depth—not only dredging, but blasting I should think. Those vessels want 27 feet at low water.

888. In that case will they not have to dredge 13 feet there? Yes; or build the wharf sufficiently far out into deep water, and that would encroach too much on the water space in that part of the harbour. It is all rocky formation out to the sewer buoy. It is a very expensive place to deepen. I think it would facilitate matters very much if the Messageries Maritimes Co.'s wharf were built out in the manner suggested, so that the vessels of the two Companies would lie clear of one another, and not in a straight line.

889. *Chairman.*] Do you think that would be the most desirable course? Yes.

890. Can you give any information as to the probable cost of that work? The cost would be regulated a good deal by the blasting work. When you have to drill holes in the rock it is a tedious operation.

891. Would they have to drill holes in the rock to carry out the improvement we are now speaking of? I do not think they would have to do so for the outer piles. They might have to do so in the case of a few of the innermost piles. As they go to the deeper part, towards the Orient wharf, they would get sufficient hold in the mud.

892. Supposing this improvement were adopted, what width would it be necessary to make the northern part of the wharf? Mr. Kethel has mentioned 50 feet. Another 25 feet would leave ample space.

893. Would that interfere with the trade or traffic of the Cove? No. If the wharf were built as now suggested the vessel could steam right out from the wharf clear of the point. Now she cannot do that.

894. Could the vessel then be berthed at much less expense, and would it be easier in every way? They would still require to have the same appliances.

895. She does not back herself in absolutely? No; she always has a tug.

896. They take the precaution, to ensure absolute safety, to have the assistance of a tug? Yes. They could dispense with a tug at times, but at other times they could not; and the charge for a tug is small.

897. *Mr. Campbell.*] Have the Messageries Maritimes Co.'s boats been hitherto berthed satisfactorily? Yes. As M. Conil may perhaps have told you, they have made remarks about the wharf being too far in.

898. Has the berthing of their vessels been carried out without loss or accident? Yes.

[*The Committee decided to defer any further consideration of the proposed improvements to the Circular Quay until a plan was prepared showing how the wharfage accommodation on the eastern side could provide for the berthing of the steamers of the Messageries Maritimes Co. close alongside the wharf for their whole length, together with an estimate of the cost of such provision, and information concerning the necessity or otherwise for dredging operations, in order to obtain the required depth of water.*]

WEDNESDAY, 26 SEPTEMBER, 1888.

Present:—

The Honorable JOHN LACKEY (CHAIRMAN).

The Hon. WILLIAM HENRY SUTTOR.

The Hon. FREDERICK THOMAS HUMPHERY.

HENRY COPELAND, Esq.

ALEXANDER KETHEL, Esq.

JOSEPH PALMER ABBOTT, Esq.

JACOB GARRARD, Esq.

SYDNEY SMITH, Esq.

The Committee proceeded to further consider the proposed Improvements to the Circular Quay.

Robert Hickson, Esq., M.I.C.E., Acting Engineer-in-Chief for Harbours and Rivers, sworn and further examined:—

899. *Chairman.*] You are Acting Engineer-in-Chief for Harbours and Rivers? Yes.

900. You have given evidence before with regard to the proposed improvements at the Circular Quay? Yes.

901. Do you see any occasion to alter the evidence you have already given? No.

902. Do you consider that the improvements proposed are necessary? Yes.

903. Since you gave evidence a few evenings ago it has been proposed to alter some of these wharves where accommodation is to be given to the Messageries Maritimes Co.;—have you been informed of that? Yes.

904. Are you aware of the proposed alteration? Yes; I have heard what it is.

905. It is proposed to enlarge the wharfage accommodation by means of an alteration of the shape of the wharf? Yes; pushing it out a little.

906. The northern end is to be carried out some 50 feet? Yes.

907. Do you think that that proposed alteration would meet the requirements of the Messageries Maritimes Co.? Yes; undoubtedly it would.

908. I mean for the boats they say they are building? Undoubtedly it would. The present wharf, as shown on the original plan, will accommodate vessels 500 feet long. That is shown by the model of a steamer which I now produce, and apply to the plan.

909. What is the length of the model which you now produce? 500 feet. It is a model of their new boats, 500 feet long.

910. Do the width and all other proportions of the model fairly represent their new boats? Yes.

911. Do you think that under these circumstances the proposed wharf, as designed, would give sufficient accommodation for a vessel of that size without any danger? I think so.

912. Have you in your engineering capacity had anything to do with the arrangement of shipping? Yes.

913. Do you think that the accommodation provided by the original plan would be sufficient? I think it would.

914. Supposing the Orient Company's steamer was at that company's wharf at the same time, what distance would it be from the Messageries Maritimes Co.'s boat? Very nearly 30 feet.

915. What distance would there be between the Messageries Maritimes Co.'s steamer and the P & O Co.'s steamer? The bow and stern of the two steamers would be against each other.

916. Would that be safe under all circumstances? Yes. They would not venture to touch.

917. Would it be safe in case of storms—"southerly bursters," or westerly winds? Yes.

918. Do you think that the present arrangement would be better than the proposed arrangement for increasing the width of the wharf at the northern end? I do not see that there is very much difference between the two. Perhaps the new arrangement proposed would be better, but it would cost more.

919. Do you think that if the company interested paid for the difference in the outlay the new proposal would be the better course to adopt? Yes.

920. Would it be safer? It would be more convenient, no doubt. I think the other proposal is quite convenient, because I see no difficulty in the way of working the steamers.

921. *Mr. Copeland.*] In allowing for these distances, have you considered the top gearing of these vessels—the mizen yards of the Messageries Maritimes Co.'s boat, and the foreyards of the Orient Co.'s boat? There are no yards on the mizen-masts of those steamers. The stern of one steamer would lie abreast of the bow of the other.

922. The bow of the Orient Co.'s boat would overlap the Messageries Maritimes Co.'s boat? Yes. The one inside has no yards. The outside one has. That would not matter very much, because, as a matter of fact, in the London docks those vessels lie alongside each other, and have to trim their yards accordingly.

923. *Mr. Humphery.*] Can you say approximately what the additional cost of the proposed alteration would be? £5,000.

924. *Mr. Kethel.*] Does not that seem to be a very large amount for such a small piece of wharf? That is because we have to build in deep water, and have to use longer piles. It is the whole length of the wharf.

925. Will you have to drill any holes, or will you have to drive the piles? I think we shall have to drill some, which will increase the cost, and we shall have to strip off a piece of the old wharf to tie in.

- Rober
Hickson, Esq.,
M.I.C.E.
26 Sept., 1888.
926. *Mr. Garrard.*] If the wharf is made as now proposed on the echelon principle, will the Messageries Maritimes Co.'s boat project 30 ft. over the P. & O. Co.'s boat? The wharf is 470 ft. long; the one steamer would project 40 ft. over the other.
927. What is the width of the proposed new echelon? Fifty feet at one end, running to nothing at the other.

James Powell, Esq., Collector of Customs, sworn and examined:—

- James Powell,
Esq.
26 Sept., 1888.
928. *Chairman.*] Have you had a great deal to do with the management of vessels in this harbour? Yes; in connection with the Wharfowners' Association.
929. Are you now Collector of Customs? Yes.
930. How long have you occupied that position? Seven years.
931. Has your attention been drawn at different times to the accommodation given by the wharfage at the Circular Quay, and by the other wharves in this port? Yes; for thirty-five years.
932. Has it appeared to you that the wharfage accommodation at any time has been insufficient for the requirements of the port? As my voice is bad, I have placed my views on the subject on paper, and I would be happy if you would receive it as my evidence. My statement is as follows: The sufficiency of the present wharfage accommodation to meet the requirements of the port of Sydney is in my opinion established. The nature and character of the accommodation afforded is open to criticism. There has existed in the past, and there now exists, an unhealthy competition between the Government and the private wharfowners. Every shilling spent by the Government in improving wharf property increases the competition without advantage to the general public. The question has not been so much to advance the trading interests of Sydney as to secure a certain share of tolls derived from the importation and exportation of goods. That there has been competition is in itself good evidence that the accommodation has been something in excess of requirements. It should be kept in mind that the toll imposed upon importers and exporters for the privilege of passing their goods over any wharf in Sydney is regulated by an Act of Parliament. The rates imposed by the 7 Vic. No. 12 varied considerably, with a general basis from 2s. 6d. to 3s. 6d. per ton. These rates continued to be collected at the public and private wharves until July, 1880, when a reduction was made on a general basis of 1s. 8d. per ton on imports, and 10d. per ton on exports. Tonnage rates for the use of wharf frontage were also imposed. It may be desirable to ascertain the cause of the reduction in the rates charged, and the reasons for interfering by legislation with the rates to be collected at the public, and indirectly with those charged at private wharves. There was at the time of the alteration in the rates more than sufficient accommodation for the discharge and loading of ships. The Government wharves (then comparatively unimproved) did not very actively compete with the private wharves. The public wharves were at times almost deserted, and ships discharged mainly at private wharves. The open secret was that shipowners, ship masters, or ship agents secured rebates of the total wharfage rates collected, sometimes to the extent of 75 per cent., very frequently to the extent of 50 per cent. and rarely less than 33 per cent. The unrivalled site belonging to the Government presented no advantages over the private wharves. The Government did not at that time openly give rebates, but during part of the time the rates were farmed, and the competition left the lessees (in some instances) with heavy loss. The importers of goods paid the rates of 3s. 6d. per ton simply as a toll, receiving no benefit or advantage of any kind except to take delivery of their property. They had no voice in the selection of a wharf for the discharge of their goods, and they knew that from 33 to 75 per cent. of the amount paid as wharfage was returned to persons who gave no service of any kind for the enforced bonus. At length the aid of the Government was importuned by the importers. It was urged that nothing was done for the money paid as wharfage, that the toll was a spoil to be clamoured for, and that the accommodation required for the safe keeping and protection of goods when landed was altogether uncared for. The accommodation necessary for the discharge of ships at public wharves was not considered. The efforts of private wharfowners to improve their properties did not conduce to their advantage. Shipowners and agents sought the highest rate of rebate obtainable with the best accommodation, but the rebate was the first consideration. The offer of the highest rebate from the owner of the least improved property was the lever used to get more favourable terms from those who had increased the accommodation for the benefit of importers. The way out of the difficulties, recognized by the Government, was to improve the Government wharf properties, and to sever the rebate knot by reducing by Act of Parliament the rates authorized to be collected at public and private wharves. A new scale of rates was fixed by the 44 Victoria No. 8, on a basis of 1s. 8d. per ton on goods imported, and half that sum on goods exported. The reduction of the rates did not stop the allowance of rebates. A powerful combination of wharfowners failed to maintain the collection (without rebate allowance), even at the rate of 1s. 8d. per ton. The Government allowed rebates on the reduced rates. The whole competition remained, and remains, proving that there is ample choice of, and therefore a redundancy of, accommodation. It is so common to read statements made about the vast increase of trade in the Colony, and the insufficiency of the wharfage accommodation to meet the expanded and always expanding shipping tonnage that figures quoted in support of such statements appear, until they are closely examined, almost unanswerable. In the year 1851—the year of the separation of Victoria from New South Wales, the trade of this Colony fell to 553 vessels, with tonnage measuring 153,002 tons register. In 1855 (including Queensland) the number of vessels entered was 1,152, of 353,323 register tonnage. In 1886 the steam tonnage entered was 1,494,003 register. The sailing tonnage was 620,615 register. The conditions have altogether changed. Those of us who can recall the clumsy appliances for dumping wool existing about, and subsequent to, the year 1853, know that the unloading and loading of a ship was a question of months. The tonnage of sailing ships at that time appears insignificant when compared with the tonnage (sailing and steam) of the present time. The time for unloading and loading is reduced to a minimum period. In the old days it was by no means uncommon for a large vessel to occupy a berth for fully two months—often much longer. Now a vessel of 3,000 tons enters, discharges, loads, and leaves Sydney within a fortnight of arrival. In support of my assertion that the present wharf accommodation is sufficient for the trade of Sydney, so far as area and extent are considered, I ask attention to the following: At the present time the Government wharf, Circular Quay, east and west side, accommodates the largest total of tonnage entering
Port

Port Jackson. The Circular Quay accommodates the largest tonnage, and berths the greatest number of ships in a year. All this is, however, due to private enterprise engaged in utilizing public property. The ships of the P. & O. Co., and the Orient Company, the Messageries, and the German Lloyds swell the tonnage at the Circular Quay, and the companies named, or three of them, put more ships during a year alongside their leased sections of the Quay than any private wharf can show, excepting the wharves occupied by local and intercolonial steam companies. Any extensions of a remunerative character required by the Government tenants at the Circular Quay should be favourably entertained. The full wharfage is paid by the importers of goods landed on the leased sections, and the question of rebate cannot enter. But it would be exceedingly difficult to convince an importer or exporter of goods discharged or laden at the Circular Quay that the Government would act fairly by taking 1s. 8d. per ton on goods landed at the leased wharves, and refunding 5d. per ton of the importers' money on goods landed at the next berth on the Quay. I think it can be clearly demonstrated that additional extensions at the Circular Quay and other Government water frontages in Port Jackson are not urgently needed, and that any proposed extensions (other than those previously referred to) would simply invite and establish unhealthy competition with all the attendant disadvantages of a return to heavy rebates. It may perhaps be desirable to know roughly what the present accommodation is in Port Jackson for the discharge of cargoes sea-borne. The Government wharves at the Circular Quay, Woolloomooloo Bay, and the head of Darling Harbour, represent one section. The associated wharfingers are represented by the Central, Dalton's, Dalgety's, Dibbs', Moore's, Parbury's, Saywell's, Smith's, Towns', Washington, and Walker's wharves. The Association can berth twenty-seven ships of large tonnage, and they can berth a ship of 750 feet with a depth of water to 28 feet. There are also the wharf properties occupied by the intercolonial and local steam companies, nearly all of which enter the lists in competition by giving rebates against Government and the associated wharfingers. In order to gain an idea of the inward tonnage subject to competition, I have made a careful analysis of the shipping statistics for 1887. I have rejected all intercolonial trade, because that tonnage is provided for outside general wharfage competition. The arrivals during 1887, were:—From Great Britain—Sailing ships, 123; tonnage, 154,289. Steamships, 86; tonnage, 205,882. From United States—Sailing ships (including timber cargoes) 45; tonnage, 41,852. Steamships, 12; tonnage, 22,367. Hongkong—Steamships, 51; tonnage, 75,176. From France—Sailing ships, 3; tonnage, 1,955. Steamships, 13; tonnage, 34,542. From Germany—Sailing ships, 12; tonnage, 8,626. Steamships, 14; tonnage, 27,816. From India—Steamships, 13; tonnage, 21,200. This is not a very formidable list of vessels to be accommodated when the extent of the existing accommodation is taken into consideration. I do not think any person can say that he has been unable to obtain a berth for a discharging ship during the past twenty years. The question then follows: Is it necessary to increase wharfage accommodation at the public charge, and what guarantee is there that such public outlay will give a fair return for the amount proposed to be expended. We have seen the Circular Quay when almost deserted by ships, and this has been brought about by the rebate system. Increase wharfage accommodation in excess of trade requirements, competition will follow, the rebate system will be continued, and the return for the expenditure of public money on wharf extension will be reduced. It appears to me, that the war of wharfage rebates and allowances can only be controlled by the creation of a Harbour Trust, embracing the control, working, and direction of the water frontages of Port Jackson. Such a trust would regulate with authority the trade of the port, and would put an end to unseemly competition between the Government and private owners of wharf property. It is so usual to hear complaints about charges, that surprise is not felt when complaints are made about the charge for wharfage. The main reason for complaint is that nothing is given in exchange for the payment beyond the mere use of the wharf as a landing place. There is, of course, the additional complaint that any rebate of wharfage given to shipowners or agents, is a gift of importers' money. It is a fact, however, that the wharfage rates are lower in Sydney than in almost any other port or place. The docks, in London, charge very much higher rates than those charged in Sydney. Yet in London competition is so severe, that dock and wharf properties are among the least paying of commercial ventures. Whenever a Harbour Trust is established in Sydney, the rates and charges for shipping accommodation will be far higher than they now are. A reasonable assessment of the Government wharf frontages, with a well ascertained statement of the amount spent thereon, would show that the investment has little to recommend it. The same applies equally to private wharf properties, the owners of which are in the hands and very much at the mercy of a class of customers who will take their ships wherever they can get the best rebate, irrespective of accommodation or consideration for the interests of those most concerned, viz., the importers and exporters.

James Powell,
Esq.
26 Sept., 1888.

- 933. Do you adopt that as your evidence before the Committee? Yes.
- 934. Are you aware of the special improvements which are proposed to be made at the Circular Quay? I have seen the plan in this room.
- 935. As a State property do you think it is advisable to spend the money proposed to be expended in making these improvements? I can only give an opinion in connection with the possibility of obtaining a return for the outlay. The improvements will undoubtedly beautify the place, and make it more attractive.
- 936. If this property were private property do you think that the owners would feel it to be their duty to improve it to the extent now proposed? I do not.
- 937. Do you know the amount proposed to be spent on it? I do not.
- 938. £120,000 is the proposed amount. Do you think that is an excessive expenditure? Not if there is a return to come from it. I do not see where the return is to come from.
- 939. Do you know what the return is now from the wharves belonging to the Government? At the present time I cannot say from memory. I have seen statements of the return.
- 940. Do you think that the system of rebates is still going on? I think it is, but I am not quite sure. It is not openly, perhaps; but I think it is going on.
- 941. Have you some doubt as to the probability of these improvements giving an adequate return for the money spent? Yes; with a view to the increased competition.
- 942. Do you think that the commerce of the port is increasing at a sufficient ratio to warrant the Government in improving their property to this extent? The commerce is undoubtedly increasing; but the facilities for discharging vessels are so great, and they are improving so fast, that the ratio of accommodation is not required for the increased number of vessels.

- James Powell, Esq.
26 Sept., 1888.
943. Of course the improvements here proposed apply to different sections of commerce. The suburban traffic is largely affected by them. Do you think that the improvements are necessary on account of the North Shore traffic, for instance? That does not give any wharfage revenue, I apprehend.
944. Do the companies not pay rent? Yes.
945. They say that it is a very good rental? I was speaking simply of wharfage charges for goods.
946. Has your attention been given at all to the passenger traffic between the Circular Quay and the different places of resort, such as Manly Beach, Watson's Bay, and other places? Only as a matter of daily notice.
947. As an ordinary citizen have you seen that this traffic is increasing, and that it requires more accommodation? Yes; that is evidently the case.
948. *Mr. Copeland.*] Do you think that at the present rate of increase of the population the present accommodation will be sufficient for the shipping trade which we may expect, say ten years hence? I think it would be very hard to forecast ten years.
949. Take the average increase in the population? Judging by the past, I think that the present accommodation will be amply sufficient for the next ten years. I am speaking of the accommodation of the port as it is, and not of the Circular Quay alone.
950. Are you alluding to all private and public wharves? Yes.
951. Do you think there is already sufficient wharfage accommodation to supply the increased population that we shall probably have ten years hence? I do; only judging by the past.
952. Have you any personal knowledge of the wharfage accommodation of other places besides Sydney—of Melbourne, for instance? Of London I have. Of course I have seen the accommodation at Melbourne, but I know nothing of the tonnage and returns.
953. Is it your opinion that with regard to covered sheds we have sufficient accommodation? Covered sheds are a great advantage undoubtedly; but I do not see the advantage arising from them particularly, unless they are locked sheds. Open sheds are merely protection for the goods from the weather.
954. Do you believe that it would be a benefit if we had locked sheds? Yes, and enclosed wharves.
955. Do you think that it would be well to have locked sheds around these wharves? I think that locked sheds on all wharves would be a very great safeguard to property, and also as far as the revenue is concerned.
956. Have you had any opportunity of seeing the increased wharfage at Melbourne which has been provided recently? I have; along the Yarra banks.
957. Did it not strike you that they have much more wharfage accommodation there than we have? Yes; it is more systematic in every way.
958. And for a population similar to our own? Yes.
959. That is undoubtedly the work of the Harbour Trust in Melbourne? Yes.
960. As a matter of fact, suppose we were to complete these proposed improvements, do you think that even then we should be equal to the wharfage accommodation at Melbourne? No; not as far as I have had an opportunity of seeing it.
961. Have you been down the Yarra to the New Cut? Yes.
962. Is there any reason why we should not have the same amount of wharfage accommodation here as they have in Melbourne? So far as the public wharfage is concerned we have not the area.
963. Is not that all the greater reason for utilizing the area we have? I am afraid the space is too small to do it on the scale on which they are doing it in Melbourne.
964. Is not that the best reason for doing the best we can with the area which we have? I think we have done that in leasing the wharves to the mail companies. I think private enterprise is doing what Government enterprise failed to do.
965. Is it your opinion that this proposed expenditure is not likely to be reproductive? It would be an embellishment, but I do not think it would be reproductive as long as competition for private wharves exists. A rebate of 50 or 60 per cent. would drive ships away from the Circular Quay at once.
966. Is rebate allowed by private wharfowners? Yes.
967. Are the Government allowing any rebate at present? I do not know. I know the Government have allowed rebate in the past.
968. Was not that before the passing of the Wharfage Rates Act? No. There has been a Wharfage Rates Act ever since I can remember.
969. How recently is it, do you think, that the Government have allowed a rebate? I think within three or four years, speaking from memory. I know that when I had to do with the Wharfage Association the Government were allowing rebate. That was eight years since. In fact, we were in active opposition against each other.
970. Are you of opinion that the Government could not compete against private wharves? I do not say that. I only doubt whether the Government should have anything at all to do with wharfage as a business.
971. By whom do you think it should be taken in hand? By private people or by a Harbour Trust. The wharfage is handed over to these lessees; at least the frontage is. The Government do not relinquish the wharfage rate. They take that.
972. *Mr. Humphery.*] What portion of these works do you think should be carried out at Circular Quay? I have not studied the plan sufficiently to be able to say.
973. *Chairman.*] Do you understand what the plan proposes? Yes; generally. I believe it is proposed to transfer the P. & O. Co.'s wharf to the eastern side of the Quay. That will necessitate the removal of the Government boat-shed to the other side of the Quay. That, I look upon as absolutely necessary if the P. & O. Co.'s boats are to go to the eastern side of the Quay. The lengthening of the wharves for the lessees is, no doubt, a necessary work.
974. Then there is the alteration of the ferry services? That is, no doubt, a necessary work.
975. Then there is the approach to the berths at the western side of the bay now occupied by the Marine Board? Yes.
976. There are some other improvements on the western side of the bay, where it is proposed to take some of the traffic? Yes. I am only offering a general objection to any increase of berthing accommodation which would be brought into competition with that which already exists.
977. Do you understand fully the improvements to be made? Yes.
978. *Mr. Humphery.*] In your opinion what portion of the improvements should not be carried out?
The

- The portion on the west side. That is, the enlargement of the berths there and the formation of two new berths where the P. & O. Co.'s steamers used to lie. All the other improvements, I think, should be carried out. The improvements I have referred to are only unnecessary in my opinion because they will not return anything like interest on the money spent on them.
979. *Mr. Garrard.*] Are you aware that the western portion of the quay is in a very dilapidated state, and will have to be renewed in some way or other? I am told that is the case.
980. If it is absolutely necessary to renew it, should not an improvement in the style of the wharf be adopted? Decidedly.
981. You have spoken of private wharf-owners providing sufficient accommodation, and keeping abreast of the necessities of the port;—what new accommodation has been provided? The accommodation at Grafton wharf.
982. Has not that been erected for some time? Yes; seven or eight years.
983. Are you aware that at the present moment a large increase of wharfage is being made at Pyrmont? Yes.
984. Do you not think that those who are expending such a large sum of money there, must have an idea that they will get a fair return for the capital they are spending in providing increased accommodation? No doubt they have.
985. Therefore, the Government being possessed of the valuable property known as the Circular Quay, should they not improve it to the utmost? I cannot say what they should do; but simply looking at it as any matter of private enterprise, the question is: will it pay?
986. If we have it in evidence that it will pay, in spite of any opposition by private owners, do you not think the Government should give these facilities? I think they should most undoubtedly, if it will pay.
987. Are you strongly of opinion that the wharfage of Port Jackson should be handed over to a Harbour Trust? No; I am not strongly in favour of it; but I am strongly in favour of uniformity of action.
988. Supposing a Harbour Trust were eventually formed, would it not simplify matters if a large portion of the harbour frontage was in the hands of the Government to pass over to the Harbour Trust? If the Government gave it to the Harbour Trust, it would facilitate matters very much. If the Government were the largest owners of the property, it would be a great advantage, but I very much doubt if they are.
989. That is, holders of the largest portion of it? Yes.
990. At any rate they are the holders of the Circular Quay? Yes.
991. Are you aware that the Circular Quay has always been a favourite berth irrespective of rebates, on account of the easy access compared with the back wharves? Yes; but it would never stand against rebates in whatever form it may be held.
992. Not rebates of 75 per cent., at any rate? No.
993. But has not the system of rebates been done away with for some time? Oh dear no!
994. You told us in your evidence that when the system of rebates was at its highest point the Government berths at the Circular Quay were deserted? Yes.
995. Do you not think the Circular Quay has been very well filled recently; and what has been the reason? The rebates have been taken off.
996. To a certain extent? Yes.
997. Were you not connected with the Wharfage Association? Yes; eight years since.
998. Are you aware of the dangerous character of the steam ferry traffic in the harbour through the Manly Beach and other down harbour boats crossing the North Shore boats? Yes.
999. Can you give an opinion as to whether or not it is desirable to shift the jetties of the Manly Beach and Watson's Bay ferries, as proposed in this plan? I am not competent to give an opinion, but it seems to be in accordance with common sense.
1000. I understand that the only objection you have to these improvements is with respect to the berths on the western side? If that side were leased in the same manner as the berths on the eastern side are I should see no objection to it at all.
1001. In this case the shifting of the mail steamers to the eastern side will leave the two berths on the western side vacant for large sailing vessels? Yes.
1002. Is it not a fact that nearly all heavy weights, such as locomotives, are landed at the Circular Quay? Yes.
1003. Because, I presume, of the easy get-away there is compared with the back wharves? I think it is possibly because the locomotives are Government property. Private wharf owners do not care to have them because they cannot claim wharfage dues.
1004. Independently of that, are you not aware that the private owners of heavy goods prefer to have them taken to the Circular Quay? There is no doubt that they would have an easier get-away from the Circular Quay.
1005. And other things being equal, the Circular Quay would have an advantage over the back wharves? Yes; but with rebates the ships would go anywhere.
1006. *Mr. Suttor.*] With regard to the question of rebates, do you not think it is rather a cut-throat business? Yes, it is and it always has been.
1007. How long do you think it will last? So long as the supply exceeds the demand.
1008. We have it in evidence that some wharfowners have not only given a rebate of the whole of the wharfage rates, but money to boot? I never heard of anything so bad as that; but I have heard of 75 per cent.
1009. We heard that one man paid to a master £10 more than the total amount received as wharfage rates? I never knew of that case; but I have known a rebate of 75 per cent. to be given. I have commonly given 60 per cent. myself, as representing the proprietors I had to deal with.
1010. Must not the wharfowner make his property pay interest on the money invested? No; not necessarily.
1011. That cannot go on for ever, I suppose? It seems to go on, because the wharves are mostly in private hands. At any rate there was competition when the rate was fixed at 3s. 6d., and there was also competition when the rate was reduced to 1s. 8d.; if it were reduced to-morrow, there would still be some competition.
1012. Can you give us any idea of the revenue from the Circular Quay? No; not at present. It is not derived from wharfage only; it is derived from rents of the wharves, and from various sources of income.

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It is not wharfage pure and simple. Of course by leasing the wharves a large return is secured; but it is only secured because the property is made the most of by those who use it, and the Government derive the benefit of the wharfage charges. If the Orient Company or any other of the Companies discharges two ships a month, the Government derives a very large sum from wharfage charges, in addition to the rents for which the property is leased.

1013. *Chairman.*] Are you not a very old colonist? Yes; thirty-five years in the shipping and Custom House business.

1014. Have you watched the increase of the commerce of Sydney during that time, and taken an interest in it? Yes.

1015. Have you given any attention to the necessity for providing railway communication as far as the Circular Quay? I have.

1016. Do you think that the extension of the railway to the Circular Quay and improvement of the wharfage accommodation there should work in one with the other? Yes; I think they should work in, but I do not think the results are likely to be of a character that some sanguine people anticipate. The quantity of goods taken away from the ship's side direct to the interior is very small; the trade of the interior is mostly a repack trade.

1017. Are there many country storekeepers or merchants whose goods go direct from the wharf into the interior? Very few, comparatively.

1018. In a very great number of cases are not the goods taken into merchants' warehouses, distributed, and sent into the interior, so that therefore they would not go direct from the ship's side by rail into the interior? Yes; that has been my experience.

1019. Do you think it is desirable on account of passenger traffic to extend the railway to the Circular Quay? Only in connection with the North Shore traffic.

1020. Do you think the railway would not be much affected by other traffic? No; not so much so far as ocean travelling is concerned.

1021. It is a fact that very little produce is sent away direct from the country—from the interior? Yes; it mostly goes through warehouses in Sydney, before it is shipped.

1022. If it were decided to carry out the improvements now proposed, do you think it is essential that they should be deferred, pending any future railway construction by the Government? I do not; but I should think it desirable to keep such a project in mind.

Edmund Compton Batt, Esq., sworn and examined:—

E. C. Batt, Esq.
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1023. *Chairman.*] Are you a member of the firm of Batt, Rodd, & Purves? Yes.

1024. Are you engaged in mercantile pursuits and general auctioneering business? Yes.

1025. Have you anything to do with wharfage accommodation? Yes, as far as it is concerned with land.

1026. Have you been made aware of the proposed improvements at the Circular Quay? I came here the other day and looked at the plan.

1027. In a general way do you know the improvements which are proposed to be carried out? Yes; I have noticed them on the plan.

1028. Do you think it is desirable in the interests of the public that those works should be carried out? I hardly like to give an opinion on that point. It is probably more of a question to be decided by those who know more than I do about shipping transactions. It would be impertinent on my part, perhaps, to give an opinion, except a general idea, that for the import and export of goods the nearest place to deliver them and take them away is the best for a wharf. I do not see how that would hold good for the Circular Quay.

1029. Do you allude to goods coming to the port or to goods coming from the country? I allude more particularly to goods which are sent away, which I take to be of the first importance from the Australian side of the question.

1030. Do you know the estimated cost of these proposed improvements? I have seen it stated in the papers to be £120,000.

1031. Have you had much to do with commerce relating to shipping? Nothing, except as an auctioneer in Sydney having to do with wharf property and its sale. I have made it a study lately because I am intimately connected with the agency of a large project at Pyrmont on what is called Darling Island. It is the A.S.N. Co.'s old site. My principal object has been to make a study of the question of easy transit and shipment of goods, so as to do away with the carriage of goods through the streets of Sydney, which is a great evil at present, and of which the Sydney Corporation has complained bitterly. I presume I am not saying what is outside the knowledge of anyone at the present time when I say that any person driving in George-street or Pitt-street during the wool season stands a very good chance of being blocked for five minutes at a time on account of the congested street traffic.

1032. Under any circumstances would you regard the frontage to Sydney Cove as a valuable property? Most certainly.

1033. Can you cursorily give us any approximate estimate of the value of that property? I may say that as a firm we are usually called upon to give that information professionally, and therefore I would prefer not to give an answer to the question on this occasion.

1034. Do you regard it as a valuable property? Yes, beyond all doubt. I think that the Government purchase of the A.S.N. Co.'s property was one of the cheapest purchases ever made.

1035. What was the price for that land? Speaking from memory, I think it was about £300,000.

1036. Estimating the value of the whole of Sydney Cove proportionately to the price paid for a frontage, it is a most valuable property? Most certainly.

1037. Do you think that if that property were in private hands the best possible improvements would have been constructed before this? I think it is possible they would have been.

1038. Supposing that this property belonged to yourself or to any company you represented, would you not probably make much greater improvements than are shown on this plan? Not if I had other property in view which I thought was much more suitable for the purpose.

1039. If it belonged to you, would you not make these improvements? It would be a comparative question. I hold that you could never take goods from the interior to the Circular Quay. While not wishing to say anything against the opinions of those who think differently, I hold that the Circular Quay is the proper place for public ferry traffic and for that principally.

1040. Do you represent a company which owns a large wharfage property in other parts of the harbour? In one part only. E. C. Batt,
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1041. That is in Darling Harbour? Yes.
1042. That you propose to connect with the interior ultimately by means of the railway? We are endeavouring to get the Government to see it in that light, and I think they view it favourably.
1043. Of course you have a large interest in the improvement proposed to be carried out in connection with that project? Yes.
1044. When completed I suppose you consider it will be better than any other wharfage property in the neighbourhood? I think so.
1045. Have you a very large frontage? Yes; about 2,150 feet.
1046. Has a considerable portion of that been reclaimed? No; a portion of it is reclaimed land; but I do not know that that has added materially to the actual water frontage. About 4 acres out of about 8½ has been reclaimed. That has not given us more water frontage; but it has given us more land; and we have paid pretty heavily to the Government for the resumption.
1047. What distance will you be from the Government railway when the work is completed? 1,500 feet. It is 1,500 only from their own line to the boundary of our property. Not only is that the case, but there is a reserved road all round Pymont Bay, kept purposely by the Government I suppose, 66 feet wide, which is suitable for railway purposes, so that no money would have to be paid for resumption.
1048. How many frontages will you have when your project is completed—Will you have a frontage to the east, to the north, and to the west? Yes, three; and then there is a street frontage to John-street on the other side.
1049. What is your average depth of water? From 27 feet to 30 feet.
1050. Is that the natural depth? We have dredged.
1051. Is that part of your work? Yes. We have applied to the proper officials of the Harbours and Rivers Department, and I believe we have arranged entirely for the rental of the wharf as it is. We have only applied for as much as will take us out to the natural depth required.
1052. Do you think that your project will be very convenient for Sydney commerce working between your wharves and the warehouses in Sydney? I think we shall have the advantage there over everybody.
1053. In what way? Easy grades, no extra storage, no extra handling of goods, and all the traffic from the interior delivered from the railway trucks as it comes down direct into the ships.
1054. If a shipment of merchandise were brought to your wharf how would you distribute it? Quite as easily as from the Circular Quay.
1055. In what way? By carting it around Darling Harbour. By going that way we are equidistant with the Circular Quay from the centre of Market-street, or we are somewhat nearer to it. Taking Market-street as the centre of the city, we are nearer to it than the Circular Quay is.
1056. Which part of Market-street? Taking the junction of Market-street and George-street as the centre of the city to which the traffic would be, we are favoured by distance.
1057. Do you understand the nature of the improvements generally at Sydney Cove? I do.
1058. I refer to the increased accommodation to be given to the large ocean-going steamers of the P. & O. Co., and Orient Co., and the Messageries Maritimes Co., and also to the ferry boats of the Manly Beach and Watson's Bay Companies? Yes; I am acquainted with what is proposed to be done. I am Chairman of the Watson's Bay Co., and our manager has spoken to me about the matter.
1059. Do you think that improvements are necessary for those purposes? I think that the avoidance of the crossing of the ferry boats is of very great importance. I think that if the Government provide railway communication between the present terminus and the Circular Quay by any route, whatever the passenger traffic will enormously increase the ferry traffic at the Circular Quay; and it is only a question of time when the whole of that Quay will be required for the ferry traffic.
1060. Do you mean a railway for the purpose of conveying traffic from the country into the city, or from the city into the country? Speaking personally, I have no idea that a railway will ever be run down to the Circular Quay for the conveyance of goods. There would be no room for it without resuming all the valuable properties around the Circular Quay. But there is a great passenger traffic to the city owing to the many thousands of people who live up the line, and who have to get into Sydney. The construction of a railway for that traffic is only a question of time.
1061. Will it be necessary to bring those passengers to the Circular Quay? I know that there is a very great outcry for it. If the railway were taken to the centre of the city, at Market-street, I should be quite content to walk from there to my office, but I think some people are of opinion the railway should go to the Circular Quay.
1062. *Mr. Humphery.* Can you point out on the plan any portion of the proposed improvements which you think should not be constructed? I do not think so, for the reason that I have been more concerned with the general idea than trying to dissect the plans proposed by the Government. I object on wider lines to the expenditure of public money where I think better uses can be found for it.
1063. Can you not state whether in your opinion the proposed expenditure should be carried out, having regard to the evidence you have heard from Mr. Powell? I think not.
1064. What portion do you think should not be carried out? I have not sufficiently studied the plan to answer that question.
1065. Have you observed that there is to be a new berth for the P. & O. Co.? Yes, and for the Messageries Maritimes Co.
1066. Is not that necessary? If it is necessary to take the P. & O. boats there, I have no doubt it is. My impression is that the Circular Quay is one of the best and safest of places to go to, and that it will always get part of the traffic; but if you supply a better place than the Circular Quay it is questionable whether you will want more accommodation there. I see that part of the proposed improvements consists of a coal wharf at the end of the P. & O. Co.'s wharf. I do not think that anyone who has travelled about in large steamers, and who has had to put up with the inconvenience of coaling, will look upon that as a good suggestion.
1067. What wharfage accommodation have you provided in your proposal? Room enough for the largest steamers afloat, with sufficient depth of water for any that may be built for the next twenty years.
1068. How many berths? Eight berths for the largest ocean going steamers.
1069. Do you think that the steamers now berthing at the Circular Quay will berth there if they can get equally

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equally good accommodation from you? I think they will of their own accord berth where they get the greatest facilities.

1070. Therefore you think the Government ought not to provide this accommodation? Yes; because the steamers will get at our wharves direct cargo from the interior, and heavy goods may be landed on the railway trucks. In addition to that, instead of having to lie outside for coal they can coal in one-fifth of the time alongside our wharves. One great object of this project is public as well as private, because it will open up the southern collieries. This is the nearest place they can ship coal from.

1071. You have heard the evidence of Mr. Powell with regard to the question of accommodation for the present traffic: were you aware of the fact that there were more berths than are required before you commenced your private enterprise, or did you think yours so superior that you could almost enjoy a monopoly? I visited all the private wharves, and judged for myself of their facilities. I found that they were so many years behind the time that I would not have the slightest hesitation, if there were three times as much accommodation as at present, in going on with our proposed plan. I heard Mr. Powell state that in the olden days a ship would lie alongside a wharf for two months, and I heard him quote the shortest time in which a steamer could now discharge and load. But steamers cannot discharge with any more speed at the private wharves because no accommodation has been provided. Nature has given the water frontage with a hill at the back which only one small dray at a time can climb. The traction cannot be improved on account of the narrow streets. I think they are bound to go to the wall in any case. I do not wonder at people going to the Circular Quay with their ships instead of to private wharves. It is quite possible there is room for both.

1072. It is quite probable that the Circular Quay and your proposed wharf extension will be the popular resorts for all the ocean-going steamers? I believe so.

1073. To the neglect of the existing private wharves? I think so. I have taken a lot of trouble, and I have joined with others in expending money in anticipation of that being the case, so that it is not merely idle words.

1074. Have you any objection to state what has been the expenditure on the improvement of your site? If we carry it out entirely as we have begun it, and as we have been working with our architects right through, I suppose that the expenditure will be £250,000. That is irrespective of the cost of the land.

1075. Of course you hope to obtain a very fair return from it? I have had estimates worked up by shipping men, and if we get anything like what they estimate, we shall be quite content.

1076. *Mr. Kethel.*] What description of goods do you anticipate will be shipped when you succeed in getting this work completed, and placed in direct communication with the interior by rail? Meat, wool, coal, and grain. Meat will be a very large item.

1077. In what form do you expect meat to come down—frozen? I expect it to come down from where it is killed, as at Riverstone and other places at present in existence. It has been pointed out to us by stock and station agents that such a place as we propose to provide is required. All second handling will be avoided. The meat will come down in trucks and will go direct into the frozen store, and it will never be touched until it goes straight away by train into the ship. Half the meat which has gone bad in being sent home has gone bad on account of the extra handling between the freezing-chamber and the ship.

1078. What is the usual mode at present adopted in shipping frozen meat from Sydney harbour? I believe it is sent down in trucks from wherever it is killed to Mort & Co.'s store or Richards' store. It remains there until it is wanted on board ship. I have seen it carried through Sydney on a hot summer's day, and very often it has been taken off in a lighter to the Orient Co.'s boat. That is done after the meat has been frozen; it begins to thaw, and then the mischief is done.

1079. That is one objection which you anticipate meeting and remedying? Yes. We anticipate a very large trade.

1080. As that trade is almost entirely conducted by steamers, do you think that the large steamers will frequent your wharves, and that you will secure a large proportion of the ocean-going steamers frequenting this port? Yes; for the reason that anything which comes down by railway can be shipped. The same thing applies to wool, but more particularly to any perishable article like frozen meat.

1081. Do you intend to provide freezing apparatus and cool storage for the meat, if it comes down before the ship is prepared to take it on board? Yes.

1082. Is there any other cool storage at public or private wharves? None at all. That is how failures have taken place in the past. The meat when it came down had been frozen a certain time, and before it was placed on board ship it began to thaw.

1083. When you spoke of coaling vessels at your wharves, did you mean that you would supply steamers with coal for cargoes, or merely that you would supply coal for the consumption of the steamers themselves which might be berthed alongside your wharves? For both purposes.

1084. Do you intend to erect hydraulic cranes for the railway waggons? Yes; travelling hydraulic cranes. I think that steamers will naturally come to a place where they can get coal with the least trouble.

Arthur Latimer M'Credie, Esq., sworn and examined:—

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1085. *Chairman.*] Are you the architect for the new wharves at Pyrmont? Yes; architect and consulting engineer.

1086. Are the whole of the works being done under your surveillance? Yes.

1087. The wharves as well as the general works? Yes; the whole of the works.

1088. Several large buildings form part of the project;—are they under your control? Yes; we have designed them.

1089. This will be a very large work? Yes.

1090. Do you regard it as very complete? Yes.

1091. How long will it be before it is completed? It will take somewhere about three years before it is completed.

1092. Then I suppose the accommodation which it is proposed to provide, will be of a first-class character in every respect? Yes; complete in every way.

1093. It not only provides berthing accommodation, but storage accommodation as well? Yes.

1094. Storage for merchandise, wool, and frozen meat? Yes.

1095. Have you appliances for refrigerating? Yes.

1096.

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1096. And cool chambers for keeping the meat afterwards? Yes; for storing somewhere about 48,000 sheep.
1097. Do you look upon this as a growing trade? Yes; it is a growing trade.
1098. Are you an old colonist? Yes.
1099. Do you believe that the commerce of the port is largely increasing, and that it is likely to go on increasing? Yes.
1100. Do you suppose that the export of meat will become a large item in the exports of the colony? Yes; it is growing rapidly.
1101. Are large quantities of frozen meat now being sent away? Yes.
1102. By a private company? Yes.
1103. Have you given any attention at all to the improvements proposed at the Circular Quay? I have not seen them until to-night. Of course I have seen mention of them in the papers. Beyond that I did not know what improvements were to be made until I saw the plans to-night.
1104. As far as you know the proposed improvements, do you think they are necessary? That I could scarcely give an opinion upon unless I went into the matter. I have not had time to consider. Of course I know that the wharf on the western side of the Quay is in a dilapidated state.
1105. Do you think it is a valuable public property? There is no doubt about it.
1106. And as such, do you think it is desirable to improve it so as to give fair accommodation? Yes.
1107. Have you had any personal experience of the shipment of frozen meat? No; except in a professional way; I have fitted up the chambers.
1108. Had you anything to do with fitting up the Government chambers on Glebe Island? No.
1109. Or the chambers in connection with Mr. Mort's Fresh Food and Ice Co.? No.
1110. Have you had anything to do with the fitting up of chambers besides those which you are now designing? Yes; for the South Coast and West Camden Co. We fitted up those chambers.
1111. Was not that for butter and cheese? For frozen meat as well.
1112. Where were they constructed? In Sussex-street, near the corner of Liverpool-street.
1113. Do they receive meat for shipment? Yes; a considerable quantity for shipment. From there the meat is taken to the ship's side.
1114. Do you think it is likely that meat will be killed and frozen in the country to be brought to Sydney? For long distances it is almost necessary. If you can kill the animals and bring the meat down quickly at night to be stored in suitable chambers it will be done.
1115. Supposing meat were killed at Bourke or Hay would it be practicable to bring it from there to Sydney? It is a very long distance; unless they had cars specially constructed for conveying the meat it could not be done.
1116. Do you know the cost of keeping the temperature at a certain degree? No.
1117. Can you tell approximately what it would cost per lb. of meat to keep the temperature at a certain degree for say a distance of 500 miles? I believe it has not been properly decided yet; I believe the Government are going to have some tests made.
1118. In the case of the stores you are designing, will the trade there be to receive meat in its ordinary state, freeze it in the building, and store it there? Yes.
1119. But if the meat were frozen in the interior would you be prepared to keep it there until it was shipped? Yes.
1120. Do you intend to provide chambers for either one or the other? Yes.
1121. Have you gone into the cost of storage and keeping the temperature at a certain point so as to be able to say whether the cost would be so large as to make it probably unremunerative. It is not unprofitable.
1122. In what way have you been guided to that opinion? By experience.
1123. Do you mean of the different processes now in use here? Yes.
1124. I suppose that experience in America is of little use as a guide here because there they have natural ice? Yes; we have not got that here.
1125. Do you know whether the suburban traffic by the ferries to Manly Beach, St. Leonards, and other places requires additional accommodation? I can scarcely say as I have not studied the subject particularly.
1126. *Mr. Garrard.*] Do you know the state of the western side of the Circular Quay as to whether it is sound? I have casually looked at it, and I know it is in a very bad state.
1127. As a civil engineer do you favour the construction of wharves with wooden piles as against iron? Yes.
1128. Will the wharfage proposed to be built outside the stone wall at Darling Island be built on piles? Yes.
1129. Of what timber? Turpentine.
1130. Do you prefer that to ironbark? Yes.
1131. How do you put in the piles—do you sheath them or put them in with the bark on? We leave on the bark.
1132. What is the life of turpentine piles? About 50 years.
1133. You have not had 50 years experience of them? No.
1134. Do you think that at least 50 years will be their life? Yes. We have taken out piles which have been down thirty years.
1135. Has your attention ever been drawn to the inefficient means of unloading heavy weights coming here from other countries, such as locomotive boilers? Yes.
1136. Have you ever seen the operation carried out at the Circular Quay? Yes.
1137. Is it very cumbersome and inefficient? Yes.
1138. If a large crane capable of lifting heavy weights were erected at some part of the harbour, say the Circular Quay, do you think it would be a great benefit to the community? Yes.
1139. What weight will the cranes at your wharves be capable of lifting? 12 tons; the heaviest lift will be 12 tons.
1140. Could you not easily erect a larger crane, if necessary, to lift heavier weights? Yes.
1141. What is the depth of the water? 28 feet by dredging. That is on the eastern side facing Sydney.
1142. Is the model of the steamer now exhibited by you to the Committee made to a scale? Yes.

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1143. What is its length? 500 feet with about 52 feet beam.
 1144. Can you give us an estimate of the probable cost of a pile wharf, 25 feet wide by 570 feet in length? It depends upon circumstances; whether it is pile driving or whether the bottom is flat rock, which would make it expensive.
 1145. Taking ordinary pile driving in the silt of Port Jackson, do you think that £5,000 would be ample for such a wharf? Yes; £5,000 would be sufficient.
 1146. Are you familiar with the proposed improvements at the Circular Quay? I had not seen them before to-night.
 1147. Are you aware that the down harbour and North Shore traffic in Sydney Cove crosses? Yes.
 1148. If it is proposed to shift the berths of the Manly Beach and Watson's Bay ferry boats from the western to the eastern side, do you think that will be an improvement and make it less dangerous? Yes.
 1149. *Mr. Kethel.*] Have you had much experience in designing and constructing wharves? Yes; a considerable amount of experience here and in Queensland.
 1150. With your experience as an engineer can you suggest any better method of improving the Circular Quay and its accommodation than is suggested by the present plan;—had you not the improvement of the Quay under your consideration several years ago? Yes; some considerable time since. I have not thought of it lately.
 1151. Can you suggest anything more desirable or profitable to improve the wharfage accommodation of the Circular Quay than what is suggested in this plan? It is rather short notice to answer that question; I would rather study the matter before answering.

Mr. William Henry Shortland sworn and examined:—

Mr. W. H.
Shortland.
26 Sept., 1888.

1152. *Chairman.*] Are you a member of the firm of Shortland and Sons, carriers? Yes. We have been carriers in the city for thirty-five or forty years.
 1153. Is that the name of the firm? The name of the firm is that of Richard Shortland, my father, who is now deceased. I have been engaged for twenty-one years in our own business; and I was for four years with Mr. Powell, the present Collector of Customs. When I left school I went straight into Mr. Powell's office, and so gained my experience of Custom House and shipping work.
 1154. Are you engaged in the same occupation still? Yes.
 1155. Have you had a good deal to do with carrying in the city? Yes; from locomotives to boxes of candles.
 1156. In connection with your occupation I suppose you carry to and from the various wharves in the city? Yes.
 1157. To the railway and other places? Yes.
 1158. I suppose there is a great deal of carriage between the different wharves and the city? Yes; we call our carrying heavy carrying. It is mainly confined to the city, and we have little to do with the suburbs.
 1159. In the pursuit of your occupation do you find a very great difference in the haulage from the various wharves? Yes; the haulage is very much greater from some than from others;—that is from the back wharves. We call the Circular Quay *the* wharf, and we call all the others the back wharves.
 1160. The Circular Quay is far more favoured than any other? Yes.
 1161. Does it cause you to make any difference in the cost of carriage? No; as a general rule we take our work at one price for all the wharves. The merchant does not know where a ship will discharge. We have an all round price.
 1162. It is immaterial what wharf the goods come to? Yes. Still there are some of our customers—I think only three—whose goods we take at a lower rate from the Circular Quay.
 1163. Are you provided with ordinary facilities for loading at the different wharves;—if you are carting merchandise from the Circular Quay wharves or from any of the other wharves, have you fair accommodation? Yes; we reckon that we have every appliance—shear legs, lifting gear, all sorts of vehicles from large boiler waggons to parcel vans.
 1164. Do you take the merchandise from the wharf or the ship? From the wharf.
 1165. In the case of very heavy machinery, such as locomotives, would that be removed from the ship to the wharf by the people interested in the ship? By the stevedore; he lands all the cargo on the wharf.
 1166. Then you take it from there? Yes.
 1167. Have you appliances to take it? Yes, to lift it from the wharf.
 1168. Then you do take heavy material, such as locomotives? Yes; we lift it from the wharf. We have taken the whole of Beyer, Peacock, & Co.'s locomotives. When the boilers and frames are fitted together and brought out in that manner in the ship, the total weight would be 21 tons. When the boiler stands alone I think the weight is 11 tons.
 1169. Do you take Government rails? No; I believe they are lightered.
 1170. They used to be taken from the Circular Quay some years ago? Yes; I think it is five years ago.
 1171. Do you remember shipments of Park Gate rails? Yes.
 1172. Rails with which great fault was found because they were badly selected in London;—were they not taken from the Circular Quay? Yes.
 1173. In the course of your occupation do you take for private individuals very much merchandise from the ship's side to the railway to go into the interior? Very little; there are very few customers whose goods are taken direct from the ship to the railway. Nearly all the imports of Sydney are taken into stores and warehouses.
 1174. Does very much of the produce of the country go direct from the railway into the ships? I should say that only the copper, tin, and lead, go direct.
 1175. Does the wool go into the ship direct? No; it passes down to the stevedores to be pressed.
 1176. It goes into the warehouses? Yes; unless it happens to be dumped. Even then I think it goes through the stevedore.
 1177. Do you pass down a good deal of wool? No; it is a Government contract. We have had no Government contract except the removal of locomotives from the Circular Quay.
 1178. Can you form an opinion as to the proportion of dumped wool that comes from the country and goes direct to the ship? I cannot give an opinion, as we do not handle the railway wool. 1179.

1179. Have you been made acquainted with the proposed improvements at the Circular Quay? No.
1180. Have you seen the plans proposing to give extended accommodation to the Orient, P. & O., and Messageries Maritimes Companies, to improve the ferry service accommodation, and to make some additional improvements to the wharves on the western side of the Cove? As carriers we should certainly favour broadside wharves. That is another reason for preferring the Circular Quay—the ships lie right alongside. When a ship is unloading from several hatches on a long jetty the jetty soon becomes blocked, and the carriers cannot get at the goods. The jetties are of no great width, and perhaps only a single dray can pass along. For quick loading there is nothing to beat the Circular Quay with its broadside wharf. Cowper-wharf is also a broadside wharf.
1181. Engaged in the carrying trade as you have been, you have had an opportunity of watching the increase of the commerce of the port;—has it increased to a large extent during the last few years? Certainly it has.
1182. Do you think it is likely to go on increasing for many years? Yes. I remember seeing ships discharging alongside the wharves for six or seven weeks at a time; whereas now they discharge in a fortnight.
1183. Do you think it is essential that these works should be carried out so that vessels discharging may have all the necessary accommodation? Yes.
1184. I presume that the greater the facilities are which are given for discharging and loading vessels the more likely is the enterprise to result successfully? Yes. I consider that shed accommodation enables ships to discharge much more rapidly than would be the case with a bare wharf. Steamers break bulk at other ports before they come here, and they are quite ready on the moment of arrival to commence discharging. The owner of the goods may not find out for twenty-four hours, through the Press, that the steamer has actually arrived. The steamer, however, can put the goods at once into a shed, and they are protected. A locked shed is far more serviceable than an open shed.
1185. Are the Circular Quay sheds open or locked? The Orient, P. & O., and Messageries Maritimes Co.'s sheds are locked.

Mr. W. H.
Shortland.
26 Sept., 1888.

PARLIAMENTARY STANDING COMMITTEE ON PUBLIC WORKS.

Improvements to the Circular Quay.

APPENDIX.

A.

[To Evidence of Alfred Lamb, Esq.]

Sir,

Sydney, 21 September, 1888.

I have the honor to enclose for the information of the Committee a report from Captain Jackson, Manager of the Public Wharves, that was placed on the table of the Legislative Assembly on the 19th June, and to which I referred in my evidence before the Committee on the 11th instant. It will be observed it is stated in this report that under rebate competition with private wharves (except for loading) public wharves become empty except under the same system. It must be plain to anyone a rebate system does not increase the accommodation, therefore, the latter cannot be insufficient.

The evidence now of Captain Jackson before your Committee on the 11th and 19th instant, as it appears in the *Sydney Morning Herald*, placed alongside this printed Parliamentary report, is so contradictory that, beyond calling attention to it comment is unnecessary.

In the evidence above referred to figures are given as to the annual returns for wharfage at Woolloomooloo Bay. I believe I am right in stating, without having had actual access to the figures, that all returns from the public wharves are swelled up by the Government charging itself with wharfage on its own materials. In the figures mentioned is included the wharfage on an enormous quantity of water pipes for carrying the Nepean water to the City, a specially heavy importation not likely to benefit any Government wharfage returns again.

I have, &c.,

ALFRED LAMB.

The Honorable John Lackey, M.L.C., Chairman, Parliamentary Standing Committee on Public Works.

[Extract from "Votes and Proceedings of the Legislative Assembly," No. 103, Thursday, 21 June, 1883.]

(13.) Rebate from Wharfage Rates on Public Wharfs:—*Mr. Lyne*, for *Mr. Dibbs*, asked the Colonial Treasurer,—

(1.) Is it a fact that the management of the Circular Quay is allowing a rebate of 25 per cent. from the wharfage rates upon the cargoes of vessels discharging at certain public wharfs?

(2.) Has he given his sanction to a system of rebates in competition with the owners of private wharf property?

(3.) Is not the giving of rebates a violation of the law?

Mr. Burns answered,—

(1 and 2.) In answer to the Honorable Member's questions Nos. 1 and 2, I have obtained from Captain Jackson, Manager of Public Wharfs, the following report upon the practice of allowing rebate from the wharfage rates payable by ships discharging at public wharfs:—

"In compliance with your instructions, I have the honor to report, for the Colonial Treasurer's information, the manner in which the business of the public wharfs has been conducted.

"During the four (4) years that the public wharfs have been under my charge, I have endeavoured, as far as in my power to carry on the business on commercial principles (without which wharf business cannot be carried out to advantage), with what result is well known to yourself. During the first two (2) years, I found no difficulty to contend with, as nearly all the principal wharf-owners had formed themselves into an association, and no rebate of any kind was allowed, in consequence of which the public wharfs received a fair share of the shipping business of the port, the revenue of the Quay having increased during the two (2) years from £12,000 to over £18,000 per annum.

"During the latter part of 1886 it was found necessary to re-establish the rebate system (which had in fact been in use for twenty (20) years previous), in order to protect the revenue from the wharfs under my charge. I accordingly asked and obtained permission from the then Colonial Treasurer (Sir P. Jennings) to allow rebate of 10 per cent. on the net inward wharfages and 5 per cent. on the tonnage dues. This rebate was only given to the agents of one vessel, as I soon found that it was not sufficient inducement, as private wharf-owners at this time allowed from 30 to 45 per cent. This large rebate was the cause of every berth at both the Circular Quay and Cowper Wharf being vacant for over one month of the present year, and compelled me again, in the interest of the wharfs, to ask permission to increase the rebate already granted by the former Colonial Treasurer to 25 per cent., the minute of *Mr. Burns*' approval expressly stating that the authority was to be exercised with great care. This has only been allowed to four (4) vessels, three (3) at the Circular Quay and one (1) at Cowper Wharf.

"I beg to point out that the rebate allowed by the Government in no way competes with the private interest of wharf-owners, as in all cases the amounts given by them exceed what is allowed by the public wharfs by 10 or 20 per cent.

"So long as private wharf-owners continue to allow rebates, it is absolutely necessary that the business of the public wharfs be carried on under a similar arrangement, as otherwise vessels (except for loading) will go where rebate is given, and the public wharfs will be empty."

(3.) I am not aware that the giving of rebates is a violation of the law. I consider it to be perfectly legal.

B.

[To Evidence of M. A. Conil.]

Dear Sir,

Sydney, 21 September, 1888.

With reference to our conversation of yesterday *re* extensions of our wharf, I herewith enclose a letter which I received from the Colonial Treasurer on the 20th February, and which will give you complementary information about the matter.

I am, &c.,

A. CONIL.

The Hon. J. Lackey, Sydney.

Sir,

The Treasury, New South Wales, Sydney, 20 February, 1888.

I have the honor, by direction of the Colonial Treasurer, to acknowledge receipt of your letter of 7th instant, and to inform you, in reply, that there will be no objection to an extension of 50 feet to the wharf at the eastern side of the Circular Quay leased to you, provided you will undertake to pay a proportionate increase of rent for such extension.

I have, &c.,

G. EAGAR.

The Principal Agent,
Messageries Maritimes Co., Sydney.

C.

C

[To Evidence of James Powell, Esq.]

The Collector of Customs to The Secretary, Public Works Committee.

Sir, I have the honor to forward a Return, prepared in connection with my evidence given before the Public Works Committee, and to request that the Return may be received as an appendix to the evidence. Custom House, 5 October, 1888.

I have, &c.,
JAMES POWELL.

RETURN showing the number of Inward Cargo Ships berthed in Port Jackson during the year 1887, the wharves at which such ships were berthed, and their respective register tonnage.

NOTE.—Vessels consigned to the P. & O.S.N. Co. } At Circular Quay ;
Orient Co. }
Messageries Maritimes }
Eastern and Australian S.S. Co. }
China S.N. Co. } At Smith's Wharf ;

and intercolonial trading vessels, are not included in this Return, such vessels having fixed or leased berths for their constant trade irrespective of wharfage competition.

1887.

AUSTRALIAN STEAM NAVIGATION COMPANY.

Ship.	Tons.	Ship.	Tons.	Ship.	Tons.
Afghan	1,439	Hohenzollern	1,900	Port Philip	1,732
Arapua	540	Hohenstaufen	1,900	Port Pirie	2,040
Bancora	2,170	Habsburg	1,910	Pathan	1,762
Bancora	2,170	Francesca T.	1,111	Port Darwin	1,628
Bhundara	2,190	Hohenzollern	1,900	Port Jackson	1,728
Caroline	680	Hohenstaufen	1,905	Port Denison	2,289
Clitus	1,588	Jumna	1,048	Patrician	1,213
Deepdale	1,715	M. A. Troop	1,118	Remington	999
Deepdale	1,715	Neckar	870	Salier	1,894
Duleep Singh	1,198	Norkoowa	1,074	Seine	735
Emblem	1,152	Nuremberg	2,189	Sikh	1,510
Fulda	884	Nowshera	1,938	Salier	1,894
Ghazee	1,764	New Guinea	1,700	Sikh	1,510
Ghazee	1,764	Nebo	1,382	Sikh	1,510
Hercules	1,215	Preussen	2,880	Tiverton	1,743
Hohenzollern	1,900	Port Adelaide	1,783	Victoria	934
Hohenstaufen	1,900	Pathan	1,762	Zuleika	1,092
Habsburg	1,910	Port Jackson	1,728	Zealandia	1,714
Hankow	2,322				

Total, 55 ships.

DALTON'S WHARF.

Ship.	Tons.	Ship.	Tons.	Ship.	Tons.
Adelaide Platt	1,090	Dawpool	1,697	Olga	528
Ardvar	858	Dunscore	1,000	Phasis	1,490
Ashleigh Brook	1,915	Dunkeld	1,005	Panmure	1,503
Bertha	887	Eurydice	1,465	Rohilla	985
Balkamah	1,318	Gryffe	1,069	Snowden	1,065
Balmoral Castle	2,059	Loch Bredan	950	Sardahana	1,119
County Carnarvon	1,267	Leicester Castle	2,009	Skelmoslie	1,528
Coromandel	849	Leucadia	896	Santa	940
G. O. Cuthbert	999	Lake Erie	938	Shandon	1,397
Clynder	1,117	Livingstone	531	Sherwood	1,823
Cabul	1,397	Moel Eilian	1,081	Vanuara	2,012
Callao	978	Maulesden	1,500	Yarkand	1,311
Dumbartonshire	915	Northbrook	1,820		

Total, 38 ships.

ADELAIDE WHARF.

Ship.	Tons.	Ship.	Tons.	Ship.	Tons.
Alex. Laurence	1,205	Earl Zetland	1,461	John Gamble	1,027
Ariadne	1,167	Firth of Stronga	1,251	Loch Trool	1,410
Brussels	991	Firth of Solway	1,245	Moresby	1,217
Cochin	1,200	Firth of Clyde	1,207	Oakhurst	1,032
Dunolly	1,478	Gareloch	1,177	Port Jackson	2,132
Dallam Towers	1,464	Glenfyne	913	Seriol Wyn	1,065
Dee	1,115	Inchgreen	1,091	Thessalus	1,782

Total, 21 ships.

GRAFTON WHARF.

Ship.	Tons.	Ship.	Tons.	Ship.	Tons.
Amoy	994	Dumfrieshire	1,221	Port Augusta	1,856
Chindewara	1,487	Grassendale	1,819	Port Pirie	2,040
Cairngorm	1,166	Leyland Bros.	2,238	Roehampton	1,391
Cluny Castle	1,934	Lake Ontario	1,061	Rising Star	835
Charlotte Croom	1,661	Mitredale	1,231	Siosa	1,691
Coldinghame	1,059	Port Darwin	1,628	Samoa	1,109

Total, 18 ships.

CIRCULAR QUAY.

Ship.	Tons.	Ship.	Tons.	Ship.	Tons.
Brilliant	1,613	Essex	1,675	Sussex	1,620
County Anglesea	1,067	Gladstone	1,209	Sir W. Raleigh	1,492
Gimba	1,117	Hubbuck	1,834	Trafalgar	1,429
Cairnbulg	1,567	Kent	1,620	Yallaroi	1,499
Eccléfechan	2,058				

Total, 13 ships.

APPENDIX.

Ship.	Tons.	Ship.	Tons.	Ship.	Tons.
DIBBS' WHARF.					
Angerona	1,215	City Hankow	1,195	H. G. Johnson	1,027
Batavier	1,616	Cordillera	852	Hahnemann	1,937
Black Adder	917	Duke Argyle	2,037	Valdivia	877
City Sparta	1,193				
Total, 10 ships.					
MOORE'S WHARF.					
Bankhall	1,312	Francis Thorpe	1,257	Albuera	1,502
Essex	1,675	Howden	1,163	Cloncaird	1,300
East Lothian	1,389	Hereward	1,513	Star of Germany	1,284
Total, 9 ships.					
CENTRAL WHARF.					
Achilles	1,521	Hawkesbury	1,120	Parramatta	1,521
Candida	1,221	Illawarra	1,887	Rodney	1,447
Hubbuck	1,834	Melbourne	1,867	Windsor Castle	979
Total, 9 ships.					
DALGETY'S WHARF.					
Australasian	2,343	Aberdeen	2,371	Smyrna	1,305
Aberdeen	2,371	Gulf of Venice	1,964	Sophocles	1,120
Australasian	2,343	Orontes	1,318	Thermopylae	948
Total, 9 ships.					
UNION STEAMSHIP CO'S WHARF.					
Alameda	1,939	Alameda	1,939	Zealandia	1,714
Alameda	1,939	Mariposa	1,939	Zealandia	1,714
Alameda	1,939	Zealandia	1,714	Zealandia	1,714
Total, 9 ships.					
LIME-STREET WHARF.					
Austriana	1,519	Cadzow Forest	1,068	Glenesk	1,298
Blenfell	1,154	Charles Bat	724	H. S. Sanford	1,101
City of Tanjore	768	Furness Abbey	1,044	Mowe	1,058
Total, 9 ships.					
SMITH'S WHARF.					
Argus	1,543	Eamock	1,198	Johanna	430
Confluentia	358	Firth of Tay	826	Pericles	1,598
Total, 6 ships.					
PARBURY'S WHARF.					
Aviemore	1,592	Gulf of Venice	1,964	Sophocles	1,120
Fifeshire	2,425	Patriarch	1,339	Saml. Plimsoll	1,061
Total, 6 ships.					
COWPER WHARF.					
Dorenby	863	Lobo	899	Stirlingshire	1,221
Edinburgshire	1,277	Port Victor	1,829		
Total, 5 ships.					
TOWN'S WHARF.					
Chr. Knudson	569	Jerusalem	901	Nomad	452
Ethiopian	839				
Total, 4 ships.					
FAGAN'S WHARF.					
Cassandra	711	Ullock	779		
Total, 2 ships.					
STRUETH'S WHARF.					
Cicero	1,115	Kew	986		
Total, 2 ships.					
RUSSELL'S WHARF.					
Embla	385				
1 ship.					
* TIMBER CARGOES.					
Juletrae	730	Prospect	710	Don Nicolas	859
Kosciusko	1,192	Pacific Slope	799	Dr. Mezger	628
Lindus	1,080	Pegase	471	Emile Marie	602
Mercuo	717	Royal Tar	598	Freida Grampp	499
Maria Louise	456	Rosenberg	860	Fray Benton	511
Martha	853	Royal Tar	598	Geo. Thompson	1,128
Marie-Rutho	419	S. S. Ridgway	831	Glint	715
Martha	853	St. Lawrence	1,019	Geo. Thompson	1,128
Nineveh	1,174	Shannon	1,292	Freidrickstadt	653
Nebo	591	Siebin	641	Hanover	558
Nineveh	1,174	Montgomery Castle	871	Heiden	751
Pacific Slope	799	Apollo	1,124	Hercules	561
Pakwan	819	C. B. Kenny	1,073		
Total, 38 ships.					

* Generally discharged at water frontages held by proprietors of Licensed Timber Bonds.

RECAPITULATION.

APPENDIX.

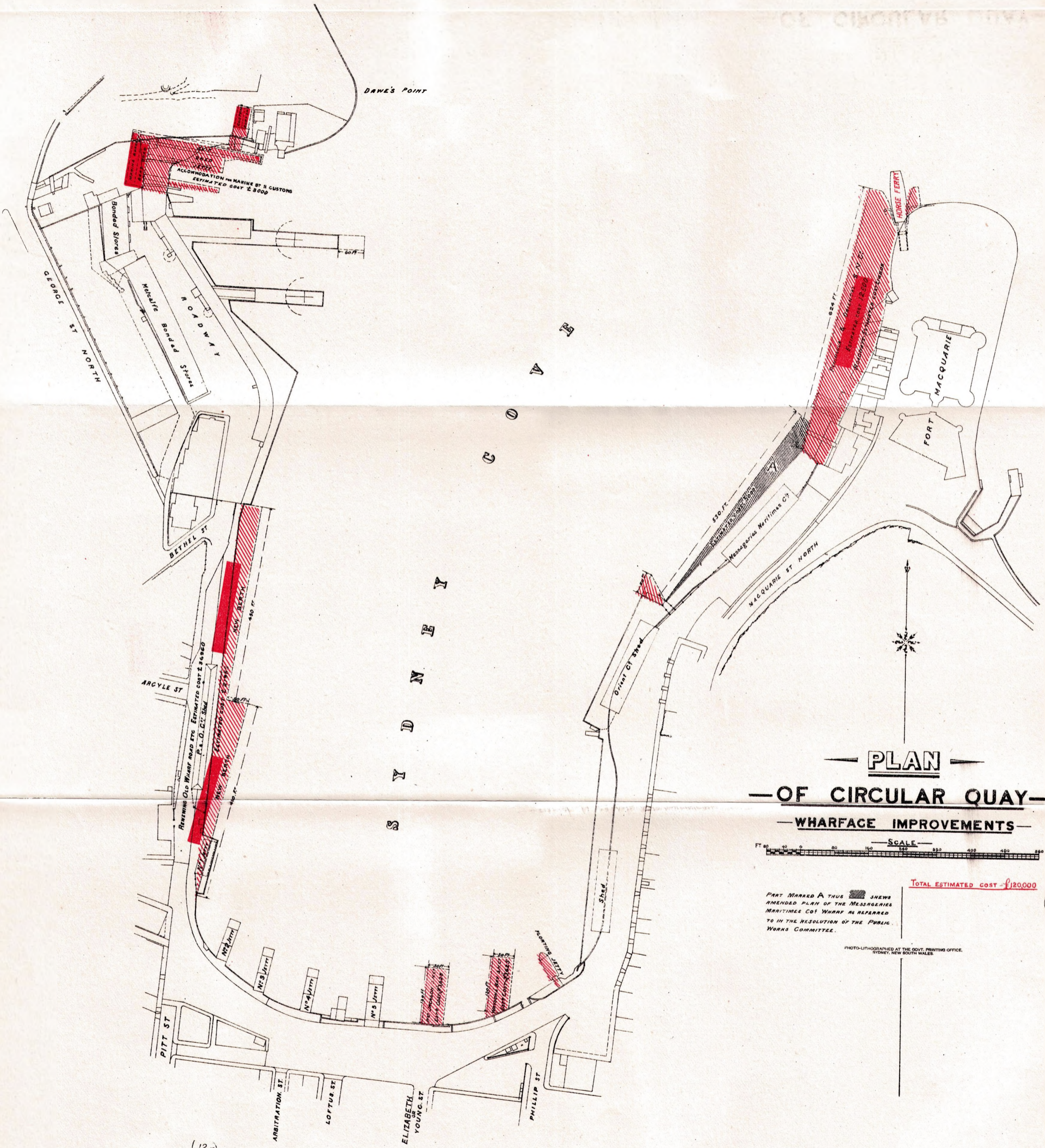
RECAPITULATION.

1887.	Wharf.	No. of ships berthed, 1887.	Accommodation available irrespective of leased berths.	
Government property	Circular Quay	13	Estimated 4 berths	} For year 887.
	Cowper Wharf.....	5	do 3 do	
In association.....	Parburry's	6	1 berth.	
	Walker's	0	1 do.	
	Alger's	0	1 do.	
	Central	9	5 berths.	
	Dalgety's	9	2 do.	
	Towns'	4	2 do.	
	Moore's	9	3 do.	
	Washington	21	1 berth.	
	Smith's	6	3 berths.	
	Dibbs'	10	6 do.	
Grafton	18	4 do.		
In separate competition	Australasian Steam Navigation Co.	55	.....
	Dalton's	38	3 berths.	
	Union Steam Co.....	9	1 berth.	
	Lime-street	9	1 do.	
	Fagan's	2	1 do.	
	Struth's	2	1 do.	
Russell's	1	1 do.		
	Timber ships	38		

JAMES POWELL.

Custom House, Sydney, October 4, 1888.

[One plan.]



PLAN
— OF CIRCULAR QUAY —
— WHARFACE IMPROVEMENTS —



PART MARKED A THUS SHOWS AMENDED PLAN OF THE MESSENGERIES MARITIME COY WHARF AS REFERRED TO IN THE RESOLUTION OF THE PUBLIC WORKS COMMITTEE.

TOTAL ESTIMATED COST £120,000

C. H. ...

PHOTO-LITHOGRAPHED AT THE GOVT. PRINTING OFFICE, SYDNEY, NEW SOUTH WALES.

1888.

LEGISLATIVE ASSEMBLY.
NEW SOUTH WALES.

CIRCULAR QUAY IMPROVEMENTS BILL.
(MESSAGE No. 6.)

Ordered by the Legislative Assembly to be printed, 6 December, 1888.

CARRINGTON,
Governor.

Message No. 6.

In accordance with the provisions contained in the 54th section of the Constitution Act, the Governor recommends, for the consideration of the Legislative Assembly, the expediency of making provision to meet the requisite expenses in connection with a Bill to sanction the carrying out of certain improvements to the Circular Quay, Sydney.

Government House, Sydney,
30th November, 1888.

1888.

NEW SOUTH WALES.

PARLIAMENTARY STANDING COMMITTEE ON
PUBLIC WORKS.

MINUTES OF EVIDENCE

AND

APPENDIX

RELATING TO

PROPOSED IMPROVEMENTS AND ADDITIONS

TO THE

WHARFAGE ACCOMMODATION, WOOLLOOMOOLOO BAY.

Presented to Parliament in accordance with the provisions of the Public Works Act,
51. Vic. No. 37, section 8.

SYDNEY: CHARLES POTTER, GOVERNMENT PRINTER.

NAMES OF THE MEMBERS OF THE COMMITTEE.

LEGISLATIVE COUNCIL.

The Honorable JOHN LACKEY, Chairman.
 The Honorable GEORGE CAMPBELL.
 The Honorable WILLIAM HENRY SUTTOR.
 The Honorable JAMES WATSON.
 The Honorable FREDERICK THOMAS HUMPHERY.

LEGISLATIVE ASSEMBLY.

JOSEPH PALMER ABBOTT, Esquire, Vice-Chairman.
 JAMES NIXON BRUNKER, Esquire.
 HENRY COPELAND, Esquire.
 ALEXANDER KETHEL, Esquire.
 JOHN RENDELL STREET, Esquire.
 THOMAS MICHAEL SLATTERY, Esquire.
 JACOB GARRARD, Esquire.
 SYDNEY SMITH, Esquire.

[James Nixon Brunker, Esquire, by reason of his accepting the office of Minister for Lands, did not take his seat as a member of the Committee.]

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Mr. John Joseph Earl, Timber Merchant	10-12
James Barnet, Esq., Colonial Architect	12-14

APPENDIX.

To evidence of Mr. Alexander B. Portus.....	A
Plan, showing the proposed Improvements and Additions to the Wharfage Accommodation, Woolloomooloo Bay, as it was submitted to the Committee.	

PARLIAMENTARY STANDING COMMITTEE ON PUBLIC WORKS.

MINUTES OF EVIDENCE.

WHARFAGE ACCOMMODATION, WOOLLOOMOOLOO BAY.

WEDNESDAY, 19 SEPTEMBER, 1888.

Present:—

The Honorable JOHN LACKEY (CHAIRMAN).

The Hon. GEORGE CAMPBELL.
The Hon. WILLIAM HENRY SUTTON.
The Hon. FREDERICK THOMAS HUMPHERY.
ALEXANDER KETHEL, Esq.

JOSEPH PALMER ABBOTT, Esq.
JOHN RENDELL STREET, Esq.
THOMAS MICHAEL SLATTERY, Esq.
JACOB GARRARD, Esq.

SYDNEY SMITH, Esq.

The Committee proceeded to consider the proposed improvements and additions to the wharfage accommodation, Woolloomooloo Bay.

Joseph Barling, Esq.; Under Secretary for Public Works, sworn and examined:—

1. *Chairman.*] Are you aware that we have under consideration the proposed improvements at Woolloomooloo Bay? Yes.
2. What is the estimate of the cost submitted for the work? £42,000. That is the sum asked from Parliament for the construction of the works.
3. Can you give us any information as to the circumstances under which the vote was initiated or the work undertaken? It was partly intended for the use of Her Majesty's navy, and to resume a piece of wharf originally constructed for that purpose in the bay. Captain Jackson will give particulars as to the necessity for the work.
4. Does the Imperial Government contribute anything to the work? No. There was an understanding come to between the Government of New South Wales, when Sir Alexander Stuart was Premier, and the Imperial Government, whereby certain lands were given up to the Colony by the Imperial Government in exchange for other places and works of which this wharf forms part. We have put up part of the wharf which is marked "Admiralty Wharf" on the plan now before the Committee. It is on the west side of Woolloomooloo Bay. We propose to use that wharf for general purposes, and erect a new wharf for the Admiralty.
5. I have in my hand a statement which I think comes from the Public Works Department, in which the cost of these proposed works is stated at £112,000;—will you look at this document and see if it is correct? I think this document is a mistake. The amount of £112,000 is a clerical error; it is an error of transcription; it should be £42,000.
6. Is there another vote of £112,000? Yes.
7. Is that the amount estimated for the Newcastle improvements? Yes.
8. Then the correct amount for these works at Woolloomooloo Bay is £42,000? Yes.
9. Is that the estimated amount submitted by the skilled officers of the Department after examination? Yes.
10. Have you a list prepared of the works proposed to be carried out for £42,000? Yes. It is as follows:—It is proposed to erect on the western side of Woolloomooloo Bay a wharf 588 feet in length, a portion of which, viz., 320 feet, is for the use of Her Majesty's ships, and the remaining portion for commercial purposes, and what is marked on the plan as Admiralty Wharf will be lengthened as shown, making a total length of 404 feet, the whole of which it is proposed to use for general commercial purposes. It is further proposed to fill in the part of the curved face of the wharf at the south-west corner, and thus construct a wharf having a straight face of 250 feet, and from the centre part of Cowper Wharf to run out a jetty 700 feet in length and 100 feet in width.
11. What is the length of the jetty now in existence at Woolloomooloo Bay? About 250 feet.
12. Has that been in use for some time? Yes, for some little time.
13. Have these proposed works ever been submitted to Parliament in any way? I think it is one of the votes passed.
14. Was it proposed by the Secretary for Public Works to refer the works to this Committee? Yes.
15. Is it within your knowledge that applications have been made at various times by maritime people to have these works carried out at Woolloomooloo Bay? I cannot say that it is.
16. Have any petitions been presented? No. It is a matter that came to our Department from the Treasury.

J. Barling, Esq.
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- J. Barling, Esq.
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17. Is it a proposal partly to carry out the arrangement of an exchange of sites with the Imperial Government? Yes. The main reason, I think, for changing the site of the Admiralty Wharf is the difficulty of getting proper foundations for stores.
18. *Mr. Garrard.*] Have the Admiralty authorities complained about the accommodation at present given? No. They have not complained, because it does not matter to them what the foundations may be, so long as they are provided. It would cost an immense sum of money to get foundations at the present site.
19. Has the Colonial Government to carry out that work? Yes. It was part of the arrangement made by Sir Alexander Stuart. We found it so difficult to get settled foundations on the present site that it was decided to change the situation.
20. Will it not be a great eyesore in the Domain if those buildings are shifted farther out? I hardly think so. If we are going to use the present wharf for commercial purposes, I do not think it will matter much to provide the other accommodation farther away.
21. *Mr. Kethel.*] Could you furnish the Committee with a memo. showing the nature of the arrangement entered into between the Government of New South Wales and the Imperial Government by which the Colony is committed more or less to this scheme? It is not in my Department; still, if you wish it, I can easily get the document.
22. *Chairman.*] Is it part of the general exchange by which the Imperial authorities got Garden Island? Yes.
23. *Mr. Abbott.*] Can you state what is the expenditure on Cowper Wharf at the present time? Captain Jackson will be able to give it.
24. Can you tell me what the whole of the works have cost from the beginning? I have not the figures with me at present, but I will send them in.
25. Can you state what revenue has been derived each year for the wharfage accommodation at present existing? The collection of the revenue does not come within my Department. Captain Jackson will be able to give information on that point.
26. *Chairman.*] Will you supply the Committee with all the papers you have referred to? Yes.

Robert Hickson, Esq., M.I.C.E., Acting Engineer-in-Chief for Harbours and Rivers, sworn and examined:—

- R. Hickson, Esq.
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27. *Chairman.*] Are you aware of the project to make certain improvements at Woolloomooloo Bay? Yes.
28. Do you know the amount required to effect these improvements? £42,000.
29. What do the works consist of? An extension of the Admiralty Wharf, on the west side, for a length of 588 feet. I think its present length is 250 feet. This is a further extension at a cost of £8,000. Then there is an extension and filling up a little bit of the harbour at a cost of £4,500 in round numbers.
30. Is it for filling up alone, or filling up and a wharf? It is a wharf and filling up with dredged material and ballast, which will not cost much. We generally get ballast—rough stones—in front, and fill up with rubbish behind.
31. What work follows that? Straightening part of the circular portion of the wharf. It is very awkward for a vessel to get in there at present. We intend to cut off a piece so as to make a straight berth of 250 feet, which a vessel can lie alongside. That is a timber wharf; it will cost about £1,800. Then there is a jetty 700 feet long by 100 feet wide, which will cost a little over £27,700.
32. Is that jetty considered to be a desirable work? Yes.
33. Have you recommended it? No. I think it was mainly recommended by Captain Jackson.
34. Who was the professional man who designed it? Mr. Moriarty.
35. It is in your Department that you have taken up the project? Yes.
36. Will the jetty of 700 feet be all piled? Yes; all timber.
37. What will be the exact cost? £27,740.
38. What will be the distance between that jetty and the present small jetty shown on the plan? Nearly 130 feet.
39. Will that be of sufficient space to allow of the use of the two jetties? Yes.
40. Will the long jetty of 700 feet affect injuriously the traffic of the bay generally? No.
41. If large vessels go there will they be able to turn? Yes; as a matter of practice, they will turn outside.
42. There was a project some years ago to carry out a similar jetty in Circular Quay;—was not that objected to because it would interfere with the traffic of the Cove? I do not know. It must have been before I came here.
43. Would that be the case in this instance? No; I think there is sufficient room.
44. Do you know anything of the conditions or circumstances under which this wharf has been conceded to the Admiralty? No; I do not know anything of the arrangement.
45. Have you formed any opinion as to the necessity of the work generally? From two or three visits which I have made to the place, I think there would be a very large business done, if there was sufficient accommodation.
46. Do you think the proposed works can be carried out at the estimated cost? I think so. I went through the estimates myself.
47. *Mr. Abbott.*] Do you know what the Cowper Wharf cost? No; but I could let the Committee know to-morrow.
48. What is the income? Captain Jackson will be able to tell you that. I think the wharf cost £18,000.
49. *Mr. Kethel.*] Have the Imperial authorities at any time complained of the accommodation at their disposal at Woolloomooloo? I have not been here long enough to be able to say. They have not done so to my knowledge.
50. At whose suggestion is the proposal made to change the site of the Admiralty Wharf? I do not know what are the arrangements with the Admiralty. I believe that the motive for moving from the present site is this: We want more wharfage accommodation in Woolloomooloo Bay, and it is more convenient to put the man-of-war ships on the outside than to have them coming backwards and forwards through the shipping.
51. Are you aware of a single instance in which a man-of-war ship has been brought alongside that wharf? No, because I do not think there is any place where they could go alongside. But I believe they intend to do so, and it is the object of the wharf.
52. *Mr. Abbott.*] Do you know anything about stores to be erected at Woolloomooloo Bay? No.

53. *Mr. Kethel.*] At whose suggestion is it proposed to extend the jetty 700 feet into the harbour? I believe it was proposed by Mr. Moriarty, after consultation with Captain Jackson. I believe that is how it originated. R. Hickson,
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54. Are there any minutes referring to the reasons why a jetty of these peculiar dimensions should be made? I have not seen them.
55. Does it not strike you as peculiar to have a jetty 100 feet wide for commercial purposes? I think it is wanted for large vessels, which are proposed to be accommodated. You want plenty of room for landing cargo. I do not think it is too wide.
56. *Mr. Garrard.*] We have been told that the reason for shifting the Admiralty Wharf is because you find a difficulty in getting foundations for stores which the Colonial Government have undertaken to build for the Admiralty;—is that the case? I cannot say. I do not know the arrangement.
57. Is there any difficulty in erecting stores on the present site of the Admiralty Wharf? There is a difficulty all along there, because it is made ground, and the foundation is not good.
58. Do you know the character of the buildings to be erected there? No.
59. Who is dealing with that matter? The Colonial Architect.
60. Do you know what was promised to the Admiralty with reference to those stores? No.
61. Do you know if the Colonial Architect has complained of the want of good foundations there? No.
62. Do I understand that it is intended to bring the man-of-war vessels themselves alongside? Yes; I believe that is the intention.
63. If stores are erected on the proposed new site, will they not shut out part of the view from the Domain? Not very much. The land is very high above it.
64. How many ships will the new large jetty accommodate? A large and small one on each side. That will be four.
65. Do you think it would be better to diminish the width of the jetty on the outside, so that the vessels lying inside could overlap, thus giving another berth? I do not think so. You could only take off 25 feet from the width, and most of the vessels coming here are of greater beam than that. The vessels with large cargoes go outside, and that is where you want most room.
66. Do you know the width of the Sandridge Railway Pier at Melbourne? I think there are six lines of rails on it. It is a very wide pier, but I do not remember the exact width.
67. Are the foundations at the back of the proposed new site for the Admiralty Wharf better than those at the back of the present site? Yes. It is good hard ground.
68. *Mr. Kethel.*] On whose authority is the statement made that a solid foundation cannot be obtained in the rear of the present Admiralty Wharf;—have you any personal knowledge of the fact that good foundations cannot be obtained? I believe a foundation could be obtained, but at considerable expense. You would have to go down through a lot of made ground.
69. How far back does it extend behind the present wharf? I do not know.
70. Does not the sandstone cliff come down close to the railing of the Domain? At one end I believe it does; but it goes off immediately.
71. Do you speak from your own experience? No.
72. *Mr. Suttor.*] Is it part of your duty to give any opinion as to the desirableness of these works? No.
73. Are you simply instructed to prepare the plans? Yes; that is all I consider to be my duty.

Captain John Jackson, Manager of the Public Wharves at Sydney, sworn and examined:—

74. *Chairman.*] Are you the Manager of the Government Wharves generally? Yes.
75. Are you aware of the project to construct improvements at Woolloomooloo Bay, and the nature of those improvements? Yes. Captain
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76. Are you aware of the amount required to carry out those improvements? I believe it is £42,000.
77. Have you formed any opinion as to whether that money will carry out the works? No.
78. Have you formed any opinion as to the necessity for the works? Yes; there is a very great necessity for them.
79. Is there a large commercial traffic in Woolloomooloo Bay? Yes.
80. Do you know anything of an arrangement under which the Admiralty Wharf is proposed to be enlarged? It was proposed at one time to erect stores facing the Admiralty Wharf.
81. Is that wharf used by the Imperial authorities? No.
82. For what reason is it not used? Because they could not get a foundation for stores at the back of it.
83. Is it used for shipping? Yes.
84. By what kind of vessels? Commercial vessels.
85. Is it ever used for Imperial purposes? No.
86. You are aware that it is proposed to construct a long jetty into the bay? Yes.
87. Were you a party to its recommendation? Yes.
88. Do you think it is required in the interests of the public? I do; but I do not think it is wide enough.
89. What width would you have made it? 150 feet.
90. Would that affect the traffic to the smaller jetty? No.
91. If large vessels came, would it not affect the traffic? No.
92. Is the trade of that part of the city increasing? Yes. It would increase more if there were accommodation.
93. What is the nature of the trade carried on there generally? Coal, timber, and general cargo.
94. Are there any warehouses about there? Yes; just completed.
95. Would they be built on the wharf? In the neighbourhood of the wharf.
96. Have you formed any opinion as to whether the vote is sufficient for the works? No; that is not in my province.
97. Are you clearly of opinion that the trade requires more accommodation? Yes.
98. Do you think that the accommodation here proposed is of a suitable character? Yes.
99. Have you formed any opinion as to the revenue that will be received? During the present year the revenue from Cowper Wharf will be £3,800. In its present state it is not capable of doing any more.
100. What is your estimate of the revenue so soon as these proposed improvements shall have been carried out? The new jetty will be able to accommodate six ships, and each berth will be worth about £1,000 per annum. That will be £6,000, in addition to the £3,800 at present received.
101. *Mr. Abbott.*] How long have you been in your present position? Four years. 102.

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102. In what position were you before? Master of the ship "Gladstone."
103. Can you tell me what the wharfage accommodation of Sydney is at the present time? I can only state it approximately. I think that there is wharfage accommodation for forty-five large ships.
104. Is that exclusive of coasters? Yes, and of coastal and intercolonial steamers.
105. Do you know if any of the vessels in Sydney at the present time, or at any time since you have occupied your present position, have been inconvenienced through not being able to get wharfage accommodation? Yes.
106. When? In 1885.
107. What number? I had four ships lying out in the bay.
108. Was in on account of the whole of the wharfage accommodation being taken up? Yes; for a short time.
109. Was that an exceptional year? Very exceptional.
110. Has anything of that kind occurred since? I do not think so.
111. Or before? No. It was owing to a large contract with the Government for the delivery of water-pipes.
112. Do you know what Cowper Wharf cost? Only the timber portion, which cost £18,000. I do not know the cost of the other portion. £18,000 is exclusive of the small jetty.
113. What has been the revenue for Cowper Wharf, during the four years you have held your present position? In 1884, when I joined the service, it was £1,500. In 1885 it came up to, I think, over £4,000. That was on account of the large number of general-cargo ships going there. In 1886 it fell off, and I think it was only about £3,500.
114. What was it in 1887? It was close on £3,800.
115. Does that revenue include harbour dues and all other dues? That is only wharfage and tonnage dues.
116. Was there a large quantity of Government goods landed during that period? The wharfage for the Government amounted to about £460 in 1885; in 1886 it amounted to £32.
117. What kind of cargoes are discharged at Cowper Wharf? General cargoes, timber, and stone metal. General-cargo ships from London and New York go there. Only a few days ago there was a large steamer there.
118. Is the principal revenue derived from intercolonial vessels? Yes.
119. Are any of these wharves let to Mr. George Hill? No.
120. All the metal brought by Mr. Hill is discharged at Cowper Wharf? Not all of it. The principal portion of it is.
121. Do you know what he pays in a year? I think it is about £1,500.
122. It is only in one year that you ever knew vessels to be unable to get berths? Yes.
123. At the present time, what is the state of the harbour in that respect? The Circular Quay is full.
124. And the private wharves? A good many of the private wharves are full.
125. Is not the Circular Quay let to three companies? It is not let. They pay rent equivalent to tonnage dues, but the Government collects the wharfage.
126. *Mr. Humphery.*] What is the annual cost of the maintenance of Woolloomooloo Bay? It is the same every year—£487.
127. That is the salaries? Yes. There is another sum of £50 for cleaners.
128. Any repairs? No; not lately. There may have been small repairs, but nothing important.
129. Do you estimate that, deducting the annual cost, the return will be something over £3,000 a year at present? Yes.
130. When the proposed new jetty is constructed, do you estimate you will receive £10,000 a year? I should say £1,000 for each berth. That will give £6,000 a year additional.
131. That will be 25 per cent. on the proposed outlay? Yes.
132. *Mr. Kethel.*] It has been stated that a portion of the Woolloomooloo wharfage consists of an additional wharf for the Imperial Government. Are you aware at whose instance or request this new wharf is to be constructed for the Navy? No.
133. Do you know the reasons why it is proposed to make that new wharf? I believe it was originally intended to erect stores at the back of the present Admiralty Wharf, but it will cost a great deal to get foundations there.
134. On whose authority do you make that statement about the foundations? Mr. Williams, assistant-engineer. It will be necessary to go down 23 feet to get a foundation.
135. Is it intended to berth ships there? I think so.
136. Is it necessary to provide a wharf 300 feet or 400 feet long for Imperial ships' boats to land or take off munitions of war? I do not know.
137. As a nautical man, are you of opinion that such an extensive wharf should be devoted to Imperial purposes? My opinion is that it is not required.
138. Do you know that extensive warehouses and wharves have been erected at Garden Island for the Navy? Yes.
139. Have you any reason to believe that the Imperial Government really require large additional wharfage and storage on the mainland besides what they have got on the island? I do not think so.
140. Do you know for what class of naval stores the proposed warehouses are required? No.
141. How many foreign ships have you had at Woolloomooloo Wharf this year discharging general cargo, as distinguished from timber? Three.
142. Can you give any idea of the number that have discharged general cargoes there since you have been in charge during the last four years? I should say about fifty.
143. Is it not a fact that sometimes during a whole year not a single foreign ship discharges goods other than timber at that wharf? In 1884 there were no foreign ships there. They first commenced to go there when the Government imported pipes came out here.
144. The fact is that the ships having been sent to Woolloomooloo to discharge pipes for the Government also discharged their general cargoes there? Yes; but it was only a few. Since then ships have gone in without any Government cargo.
145. Is not the long haulage up the hill from Cowper Wharf into the city proper regarded as a great objection on the part of consignees? No.
146. Are you not aware of that fact? No. I am aware that they would sooner cart goods from Woolloomooloo than go to the back wharves. The great drawback to Woolloomooloo is the rough element in the neighbourhood and the pilfering which takes place.

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147. Is not the eastern section of Cowper Wharf almost entirely used for landing blue-metal and coals? The south-eastern corner is.
148. Is any rent paid for the use of that wharf in addition to the landing charges on these materials? No.
149. Is it not a fact that cargo has been lying there for weeks and the wharf made a storehouse? No; because ships are in at night and out in the morning.
150. Have I not seen cargoes lying there for upwards of a month at a time? That might have been the case. Before my time it was a coal-yard.
151. You anticipate that the long jetty will berth six ships; what class of ships do you allude to? The ordinary-sized sailing vessels.
152. Is that in addition to the present accommodation? Yes.
153. Do you mean that you will have five berths at the new jetty? No. Six additional berths; three on each side.
154. What description of ships—foreign-going vessels? Yes; ships of about 1,500 tons.
155. What is the usual length of a 1,500-ton ship, from the stern to the boom end? I should put the ship's boom end over the wharf. At the end of the wharf I would put it past the wharf. I do not reckon the ship's boom.
156. Well, the bowsprit? I should not reckon the bowsprit, except of one ship.
157. You would get three intercolonial ships berthed there? Yes.
158. Is it your experience that intercolonial vessels, whose cargoes consist almost entirely of agricultural produce, would yield the amount of revenue which you estimate to receive? No; not intercolonial vessels.
159. Do you think that ships would land produce there? No; I reckon on foreign-going ships.
160. Is it not a fact that ships with cargoes consisting of grain of every description prefer to land them where there are several warehouses within easy access? Yes.
161. Do you know whether warehouses are in course of erection at Woolloomooloo? Yes. They belong to Messrs. Holdsworth and Evans.
162. On the reclaimed ground? Yes; behind Cowper Wharf. At the present time I am given to understand Messrs. Hoffnung & Co. have purchased a large block of land there from Mr. Munro, on which they intend to erect warehouses.
163. Are there a great number of timber ships from Europe and America discharging timber at Woolloomooloo? No.
164. Is there not one there now? There are two from Puget Sound.
165. Have not the consignees of those vessels, and people interested in that branch of trade, asked the Government instead of constructing jetties to provide more storage accommodation for their cargoes? No; but I think it would be a capital thing.
166. But has it not come to your knowledge that an application has been made for more storage accommodation? No.
167. Will Mr. Hilliard be better able to answer that question? Yes.
168. As a seafaring man of considerable experience, do you think it conducive to the well-ordering of the harbour to project such a long jetty into comparatively narrow water? I do not think it will interfere with any shipping.
169. Would you not find considerable difficulty in berthing a large ship with the wind blowing into the harbour? No.
170. Have not nautical men a decided objection to wharfage improvements of this description, and was not a similar proposal in regard to the Circular Quay some years ago unanimously condemned by all seafaring men of experience amongst us? I never saw any difficulty in berthing ships at jetties.
171. Are you not aware that the intended projection of a jetty into Sydney Cove was abandoned on account of the opposition offered by the nautical authorities? Yes.
172. Notwithstanding that, do you recommend the construction of this jetty into the centre of Woolloomooloo Bay? Yes.
173. *Mr. Garrard.*] You say that you will have six berths at this jetty for 1,500-ton ships. What is the usual length of a 1,500-ton ship? About 250 ft.
174. How long is the jetty? 700 feet.
175. The approaches will take off 40 feet, so that the jetty will be 90 feet short. Is not that the case? They are not all 250 feet long. Some are only 230 feet. I reckon that the two end ships will project 50 feet outside the wharf when the six berths are taken up.
176. Then the outside ships can only work one hatchway? They seldom work more. The forebath is generally so small that they cannot work it.
177. Would you prefer a wharf 150 feet wide? Yes; because the ships lying at the long jetty will be general cargo mainly. I would also suggest a roadway in the centre lowered so as to bring the floors of the drays on a level with the wharf.
178. What was the objection to that in the Department? I do not know.
179. Did the Engineer-in-Chief raise any objection when you suggested it? Not that I am aware of.
180. Do you not think that with six new berths at the jetty and an additional one in the bight you could do without a further extension of the Admiralty wharf for some time to come? Yes; I do not think the Admiralty wharf is required for some years. I do not think they will ever use it.
181. That will give you an additional berth? But I do not think it is required.
182. Do you think that the main jetty and the straightening of the wharf on the south-western side will give you all the accommodation required? Yes; and to fill in the present Admiralty wharf.
183. Do you want to utilise it? Yes; I am doing it now.
184. Are you paying the Imperial Government anything for the use of it? No.
185. Then you really think it is necessary to keep control of the present Admiralty wharf, and if the Admiralty want anything they could get it farther north? Yes.
186. *Mr. Sydney Smith.*] What is the accommodation at present at Woolloomooloo Bay? Five berths such as they are. There is actually only one good berth. There is only one berth where you can lie properly alongside.
187. Have you had any complaints of want of accommodation at Woolloomooloo? Yes, frequent complaints. When ships have been in there there have been very great complaints of want of accommodation.

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188. How long have ships been waiting? They have not been waiting. When they were once in, there is no going out again; they have to take what they can get. At present there is a vessel discharging timber with a stage 20 ft. long.
189. Have the wharves ever been blocked with timber and stones stacked on them? No; that has been all removed as soon as a berth is required.
190. How long are they allowed? 48 hours by the Act; but with a large timber cargo it is impossible.
191. What is the depth of water at Woolloomooloo Bay alongside the wharf? 20 ft. It silts up very fast; it will be 24 ft. at the end of the big wharf. It varies from 12 ft. to 18 ft. alongside the Admiralty wharf. There is a patch of 12 ft. just opposite the new crane.
192. Can you dredge it? Yes; it is on mud.
193. What depth can you get by dredging? 30 ft., I believe.
194. *Mr. Campbell.*] In connection with the silting up, will not almost constant dredging be required? Yes; every eight or ten months. The silt is so very soft that ships go five or six feet into it.
195. Is there great drainage there? Yes, just alongside the wharf.
196. *Mr. Suttor.*] With regard to the estimated revenue of £10,000, is it based on the idea that the berths will be always occupied? No; the revenue for each ship of 1,500 tons will be £280. I calculate on having four ships at each berth every year.
197. Do you make allowance for berths not being occupied? Yes; I make allowance for their not being occupied for six months in the year.
198. *Chairman.*] Would you be good enough to show us how far the Government property extends on the south-eastern side of the wharf? [*Witness indicated the point upon the plan.*]
199. Regarding the property as a valuable one owned by the Government, are you of opinion that the improvements proposed are necessary? Yes.
200. Do you think it will be valuable in view of the probable increase of trade and commerce in the colony generally? I have not the slightest doubt about it.
201. *Mr. Kethel.*] I observe that part of the scheme is to fill in the present landing stages and afford other accommodation where steamers land their passengers on the south-western corner. Is not that where the Manly Beach and Watson's Bay boats land their passengers? Those boats do not go there now.
202. What are the landing stages now used for? Timber ships lie alongside.
203. Is any provision made in the proposed alteration of the passenger accommodation for that portion of the public who use Woolloomooloo wharf as a landing place? Yes; there is a jetty there.
204. Do you intend to use the present jetty for passengers? Yes; that is my idea.
205. Are there not two berths at that jetty for large-sized ships? They are very narrow.
206. How do you reconcile your statements when you say that you will have six additional berths, and that you intend to deprive yourself of two berths at this jetty? There will be three berths on each side of the new jetty. I do not reckon the jetty you refer to as a berth.
207. Have I not seen vessels discharging there? Small vessels; I have put a vessel there because I had no other berth.
208. You have stated that there is a ship discharging timber with a stage 20 feet long. Is that long stage necessary because of the shallowness of the water or on account of the wharf? On account of the wharf.
209. *Mr. Suttor.*] Do you think it is not desirable to carry out the work as proposed for the Imperial Government? I do not know whether the Imperial Government requires it.
210. Did you not say it is not required? I do not think it is necessary, as far as I know.
211. If that proposal is carried out, would it be a good alternative plan instead of making the proposed large jetty? I think the jetty will be more convenient.
212. But will not one work cost £8,000 while the other will cost £27,000? You could only berth two ships at the Admiralty Wharf, while you lose a valuable frontage. The jetty would only require 150 feet of frontage, while it would berth six ships.
213. Do you think it would not be possible to abandon the jetty, and carry out the Admiralty proposal? There would not be sufficient accommodation.

Capt. Henry Pettit, Harbour-master at Sydney, sworn and examined:—

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214. *Chairman.*] Are you Harbour-master of this port, and have you occupied that position for a number of years? Yes; for the last four years.
215. Have you been engaged in the same kind of work for a great number of years? Yes.
216. Have you given attention to the proposed improvements at Woolloomooloo Bay? Yes; I have seen the plans.
217. Do you recognise that portion of the bay where it is proposed to construct a long jetty? Yes.
218. You are a nautical man, and have had a lot of experience? Yes.
219. Do you think the proposal is a feasible one? The proposal will give very good accommodation for shipping in Woolloomooloo Bay.
220. Do you think it will cramp the action of vessels coming in and going out? No.
221. Is it a wide bay? Not particularly wide, but there is sufficient room to bring in vessels, either on one side or the other.
222. Is it much wider than Sydney Cove? No.
223. Do you recollect a project, some years ago, to carry out a jetty in Sydney Cove, which was strongly objected to? Yes.
224. Was it not contended that it would cause confusion in the shipping and bring about accidents, besides curtailing the facilities for getting about? Sydney Cove has a very great deal of traffic; but in Woolloomooloo Bay it is not so.
225. But taking a prospective view, have we not reason to believe that the traffic will increase in that bay as it has in Sydney Cove? Yes.
226. Do you think that the proposed works, as a whole, are essential for the improvement of a valuable Government property such as this is? I think that the proposed jetty will return very good interest on the money expended.

227. If that property were in the hands of private individuals do you think it would be improved to this and even to a far greater extent? Yes.

228. Do you know anything about the proposal to improve the Imperial frontage to the bay, the part now occupied by the Government? I see that there is a wharf on the western side of the bay, and that it is proposed to extend it farther to the north.

229. Do you recollect the place which used to be called the Centipede Rock? Yes.

230. Is that the locality? Yes.

231. Is that where the new wharf is proposed to be erected? Yes.

232. Do you know anything of the circumstances, under which an exchange took place between the Colonial Government and the Imperial Government, with regard to Garden Island, and under which this wharf was conceded to the Imperial Government? No.

233. Is the traffic in Woolloomooloo Bay very large now? No, not particularly. Small craft go there.

234. Would it be increased if there were proper accommodation? Last year, in the wool season, there was a great deal of shipping in the port, and the wharf manager contrived to get large-ships alongside the small jetty, and both sides were occupied during a part of the season.

235. Do you know the amount proposed to be spent on those improvements? No.

236. £42,000 is proposed for the whole of the works. Have you formed any opinion as to whether that amount will be sufficient to carry out the proposed works? No. I think the wharf manager would know what accommodation is required.

237. *Mr. Abbott.*] Was your opinion asked with regard to the necessity for these works before they were initiated by the Department? No. The first intimation I had was when I was summoned to give evidence here.

238. You were not asked whether or not sufficient accommodation already existed in Port Jackson before this work was proposed? I think that the wharf manager complained on several occasions.

239. Were you never called upon to give a report regarding the necessity for it? No.

240. Have you been Harbour-master about the same length of time as Captain Jackson has occupied his position? Yes.

241. Were you in the service before that? Yes; for the last 13 years.

242. Have you known any inconvenience to shipping to exist from want of wharfage accommodation in the port? A great many ships could not get berths during the wool season at the Circular Quay.

243. Could they go elsewhere? Yes.

244. Is there any wool trade at Woolloomooloo? No. Many ships would prefer to go to Woolloomooloo rather than to the back wharves. I have heard many shipmasters make that remark.

245. Do you know what the present wharfage accommodation in Port Jackson is;—how many ships would it accommodate at private and Government wharves? I have never particularly counted the number, but it would accommodate a great number.

246. Would it accommodate 100? That would depend upon the size and description of the ships. They vary from 500 to 100 feet long.

247. Has there ever been in your experience any great inconvenience from want of wharfage accommodation? No.

248. Do you think there is, in the interests of shipping, any real necessity for the construction of these works;—is there an absolute necessity for them? As far as getting berths is concerned I do not think at the present moment any shipping master is put to great inconvenience from want of accommodation. I have heard many remarks that if there were more accommodation at the Circular Quay, it was a very easy place for the carriage of goods, and it would be patronised a great deal more. There is no doubt there are a great many wharves, and I have never seen all the wharves full.

249. Do you think that wool ships would load at Woolloomooloo Bay;—do you not know that the wool comes into the city and is shipped through the warehouses, and that none comes direct from the railway to the ships? Occasionally pressed wool is brought down to the wool ships at the Quay.

250. But does it not all come through the commission agents in Sydney? Yes.

251. Do you think that any wool would go to Woolloomooloo at all? You would require to have stores there. It would go there if there was storage.

252. *Mr. Kethel.*] Are you aware that there is a large sewer draining the whole of Woolloomooloo and part of Surry Hills, flowing into Woolloomooloo Bay, near Cowper Wharf? Yes.

253. In relation to this proposed jetty where is the outfall of that sewer? It is very close to the eastern boundary of that jetty.

254. There is, I believe, a considerable deposit of silt and mud from that sewer which necessitates frequent dredging to keep the bay clear. Speaking as a nautical man of considerable experience, do you think that the construction of a jetty 100 feet wide and 700 feet long, close to the outfall of a sewer, will have a tendency to cause the bay to be silted up so that it could not be dredged? Very much of the mud that comes down is easily dredged away. At one time it was filled up there, but a short time ago a large steamer drawing 23 feet was alongside that jetty.

255. Are you aware that rainstorms cause a great accession to the silt at the mouth of the sewers, and that the last season in Sydney being exceptionally dry there has not been nearly the same quantity of silt carried down; but that if we have a recurrence of wet seasons we shall have a large quantity of accumulated dust and *debris* carried down? Yes.

256. Is it your opinion that the construction of a jetty close to the outfall of one of the greatest sewers in the city will not have a tendency to accumulate the fetid mud and slime from the sewer which will become a cause of danger—firstly, by silting up the harbour, and secondly, by causing a deposit of filthy slime to be permanent in and about the piles of that jetty? There is no doubt there is a deposit of silt there, but in my opinion a dredge periodically working can keep it clear. It is a matter of dredging. There is no tide there. As far as this sewage matter is concerned there is always the continual working of steamers which would not allow anything to remain stagnant there. It would require occasional dredging the same as the sewer off Macquarie Point, and the old tank stream sewer in Sydney Cove.

257. Can you suggest any means whereby the wharfage accommodation at Woolloomooloo Bay can be increased without running out a jetty, which many people believe to be objectionable? The shores of the bay adjoining the Domain might be utilised for wharves, but it would be a very expensive job.

258. *Mr. Garrard.*] Is that owing to the precipitous character of the land? Yes. By the expenditure of a great deal of money it might be made equally as good for wharfage accommodation as the Circular Quay, but it would be costly.

Captain
H. Pettit,
18 Sept., 1888.

Captain
H. Pettit.

9 Sept., 1888.

259. *Mr. Kethel.*] In reply to a question you said that you have been Harbour-master for four years, and that you were thirteen years previously in the Service;—what was your position in the Service before? I was Assistant Harbour-master.
260. And before that? I was a master in the tug service.
261. From that are we to understand that prior to your appointment as Harbour-master you had ample opportunity of being thoroughly conversant with the state of the shipping in the port? Yes; I have been connected all my life with shipping.
262. *Mr. Garrard.*] I suppose there is more silt washed down by summer thunderstorms than by ordinary rains? Yes. Thunderstorms bring down a great deal more silt.
263. And the silt off the streets, brought down by these sewers, is not offensive? No, not as a rule.
264. The sewage matter from the houses is the offensive matter? Yes.
265. Are you aware that a very extensive system is being carried out to convey the sewage to the ocean? Yes.
266. So that although silt may be washed down from the streets it will not be accompanied by offensive sewage matter? Not if there is a main outlet to the sea at Bondi.
267. *Chairman.*] With reference to the sewers emptying into the harbours at the edge of the bays, how many sewers have been extended into deep water? The only one I know of is the one at Macquarie Point. The buoy there denotes the shallow water off the Point. The sewer goes down to within a very short distance of the buoy.
268. Then the idea is that the sewer carries off the accumulation of silt? Yes.
269. Is it the only one where this extension has taken place? I do not know of any other.
270. What has been done in the case of Rushcutters' Bay? I do not know of any pipe being laid out there, because in Rushcutters' Bay there is no tide.
271. Is it not the accepted practice to get rid of the inconvenience of sewage, emptying into a place like Woolloomooloo Bay, by extending the piping into deep water? It is recommended to put it clear of the flats.
272. Where the tide is strong and there is a scour at certain seasons? Yes.
273. Is the tide active in Woolloomooloo Bay? No; there is a rise and fall, but no stream.

Mr. John William Hilliard, Wharfinger at Cowper Wharf, Woolloomooloo Bay, sworn and examined:—

Mr.
J.W. Hilliard.

19 Sept., 1888.

274. *Chairman.*] Are you the wharfinger at Woolloomooloo Bay? Yes.
275. Have you full opportunity of seeing the shipping traffic there? Yes.
276. Is it very large now? The revenue this year will be about £3,800.
277. From what class of vessels generally is it derived? From coasters and general cargo ships from London.
278. Are London ships berthed there? Yes.
279. Many? Not very many. In 1885 £5,000 was collected.
280. Have you noticed any inconvenience arising at various times owing to the want of accommodation for vessels? Yes. On several occasions I have seen ships go away from there to other wharves.
281. Do you know what the proposed improvements are at Woolloomooloo Bay? Yes.
282. Do you think that the proposed jetty, 700 feet long and 100 feet wide, will cause any inconvenience to the traffic of the bay? Not in the least. It is the very thing that Cowper Wharf wants.
283. If there was sufficient accommodation do you think the bay would be more frequented by ships? Yes. The masters are rather disgusted when they first go to the bay; but once there they express an opinion that they will go there again.
284. Are there any mercantile stores in the neighbourhood? There are four or five bonded stores now being built, and nearly finished. I believe that Hoffnung & Co. have taken up a large piece of ground for the purpose of erecting large stores.
285. Do you think it is likely that wool will be shipped from there at any time? I should not wonder if it were, provided there was a store to receive it.
286. During a busy season do you think it would be the case? Yes.
287. Are you of opinion that, as Government property, it is wise to improve the wharf to this extent? Yes.
288. *Mr. Humphery.*] Have you formed any opinion as to the probable income from the proposed new jetty? If we had a jetty 500 feet or 600 feet long and 150 feet wide we should have it full all the time. I think that if we had a jetty of that kind, instead of having a revenue of £3,000 or £4,000 a year we would have a revenue of £20,000. We would then have room for ten vessels.
289. What is your reason for saying that the jetty should be 150 feet instead of 100 feet wide? Because 50 feet on each side will be required for a loading berth, and another 50 feet would be required in the centre for a cart track.
290. Do you believe that vessels would come and make use of that jetty? Yes. Cowper Wharf has facilities which a great many other wharves have not. That is for getting away. The drays can come in and load and get right away without waiting. There are four streets there by which they can get away.
291. *Mr. Kethel.*] The Admiralty have a wharf on the western side of Cowper Wharf; what use is made of it by the Government? I have put metal on it principally, but two small cargoes of metal will fill it up. It is about 30 feet wide. I have to leave a roadway for carts to come up, so that there is only the centre space.
292. Do the naval authorities allow you to use their wharf in that way? I think it is turned over to Cowper Wharf now.
293. Have the naval authorities ever used it? Never.
294. Do they not send boats ashore to land ships' stores? No; they land at all parts of the wharf; sometimes at the jetty. They do not use it at all.
295. For what purpose do you intend to use the small jetty if the large one is extended? For colliers to discharge coal; it is very useful for it.
296. Will you make no provision for accommodation for passengers landed from steamers? They can come and land there.
297. Have you been much pressed for space at Cowper Wharf for landing cargoes? Yes.
298. For what description of goods have you been pinched for accommodation? Timber, metal, and sometimes coal.
- 299.

299. Have the people engaged in the importation of timber and landing it at Woolloomooloo Wharf expressed a desire that they should receive more accommodation, or have they expressed a desire that the Government should resume some of the adjoining land to make storage-yards rather than that a jetty should be extended into the bay? No; I have heard it rumoured that the Government would resume all the frontage to the wharf. Mr. J. W. Hilliard.
19 Sept., 1888.

Mr. Alexander Brown Portus, Superintendent of Dredges, sworn and examined :—

300. *Chairman.*] Have you a good deal to do with Sydney Harbour? Yes. I am Superintendent of Dredges. Mr. A. B. Portus.
19 Sept., 1888.
301. Do you know Woolloomooloo Bay? Yes.
302. Are you aware of the proposed improvements there? Yes; I know that a long jetty is to be run out. I am not aware of the other improvements.
303. The Naval Wharf is proposed to be extended, and other improvements are to be made, at a total cost of £42,000;—do you think such improvements are necessary? I think so, so far as the commerce of the port is concerned.
304. Do you know the accommodation that will be given by these improvements? Yes.
305. Do you think that the proposed jetty 700 feet long and 100 feet wide will interfere with the traffic of the bay in any way? It will to some extent.
306. On the whole, do you think that it would be desirable to construct that jetty? I think so.
307. In your official capacity have you been consulted? No.
308. Nor your opinion asked? No.
309. Have you had anything to do with the dredging of that bay from time to time? Yes.
310. Does the sewage empty itself there? Yes. There is a sewer at the foot of Forbes-street, another at Dowling-street, and another at Duke-street, and a great quantity of sewage comes in.
311. How far does the pipe go into the water? I cannot say. We have dredged close up to it.
312. Then the pipe empties close to high water? Yes. Generally speaking there is a deposit outside the mouth of the sewer.
313. Is the tide strong there? No.
314. Does your experience in dredging lead you to conclude that the sewage being taken out by pipes into deep water loosens the deposit, so that it is more easily removed by the tide? I do not think it makes much difference.
315. Is it not supposed that the scour is greater when the sewage is taken out some distance to where the tide is more active? The scour would remove it to some extent, but I know we have had to dredge at the mouths of all the sewers.
316. Do you recollect where the sewer at Fort Macquarie first emptied itself? Yes; some distance out.
317. Was it extended afterwards? I do not recollect it.
318. How long have you had control of the dredges? Eight years. I was in Newcastle before that.
319. Are you an engineer by profession? Yes; a millwright and engineer.
320. Does the harbour suffer much more in flood seasons from deposits from sewers and such things than it does in dry seasons, such as we have had recently? Yes; there is more dredging to be done in wet seasons.
321. Do you keep any record of the number of tons of silt removed from time to time in the different localities? Yes.
322. How many dredges are there in Sydney harbour? Three.
323. Actively at work? Yes.
324. Can you keep them at work at all times? Yes, except when it is very rough weather, when it is dangerous to send the punts with silt to sea.
325. The delay in continuous work would be attributable to that alone? Yes.
326. I suppose that to work the dredges economically they ought to be kept at work at all times? Yes.
327. But that you cannot do? Our most economical dredging was at Newcastle, when we were working night and day.
328. Is that the rule in dredging services? Yes.
329. Have you not been able to do it in Sydney? It was done in Sydney for four years, when the dredge was working at the Heads. That was before I came to Sydney.
330. Did you experience much difficulty in deepening Woolloomooloo Bay, and other places where sewers make deposits? No; there is no difficulty, except when vessels are sometimes in the way, and then there is a little delay.
331. Mechanically there is no difficulty? No.
332. What number of tons can you remove? That would depend upon the size of the dredge.
333. If an ordinary dredge were used to deepen the frontage to the wharf in this bay, how long do you calculate it would take you to do so? One of our dredges lifts about 700 tons per day, and another does the same. The large dredge is at present dredging over 2000 tons per day.
334. Can you send that to sea? Yes. These figures are approximate. The "Sampson," our largest dredge, has three punts of about 350 tons capacity. There is one steam hopper barge which takes 400 tons. They go three miles outside.
335. Have you all the modern appliances in your dredges? Yes.
336. Have not dredges been improved to a great extent during the last few years? As far as the size of dredges is concerned there is a decided improvement. The larger a dredge is, the more economically it is worked; I think we have kept pace with the times.
337. Do you think there would be sufficient inducement to warrant the Government in constructing these improvements at Woolloomooloo Bay? I think so, judging from the fact that the present jetty was very largely used some time ago. I think it is very largely used now, and the facilities offered by the Government are more than are offered at other wharves.
338. Are you aware that warehouses are being built in the neighbourhood of the wharf at Woolloomooloo Bay? There is a shelter shed at the wharf, but I am not aware that there are any warehouses there.
339. Would the small jetty continue to be used if the large jetty were built? It was constructed for the Manly Beach traffic at first, but it is not used for that now.
340. Is it proposed to construct a roadway along the large jetty? I am not aware.
341. Is it not usual to place a line of rails on such jetties, so that merchandise may be easily moved backwards and forwards? Yes.

- Mr. A. B. Portus. 342. As a property belonging to the State, do you think Cowper Wharf is of sufficient value to warrant these improvements? I think so.
- 19 Sept., 1888. 343. *Mr. Abbott.*] Do you know, as a matter of fact, whether the wharfage accommodation which exists in Port Jackson now is not more than ample for all the shipping that has ever come to it, taking into consideration all the public and private wharves? Judging from occasional observation, I imagine there is a necessity for increased accommodation. The accommodation offered by the Government is better than that provided by private individuals—the approaches are better.
344. Do you think the Government will get a fair return in revenue for the construction of such a work as this, having regard to what it has already cost them to construct works at Woolloomooloo Bay? It will very much depend upon how matters are arranged between the Government and private individuals. If private individuals offer rebates and other facilities to shipping which the Government cannot offer them, the Government may be at a loss.
345. Is that the case with regard to wharfage in Sydney? I do not know.
346. Was it not the case a short time ago? I do not know.
347. Was your opinion ever asked as to the necessity for these works? It is not usual to ask my opinion. I have generally to do with the dredging of the harbour. Mr. Moriarty and Mr. Darley have to do with those matters. I may have been asked, but I cannot charge my memory with it.
348. *Mr. Humphery.*] Can you state approximately what is the yearly cost of dredging Woolloomooloo Bay? I could by referring to my books.
349. Can you say whether the cost will be appreciably increased if these proposed wharfage improvements are carried out? The continuation of the jetty would not make the bay more difficult to dredge than it is now, because the distance of the jetty from the shore is sufficient to allow of dredging without hindrance.
350. If the return upon the cost hitherto is deficient, will it be a fair criterion as to the future cost? Yes.
351. *Mr. Kethel.*] You observe the distance between the old jetty and the proposed new one—perhaps 150 feet. In working a first-class dredge what room do you require for the punts to lie alongside and load, and to move the vessel about with the punts fast alongside, the dredge being as close as possible to the piles on each side;—do you think there is sufficient space there to enable one of your large dredges to dredge this portion of the harbour from side to side? The dredge “Sampson” can work well in about 110 or 120 feet.
352. Dredging between the jetties where the sewage out-fall occurs is principally done by the “Charon”? Yes; and the dredge “Hercules” constantly dredges there.
353. Could the “Hercules” work there conveniently with her punts;—do you think there is space between the two jetties to dredge successfully? Yes; the dredge “Hercules” could work very well with a distance of 130 feet.
354. You are aware that several sewers flow into Woolloomooloo Bay under Cowper Wharf, one on either side, and one perhaps right underneath the proposed jetty. In your opinion, would there be a tendency for the silt to accumulate amongst the piles under the jetty when extended where you could not reach it with any of your dredges? Yes, probably it would; but I do not see any great disadvantage from that, because the dredge would remove it from time to time.
355. How could a dredge get the stuff from among the piles? The sewage would fall down alongside the jetty.
356. Do you think that with a jetty 100 feet or 150 feet wide the action of the dredges beyond the outer piles would cause the central deposit to give way;—would it not remain and silt up to the water’s edge in course of time? I daresay it would, but there would be no great inconvenience if it did silt up.
357. If it was impure sewage would it not become a public nuisance and dangerous to health? I do not think it is a contingency of the future, because the sewage will eventually go to Bondi.
358. Is it not a fact that such a state of things exists at the present time among the piles on the wharves;—has not the deposit reached nearly to high-water mark, at all events above low-water mark, where it cannot be reached by any of the dredges? That may be the case where there is not sufficient width to go in.
359. *Mr. Garrard.*] I understand your largest dredge, the “Sampson,” a double-sided dredge, can work very well in a space of 120 feet? Yes.
360. As there will be a space of 130 feet between the two jetties, the “Sampson” could work there easily? Yes; the new dredge which is being constructed is 28 feet wide with no side ladders, and could work in a smaller space than the “Sampson.”
361. *Mr. Suttor.*] Do you think there would be an accumulation of sewage at Forbes-street? No, the dredge could go round from time to time, and keep it down.
362. Does the silt accumulate where the new jetty is to be erected? Yes; the dredge has to go there frequently. The worst place is between the two jetties.
363. What is the depth of water near the jetty? About 22 feet at low water.
364. *Chairman.*] Can you supply us with a report of the cost of dredging Woolloomooloo Bay, say for four or five years? Yes.
365. *Mr. Garrard.*] What is the bottom at 22 ft? Rocky, close in. That is on the eastern side, and very close in.
366. *Mr. Kethel.*] Have you been right down on the bed rock in the middle of the bay? No; only where the sewage is.

Mr. John Joseph Earl, timber-merchant, sworn and examined:—

- Mr. J. J. Earl. 367. *Chairman.*] Are you engaged in business as a timber merchant in Sydney? Yes.
- 19 Sept., 1888. 368. Where is your place of business? At Dawes Point.
369. Have you been long engaged in that business in Sydney? Yes; 40 years.
370. Have you been carrying on business at the same place all the time? No, principally at Darling Harbour,—Sussex-street, and at the head of Darling Harbour,—Liverpool-street.
371. Have you carried on business transactions at any time at Cowper Wharf or Woolloomooloo Bay? Yes, during the last three or four years.
372. Have you a place of business there? No; I receive cargoes there.
373. Foreign shipments? All foreign shipments.
374. Baltic and American timber? Yes; I had a cargo berthed there this morning.
375. Have you ever found a deficiency of wharfage accommodation at Woolloomooloo Bay? Yes, frequently. We want more wharfage accommodation now.
376. Have you had reason to complain from time to time of want of accommodation? Yes. 377.

Mr.
J. J. Earl.
19 Sept., 1888.

377. Have you heard of others being placed in the same circumstances? Yes, frequently.
378. Are you aware of the proposed improvements there? I now see the plan for the first time.
379. Do you think that these improvements are desirable ones? I think that the jetty, by all means, should be made.
380. Do you think that the traffic of the bay would be impeded by the construction of a jetty there? No.
381. Do you recollect a similar project being proposed for Sydney Cove? Yes.
382. Was that strongly objected to? It was. A gentleman lately deceased (Mr. Flood) had strong objections to it.
383. Do you think that the same objections would suggest themselves in this case? No. I think this would be a very great advantage.
384. Suppose that in twenty years the traffic of this bay increased to the same extent as the traffic of Sydney Cove has increased since you recollect it; do you think the jetty would then be an inconvenience? No. I do not think a jetty at the Circular Quay would be an inconvenience. I think it would divide the traffic and make it safer.
385. Do you know anything of the relative widths of Sydney Cove and Woollomooloo Bay? No. I should think that Sydney Cove is a little wider.
386. Do you know the two localities well? Yes.
387. Do you recollect the Centipede Rock? Yes. It was near the boat-harbour.
388. Do you know the small jetty now in existence? Yes.
389. Do you think the two jetties would cause great inconvenience? I think I would prefer to do away with the small jetty when the other is built. I have a ship berthed alongside the eastern side of the small jetty.
390. Its distance from the longer jetty is about 130 feet;—would that cause great inconvenience? Not very great; but I think it would be better without the smaller jetty, if you extend the longer jetty 600 or 700 feet.
391. Do you know anything about the proposed expenditure? No; I have never heard anything about it. I had some conversation with the Manager of the Circular Quay. I wanted him to try and get a place between the Admiralty Wharf and the mainland filled in, so as to use it as a timber-wharf. That led to other conversation with respect to the extension of the wharf out to Lady Macquarie's Chair; but I did not know then that the Admiralty had a right to any portion of it.
392. Do you know anything of the proposed alterations to the Admiralty Wharf? Nothing whatever; I only know the present one.
393. Do they use the present one very much? I never saw a boat of theirs alongside.
394. Is it used at all? It is used as a stone-wharf, I think, by the Kiama people. I have seen a lot of metal stacked on the wharf.
395. Do you think the traffic would be likely to increase if proper accommodation were provided? I am sure of that.
396. In view of the probable increase of traffic generally in the port in the course of years, do you think it is desirable to improve this State property to the extent proposed? I certainly do. I think it would be quite as good a paying property as the Circular Quay, in proportion to the amount spent upon it.
397. *Mr. Abbott.*] How long have you had a place of business at Woollomooloo? I have never had a fixed place of business there; I receive cargoes there. Timber cargoes have to go there because there is no other accommodation for them except at Dibbs' wharf, and that is sometimes occupied. There is another wharf—J. C. Ellis' wharf at Pyrmont, which is sometimes available for landing timber upon.
398. Are there not timber-ships at the Circular Quay? No; vessels having small lots of timber, mixed with other goods, sometimes discharge there.
399. *Mr. Humphery.*] It is said that the width of the proposed jetty is to be 100 feet;—is that sufficiently wide? It is not wide enough. It should be at least 130 feet wide. You must have a roadway. There must be room for several drays to pass, otherwise it will not be of any use, because you cannot get the goods away.
400. It should not be less than 130 feet, but I suppose 150 feet would be better? Yes; the wider the better; there will be more landing accommodation.
401. *Mr. Kethel.*] With reference to the accommodation that you required recently, and had reason to complain of at Cowper Wharf, was it the want of berths or the want of room to store your cargoes? The want of room to stack cargoes ready for delivery.
402. Principally? Yes. The wharf is generally filled up with coal, metal, and hardwood, and we sometimes have to wait two or three days to have that cleared away, and that causes expense and delay.
403. The principal portion of the cargoes which have been landed by you at Woollomooloo is what is known to the trade as Oregon? Yes, principally.
404. Is that generally discharged out of the bow port, or the gangway? Nearly always out of the stern or bow port; but in the case of several ships I have come across lately we have had to discharge from the hatch. That is one great evil at present—the curve in the wharf prevents ships from getting alongside. I have had a large ship during the last two months on which I had to run out a stage 25 feet long to reach the rail of the ship. That is a great disadvantage compared with getting the timber direct on the wharf from ships' tackles.
405. Have you ever suggested to the Government wharfage authorities that they should obtain more space for landing and stacking timber on Woollomooloo Wharf? Yes. I spoke of it two years ago, and even a longer time back. Mr. Bell was the first person I spoke to. I suggested that the best thing to do was to resume the block of land from Bourke-street in a line with the street at the back of the quay right away from the eastern extremity of the wharf.
406. Did Mr. Bell then occupy the position that Captain Jackson now occupies? Yes. I have since spoken to Captain Jackson about it.
407. If a timber-ship were discharging out of the bow or stern port, what amount of berthage would she require—would 50 feet be enough? Quite enough.
408. So you could put four timber-ships in the same space required by one ordinary merchandise vessel? Yes, if we had space to run the timber out. We could not berth and discharge four vessels at one time unless we had space to stack the timber.
409. I believe I am correct in saying that the greater number of the foreign ships discharging at the existing jetty are ships timber-laden? Yes. I have seen a few large steamers of 2,000 or 3,000 tons discharging their cargoes, and one or two English ships. The greater number are timber-ships. 410.

- Mr. J. J. Earl.
19 Sept., 1888.
410. Do you think that the proposed jetty is the most suitable improvement for landing and getting away cargoes of long timber? No; unless the ships discharged out of the hatches. Then it would answer very well.
411. How would you stow and get such long timber away;—would it not be extremely inconvenient? Yes.
412. Can you suggest any other means of improving Woolloomooloo Bay equal to or better than this proposal? No; I do not know that I could. There is one thing certain. If that jetty is constructed you can berth general-cargo ships with merchandise from England, and leave the timber-ships the whole space outside of that.
413. Did you not suggest some time since the construction of a quay from the present Admiralty Wharf out to Lady Macquarie's Chair? I did. Looking from the point down to the Admiralty Wharf it struck me, that it would be a very good place to berth all the mail-boats, and I do not think it would be a very expensive undertaking.*
414. Are you still of opinion that that would be a feasible plan? Yes; but I was not aware until now that the Admiralty claimed any portion of it. Of course they would have to give up that berth on the proposed wharf.
415. Is it only within the last few years that you have been largely using Cowper Wharf for a timber-wharf? Yes, about four years.
416. Prior to that, where did the greater number of ships discharge? At the Circular Quay and at Dibbs' Wharf.
417. I understand they will not allow timber to be landed at the Circular Quay, owing to its bulkiness? Yes.
418. Are there any objections to landing timber at Dibbs' Wharf and other wharves other than those which existed when you landed timber there? No. We find that purchasers prefer Cowper Wharf, because there is a better getaway. All the back wharves have steep gradient approaches, and you cannot take as much timber from any on a dray as you can from Cowper Wharf.
419. The wharves further up Darling Harbour are not sufficiently spacious for timber? On the Sydney side you cannot land timber, and on the other side I do not think there is water enough for a ship of any great tonnage. You have to partly discharge cargo before you get the ship into the wharf.
420. Is it not a fact that a larger proportion of the imported timber coming into Sydney now is discharged at private wharves—the consignees' own wharves—than at any previous time in the commercial history of the Colony? Yes. The operations of timber merchants are larger, and they are able to buy whole cargoes. Before they could only buy portions.
421. Many years after you were first interested in the trade nearly every cargo was submitted to the trade generally, but now it has become the practice for retail timber merchants to import their own cargoes and land them at their own private wharves? Yes.
422. Mr. Suttor.] Do you know if Cowper Wharf is used largely by other ships than those you speak of? Yes. All the berths are full. I have seen ships with general merchandise there.
423. Have you had difficulty in getting berths at Cowper Wharf? No; perhaps we have had to wait a day or two, but not longer. That might be the case at any wharf.
424. I suppose that sometimes you use private wharves? Yes, frequently. If I am going to store timber for any length of time, I take a private wharf, because they will not allow me to keep it on a Government wharf.
425. What is the advantage of using Cowper Wharf when your place of business is so far away? There is a better getaway. You can get quit of the timber much easier than at any other wharf, because there is a greater space to work at.
426. If there were greater facilities at Cowper Wharf, would it be used more? I am certain of it. Captain Jackson speaks of that portion of the wharf at the back of the Admiralty Wharf—that portion which has to be filled in—being kept as a bond or storage wharf. If so, it would pay very well; a rent would have to be charged. In fact it would be under his control.
427. Chairman.] But it belongs to the Admiralty? I am speaking on the assumption that the Admiralty will accept the position further on.

THURSDAY, 20 SEPTEMBER, 1888.

Present:—

The Honorable JOHN LACKEY (CHAIRMAN).

The Hon. GEORGE CAMPBELL.
The Hon. WILLIAM HENRY SUTTOR.
The Hon. JAMES WATSON.
The Hon. FREDERICK THOMAS HUMPHERY.
HENRY COPELAND, Esq.

ALEXANDER KETHEL, Esq.
JOSEPH PALMER ABBOTT, Esq.
JOHN RENDELL STREET, Esq.
JACOB GARRARD, Esq.
SYDNEY SMITH, Esq.

The Committee further considered the proposed improvements and additions to the Wharfage Accommodation, Woolloomooloo Bay.

[The Chairman reported that several members of the Committee—Mr. Campbell, Mr. Suttor, Mr. Kethel, Mr. Abbott, and himself—had that morning visited Woolloomooloo Bay, and, by personal observation, and inquiry from persons engaged at the wharves there, had made themselves better acquainted with the works represented in the proposals before the Committee.]

James Barnet, Esq., Colonial Architect, sworn and examined:—

- J. Barnet, Esq.
20 Sept., 1888.
428. Chairman.] Have you occupied your present position of Colonial Architect for many years? Yes.
429. Have you been charged with the different works to be carried out under an arrangement made between the Imperial and Colonial Governments with respect to naval matters? Yes, at Garden Island, Woolloomooloo Bay, and Spectacle Island. 430.

* NOTE (on revision):—I am told there is a depth of water 30 feet all the way from the baths to the point, immediately outside the straight ledge of rocks; and without encroaching on the Domain beyond the present line of the existing fence, an esplanade, 200 feet wide, could be formed, and the material for filling in and levelling is on the spot.

J. Barnet,
Esq.
20 Sept., 1888.

430. Have you had anything to do with other works? No; with the exception of the Admiral's house.
431. The reason why we have been brought to this investigation is that we have had placed before us proposed improvements at Woolloomooloo Bay. We find that an Admiralty wharf forms part of the wharf improvements we are now considering. They have been inspected by several members of the Committee, and we find that the works on the Admiralty wharf are *in statu quo*. Comparatively nothing has been done. There is a wharf, but no improvements of any moment carried out? No; the foundations for the store are found to be very difficult.
432. Is it proposed to build a store there? Yes.
433. Is it still intended to build a store there in addition to the store on Garden Island? I believe so. There is no store on Garden Island.
434. What works have been carried out on Garden Island? They have all to be carried out under my supervision. On Saturday, 16th June, I went over the Island with his Excellency the Governor and Sir Henry Parkes, and at their request I furnished them with a *precis* of the whole matter. That *precis* has just been read to the Committee.
435. Have you been aware of the interchange of certain lands between the Government of the colony and the Admiralty, for any time? Yes.
436. Were you Colonial Architect at the time the arrangement was first made, a good many years back? Yes.
437. Do you recollect what the exchange consisted of at that time? I do not. The whole of the lands were leased to the Colonial Government.
438. How far did Dawes' Battery extend? It included the Corporation baths.
439. Did it include Dawes' Point absolutely? Yes.
440. And the Queen's stores? They were not included. They were not surrendered. I think they are not leased to the Government.
441. What else is there? Victoria Barracks.
442. And Imperial lands all through the country? Yes—at Newcastle, Parramatta, Liverpool, and other places. I think there was also something in Brisbane. I think Fort Denison was included.
443. In exchange what was given? Garden Island.
444. And a condition that a residence should be purchased for the Admiral? Yes; also the erection of a store at Woolloomooloo Bay and at Spectacle Island.
445. When was that arrangement completed? About Sir Alexander Stuart's time.
446. Have the works at Garden Island been carried out at the expense of the Colony? Yes; entirely.
447. Do you know approximately what they cost? I cannot say from memory, but I stated the whole matter in a minute to the Colonial Secretary.
448. I find that there is a vote of £165,000 in 1888? Yes; it is in the present year's estimates.
449. And there is a past vote of £50,000? Yes; that is expended.
450. Is it still intended to carry out the improvements at Woolloomooloo Bay? I have had no instructions since I wrote that letter, describing the whole matter. When I met the Governor and Sir Henry Parkes at Woolloomooloo Bay, as well as at Garden Island, I produced a plan, and Sir Henry Parkes asked me to give him the particulars. I gave him a full history of the whole matter, pointing out that the erection of this store would encroach upon the Domain, as the plan would show.
451. What is the estimated cost of the proposed improvements at Woolloomooloo Bay? About £40,000.
452. I refer to the Admiralty portion of those improvements? As far as the store is concerned it will be £40,000.
453. Do you know whether it is the intention of the Admiralty to recommend that those improvements be carried out? I may say that the plans were made under the direction of an officer for the Admiralty, Mr. Fishenden. They were all approved, and copies sent Home to the Admiralty; and the store is a portion of what was approved of by the Admiralty.
454. Are you acquainted with the proposed improvements generally at Woolloomooloo Bay? No; I am not aware of them, except in connection with the Admiralty store. I know that Mr. Darley recommended that we should go further north to avoid the bad foundation. I pointed out that it would perhaps be better to allow the Admiralty people to have some of the newly purchased property at the Circular Quay.
455. Would not going further north at Woolloomooloo Bay encroach still more upon the Domain? I do not think so. It would encroach upon the baths, which are Corporation property.
456. How are they held? I do not know.
457. Have you formed any opinion as to the propriety of building upon the frontage where the baths are? No.
458. Do you think it is a suitable place for the baths at all? No; not in the present condition of the water.
459. Supposing it was not used as baths, do you think it should be taken from the public, who now hold it for recreation purposes as a frontage to the Domain? No; but we have progressed so rapidly with wharfage frontage that we do not know where to go. When we visited Woolloomooloo Bay, Capt. Hammill, of the Navy, was with us, and he expressed the opinion that Garden Island was the proper place for the store. The store was designed on the mainland principally to please the storekeeper of the time.
460. May not the present storekeeper hold a different view? He may. The objection the former storekeeper had was, that when contractors delivered the stores, it would be better to receive them on the mainland; but I think it is just as easy to receive them on the island. I was always opposed to building at Woolloomooloo Bay.
461. Can you form approximately an estimate of the value of the frontage given to the Admiralty in Woolloomooloo Bay? No.
462. You see from the plan that it is proposed to build a new jetty in the bay 700 feet long and 100 feet wide;—do you think that is a desirable improvement of the bay? That is a matter I have not studied.
463. Do you know whether the Admiralty improvements are nearly completed at Garden Island? The buildings I have had instructions for—that is, the barracks and the store—are completed, and the foundations are in for all the other buildings. Plans were submitted months ago. In fact, Sir Henry Parkes, when he was there the other day, asked what was the reason why the works were not going on, and I said they were simply awaiting his authority.
464. What was the cost of the Admiral's residence? I think it was more than £20,000.
465. Has there been further expenditure upon it since? Yes.

J. Barnet,
Esq.
20 Sept., 1888.

466. Is it a very complete residence? Yes; it is now.

467. *Mr. Copeland.*] What is your opinion in reference to the construction of a jetty, 700 feet long, running out right into the centre of Woolloomooloo Bay;—do you not think it will interfere with the navigation of the bay? I have never considered that matter. I recollect that some years ago when a similar proposal was made in regard to the Circular Quay it was very strongly objected to.

468. Will it not have the same effect as if the bay had been naturally divided in two? Certainly, it will have that effect.

469. Can you give the Committee any information as to whether the same objects could not be carried out on the frontage without interfering with the navigation? No, I cannot. Wharf matters are outside my line.

470. What is the nature of the stores intended to be kept in the proposed new building in Woolloomooloo Bay;—any explosives? No explosives. Ship chandlery more than anything else. The explosives are supposed to be kept on Spectacle Island. Anyone who visits the Circular Quay Admiralty Stores will see that they comprise almost everything that can be mentioned.

471. Is there any equally suitable place on the other side of Woolloomooloo Bay without interfering with the Domain? I cannot say. In my opinion the store should go to the island.

472. Your opinion is decided that it should go to the island? Yes. In its present position it will necessitate the removal of the stores twice.

473. Do you know if the opinion of the present Imperial storekeeper has been taken on the question? I am not aware. I know that the former storekeeper was very strong on the point of having the stores at Woolloomooloo Bay.

474. Is there plenty of water alongside the island for vessels to discharge stores? There is a wharf now erected where the Nelson could lie alongside of. It would only be necessary to lay down rails and build the store in a suitable situation.

475. Did the storekeeper at that time give any reasons for desiring to have the stores on the mainland? The principal reason he gave was that contractors should bring their goods to the store on the mainland instead of to the island; but I could not see the force of that reason. There were quarters for himself there, and perhaps that was the principal reason.

476. Is it intended to bring the Imperial vessels alongside these stores and load them as required? I think not. The stores have to be taken out in tenders to the ships. Ships bringing stores from England would come alongside.

477. You are not charged with the building of the proposed jetty? No; the agreement was that Mr. Moriarty was to do all the waterwork and put in the foundations. We were to work jointly so as to get the matter out quickly.

478. *Mr. Garrard.*] There is a plan here showing the original site of the Admiralty wharf, and also the proposed alteration. Do you recognize it as yours? No; it is not my plan.

479. Have you ever seen it before? I think I have.

480. Where did it come from? It is from the Harbours and Rivers Department.

481. It is a sketch plan showing how the site of the building might be altered? Yes; Mr. Darley proposed to put the stores underground.

482. Upon this there is a minute endorsed to the effect that you see no objection to the removal to the new site, but you objected to inflammable stores being together? Yes.

483. Can you tell us what plans you prepared originally for the Woolloomooloo site? The whole matter is shown on the plan I now produce.

484. Has this plan received the approval of the Admiralty? Yes; this is a copy of the plan which received the approval of the Commodore.

485. Were there any detailed descriptions given with it? No.

486. Do you recognise this paper as being the specification of the work to be performed? Yes.

487. Is the work there mentioned included in your plan? Yes.

488. *Mr. Campbell.*] Was anyone present representing the Admiralty when the works were recently visited by the Governor and Sir Henry Parkes? Yes; the Admiral and Captain Hammill.

PARLIAMETARY STANDING COMMITTEE ON PUBLIC WORKS.

Wharfage Accommodation, Woolloomooloo Bay.

APPENDIX.

[To Evidence of Mr. Alexander B. Portus.]

MEMO. of Dredging performed at Woolloomooloo Bay from 1st January, 1881, until 31st December, 1887.

The attached memo. affords the information asked for by Mr. Humphery last night in connection with the Woolloomooloo Bay proposed jetty.

It will be seen that 231,650 tons have been lifted, at a total cost of £11,402 11s. 6d. for dredging and towing. Of this quantity, 191,295 tons were sewage deposit; the balance was original bottom removed to deepen the channel and wharf berths for heavy-draught ships. The average cost of the dredging and depositing 3 miles outside of Sydney Heads has been 9½d. per ton.

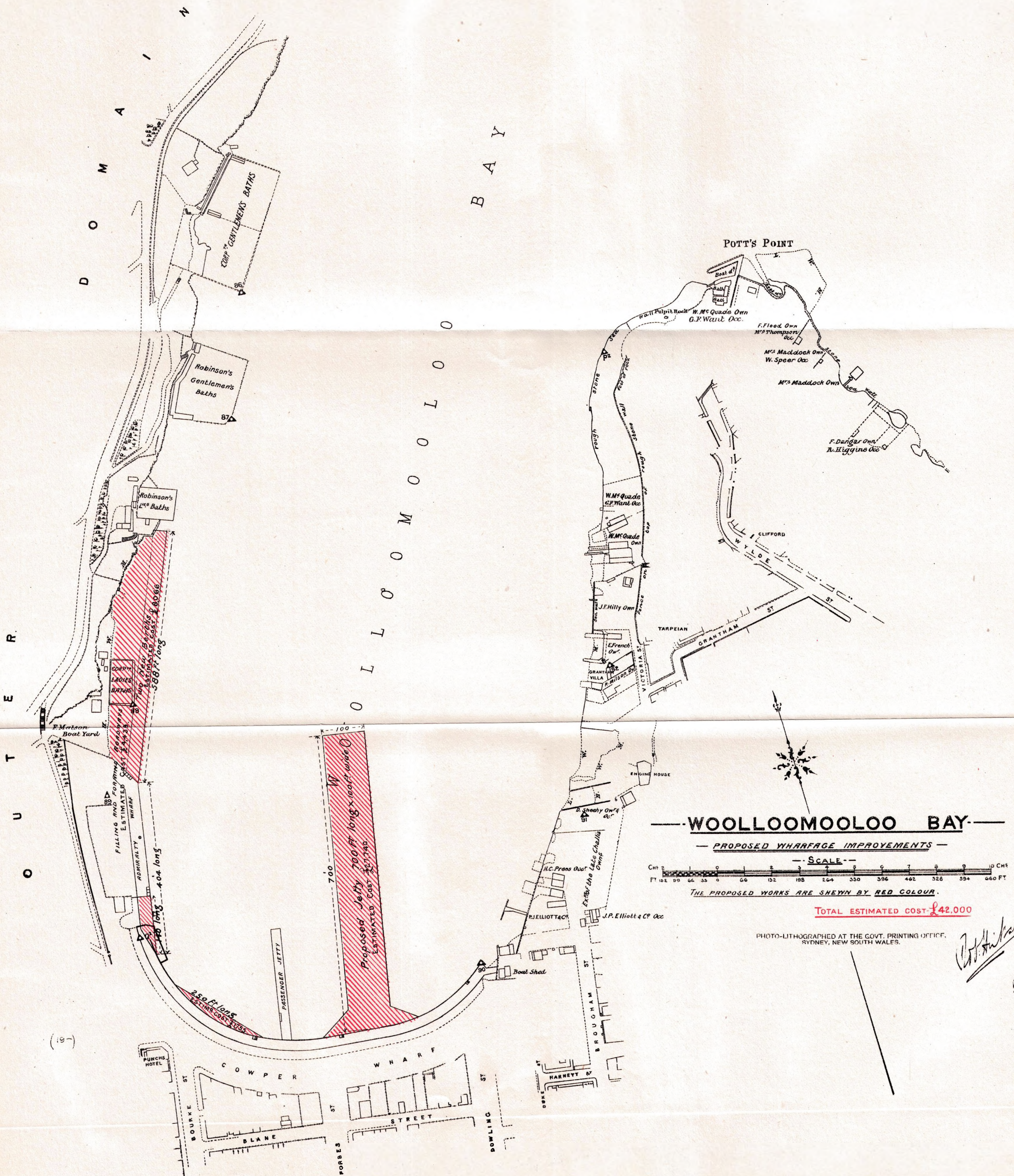
Sydney, 20 September, 1888.

A. B. PORTUS.

DREDGING at Woolloomooloo Bay.

Name.	Dredging.			Towing.		
	tons	£ s. d.	per ton d.	£ s. d.	per ton d.	
1883.						
"Hercules"	42,750	1,013 10 7	5·69	757 0 7	4·25	
"Minos"	1,420	34 0 5	5·75	14 17 0	2·51	
1884.						
"Hercules"	2,600	73 11 2	6·79	98 11 8	9·1	
1885.						
"Hercules"	64,080	1,949 13 0	6·99	955 0 0	3·57	
"Samson"	18,550	381 0 0	4·93	183 19 1	2·38	
1886.						
"Hercules"	45,710	1,258 11 0	6·60	678 0 0	3·56	
"Samson"	101,980	2,609 15 0	5·16	1,117 2 0	2·63	
1887.						
"Hercules"	4,560	175 12 0	9·24	102 8 0	5·39	
	281,650	7,495 13 2		3,906 18 4		

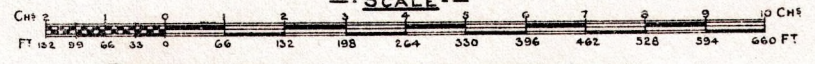
[One plan.]



WOOLLOOMOOLOO BAY

— PROPOSED WHARFAGE IMPROVEMENTS —

— SCALE —



THE PROPOSED WORKS ARE SHOWN BY RED COLOUR.

TOTAL ESTIMATED COST **£42,000**

PHOTO-LITHOGRAPHED AT THE GOVT. PRINTING OFFICE,
SYDNEY, NEW SOUTH WALES.

W. H. ...
5/10/1895

1888-9.

NEW SOUTH WALES.

PARLIAMENTARY STANDING COMMITTEE ON
PUBLIC WORKS.

REPORT

TOGETHER WITH

MINUTES OF EVIDENCE

AND

APPENDIX

RELATING TO

PROPOSED IMPROVEMENTS AND ADDITIONS

TO THE

WHARFAGE ACCOMMODATION, WOOLLOOMOOLOO BAY.

Presented to Parliament in accordance with the provisions of the Public Works Act,
51 Vic. No. 37, section 8.

SYDNEY: CHARLES POTTER, GOVERNMENT PRINTER.

NAMES OF THE MEMBERS OF THE COMMITTEE.

LEGISLATIVE COUNCIL.

The Honorable JOHN LACKEY, Chairman.
 The Honorable GEORGE CAMPBELL.
 The Honorable WILLIAM HENRY SUTTON.
 The Honorable JAMES WATSON.
 The Honorable FREDERICK THOMAS HUMPHERY.

LEGISLATIVE ASSEMBLY.

JOSEPH PALMER ABBOTT, Esquire, Vice-Chairman.
 HENRY COPELAND, Esquire.
 JACOB GARRARD, Esquire.
 ALEXANDER KETHEL, Esquire.
 SYDNEY SMITH, Esquire.
 THOMAS MICHAEL SLATTERY, Esquire.
 JOHN RENDELL STREET, Esquire.
 DANIEL O'CONNOR, Esquire.

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PARLIAMENTARY STANDING COMMITTEE ON PUBLIC WORKS.

WHARFAGE ACCOMMODATION, WOOLLOOMOOLOO BAY.

REPORT.

THE PARLIAMENTARY STANDING COMMITTEE ON PUBLIC WORKS, appointed during the present Session of Parliament, under the Public Works Act of 1888, 51 Vic. No. 37, to whom was referred the duty of considering and reporting upon "the expediency of carrying out certain improvements and additions to the Wharfage Accommodation, Woolloomooloo Bay," have, after due inquiry, resolved that it is not expedient the proposed works should be carried out; and, in accordance with the provision of sub-section IV, of clause 13, of the Public Works Act, report their resolution to the Legislative Assembly:—

The proposed improvements and additions consist of a jetty 700 feet in length by 100 feet in width, extending into the bay from the centre part of Cowper Wharf, to cost £27,740; the construction, at a cost of £8,066, on the western side of the bay, from the northern end of what is known as the Admiralty Wharf to a point near Robinson's Ladies Baths, of a new wharf, 588 feet in length, 320 feet of this length to be set aside for the use of Her Majesty's ships, in lieu of the present Admiralty Wharf, which, with the 268 feet of the new wharf, it is proposed to use for general commercial purposes; the lengthening of the present Admiralty Wharf by 140 feet, in order to make the total length of that wharf 404 feet, at a cost, including the formation of roadways, of £4,439; and the filling-in of a part of the curved face of Cowper Wharf, at the south-west corner, so as to produce a wharf having a straight face of 250 feet, the cost of this alteration to be £1,755. The total estimated cost of the proposed works is £42,000.

It will be seen that the principal improvements or additions proposed are—first the jetty, and secondly the new wharf, part of which is to be handed over to the Admiralty in lieu of the wharf which at present exists in Woolloomooloo Bay for the use of Her Majesty's ships on the Australian station; and to these the Committee, during the course of their inquiry, directed most of their attention.

They examined a large number of witnesses, obtaining evidence not only from the Government officials who may be regarded as responsible for the proposals, but also from other officers in the Government service who are in the position to give a valuable opinion upon the scheme; from merchants interested in the shipping trade of the port; from nautical men directly connected with this trade; from carriers whose occupation it is to convey cargo to and from the wharves in Sydney; and from others, including an expert in the construction of wharfage accommodation, and Captain Kane, an officer of the Royal Navy, representing the Admiral at present commanding the British Squadron in these waters. In addition to this several members of the Committee visited Cowper Wharf, and by personal observation and inquiry of persons engaged there, made themselves more fully acquainted with the proposals before them.

The result of these efforts on the part of the Committee to elicit full information concerning the proposed works is the collection of a large amount of evidence, from which, after careful consideration, they have come to the conclusion that the expenditure which would be incurred upon the works is not justified, either by the requirements

requirements in connection with the wharfage accommodation of the port, or by the nature of the proposals regarding them as a scheme for the improvement in a desirable and proper manner of a very valuable Government wharf property.

The Committee do not mean that the wharfage accommodation at Woolloomooloo Bay should not be improved. They are convinced that improvement might be carried out advantageously, but any additional accommodation proposed should, they consider, be designed on the basis of a broadly and well conceived national work for the permanent improvement of the bay, rather than in a fragmentary and incomplete manner, with the object, chiefly, of bringing in an immediate increase of revenue.

Two circumstances connected with the scheme were apparent to the Committee throughout the inquiry, and these were,—a want of comprehensiveness, as well as a faultiness of design, in the proposed plan for improving the wharfage accommodation of the bay by means of the jetty; and an indefiniteness with regard to the arrangements with the Admiralty in respect of the present Admiralty wharf and the proposed new wharf in lieu thereof.

It will be found from the evidence that the proposed improvements and additions originated with Captain Jackson, the Manager of the Public Wharves; and though he considers the increased accommodation is required to meet the wants of the shipping which discharge their cargoes in Woolloomooloo Bay, and those which, with further accommodation, might be expected to discharge there, his main idea in recommending these works appears to have been to increase the revenue now derived from the wharf. The Committee, however, while they admit the importance of an increased revenue, do not regard this as the only or principal object to be secured in a plan for the improvement of the bay.

In Woolloomooloo Bay the Government possess what,—omitting from consideration the Circular Quay,—is the finest wharf site in the harbour, and, including frontages which in the future may have to be resumed and added to that at present in the hands of the Government, would be greatly superior to even the Circular Quay. Yet in this splendidly-situated natural dock, which, by a comprehensive and well-devised scheme, might be improved so as not only to produce a large revenue but afford ample accommodation for shipping visiting the port, it is proposed, on the plans submitted to the Committee, to construct, at great expense, certain works, the chief of which—the jetty—in the opinion of the Committee, would, by reason of its great length and position, disfigure the bay, and interfere with navigation, without being as serviceable to shipping as its originator supposes; while the next important—the new Admiralty wharf—is a work respecting which the Naval authorities appear indifferent, and those who may be considered as responsible for proposing it doubtful as to its necessity.

It is noticeable too that apart from Captain Jackson, no one, according to the evidence, in or out of the Government service, has been consulted with reference to the advisableness or otherwise of constructing the proposed works. Captain Jackson appears to have suggested the scheme, and the proposals went from the Treasury to the Department of Public Works, where they were handed over to Mr. Moriarty, Engineer-in-Chief for Harbours and Rivers, and he caused the necessary plans to be prepared. No one but Captain Jackson was consulted in the matter. Captain Pettit, Harbour Master of Sydney, having a large experience in shipping matters, was not referred to in any way. Nor was Captain Hixson, President of the Marine Board, or apparently anyone else. The whole scheme was that of Captain Jackson, and his principal object, as already mentioned, appears to have been an immediate increase of revenue.

That the expenditure upon the proposed works is not justified by the present requirements for wharfage accommodation in the port will be seen from evidence given relative to the existing accommodation for the berthing of vessels and the number of vessels visiting the port. This evidence bears upon the Woolloomooloo Bay proposals differently from the manner in which testimony of a similar character bore upon the proposals lately dealt with by the Committee for the improvement of the Circular Quay. In the latter case most of the improvements were of a character which removed them from the class that might be regarded as entering into competition with private enterprise, and those which were not necessary for the purpose of

of renewing a worn-out portion of the wharf on the western side of the Quay. In the case of Woolloomooloo Bay there are no such reasons to support the proposals as were apparent in the matter of the Circular Quay. The berths at the proposed jetty or the new wharf have not been, and there is no evidence to show they are likely to be, leased as most of the Circular Quay is. Doubtless there are reasons why the Government—being the possessors of a valuable wharf property—should endeavour in the public interest to do the best they can with it, but unless that endeavour, when it is directed towards improving the property, is guided by a desire to make the improvement of a comprehensive, permanently effective, and truly national character, the Committee consider that Parliament should hesitate before according to it its approval.

Another thing which influenced the Committee in their decision was the fact that if they recommended the construction of the jetty it would, were the evidence acted upon, have to be made of greater width than is proposed, and consequently at a much increased cost. The estimated cost of this work, as it was submitted to the Committee, is £27,740; the estimated cost, if the jetty were widened to 150 feet, as the witnesses generally say it should be, is £41,040, or half as much again, which would bring the total cost of the proposed improvements in the bay to £55,300, as compared with £42,000, the total estimated cost submitted in the first instance to the Committee.

On the occasion when several members of the Committee visited Cowper Wharf they found almost the whole of the wharf covered with blue metal, coal, and timber, much of this material bearing the appearance of having been there for some time, and it appeared to them, as it is shown in the evidence, that if measures were taken to keep the wharf clear of cargo after it has been discharged from vessels there would be considerably more accommodation available for shipping than under present circumstances there seems to be.

In their inquiry, the Committee elicited information upon the following points:—

- (1) The nature of the proposed improvements and additions.
- (2) The necessity or otherwise for the proposed works; the examination relative to this being directed towards obtaining evidence as to—
 - (a) Whether any general desire has been expressed for what is proposed.
 - (b) Whether the improvements will afford the accommodation anticipated.
 - (c) The revenue expected from them.
 - (d) Whether the works are likely to interfere with the navigation of the bay.
 - (e) Whether they are desirable in view of the importance of Woolloomooloo Bay as a State property which might be improved very advantageously by a comprehensive and well-devised scheme of wharfage accommodation.
- (3) Whether the proposals are justified by the extent of the shipping trade, and the wharf accommodation already available, including the proposed improvements at the Circular Quay.

In relation to the description of the improvements and additions already given, it is necessary, in order that they may be clearly understood, to say something further both of the proposed jetty and the new Admiralty Wharf. The jetty, which would be run out in the centre of the bay, Captain Jackson considers would afford accommodation for six 1,500-ton ships (three on each side), while the evidence of other witnesses is to the effect that it would not afford this accommodation. The new wharf for the use of Her Majesty's ships is proposed because, in accordance with the arrangements between the Government of this Colony and the Admiralty for the construction of certain works for the use of the Navy, it is necessary to build a naval store, and it is represented as difficult, unless at great expense, to obtain foundations for the store at the back of the present Admiralty Wharf, where up to the present it has been proposed to erect it. The straightening of the face of the wharf at the south-west corner of the bay is proposed because of the difficulty experienced by a vessel in lying abreast of a curved wharf; and to this part of the proposals, it may be said, the Committee entertain no objection. This improvement, the cost of which is £1,755, is, however, a matter of very small importance, and if considered necessary can be carried out without reference to the Committee.

The

The question of the necessity or otherwise for the proposed works forms, of course, the principal feature of the evidence, and it will be found fully dealt with. Examining it according to the plan just stated, and referring to the first point—whether any general desire has been expressed for what is proposed—the evidence leads the Committee to believe that there has not been an expression of such a desire.

Captain Jackson says there have been frequent complaints of a want of accommodation at Woolloomooloo Bay; but Mr. Joseph Barling, Under Secretary for Public Works, states that he is unaware of any applications by maritime people to have these works carried out, and that no petitions (or memorials) in favour of them have been received. Various witnesses will be found to have expressed themselves as of opinion that the proposed works would be remunerative, and that the superiority of Woolloomooloo Bay as a place for the berthing of vessels justifies the carrying out of improvements; but there is nothing to show that prior to the present proposals being brought forward there was any general demand for extensive additions to the existing accommodation.

As to the new Admiralty Wharf, those chiefly concerned in the arrangements for the accommodation of Her Majesty's ships here knew nothing about it until it was brought under the notice of Rear-Admiral Fairfax in a letter from the Committee asking whether the alteration from the old Admiralty Wharf to the new was approved of by the naval authorities. Notwithstanding that this part of the proposals referred to the Committee comprised a change in the arrangements between the Government and the Admiralty, by which a wharf already handed over to the naval authorities was to be taken from them and a new wharf constructed at a cost to the country of £8,000, and in a situation which, when a store was in course of being built at the rear, would probably necessitate an extensive encroachment upon the Domain, the Admiral was unaware of it, and when questioned regarding it was unable to say definitely, without reference to the Admiralty, whether the proposed alteration would or would not receive Admiralty sanction. Added to this there is evidence from Captain Jackson in which he declares that the new Admiralty Wharf is not necessary, as the present one has never been used for naval purposes; and from the Admiral, through Captain Kane, intimating that if certain arrangements of an inexpensive character are made in the city the store proposed to be erected at Woolloomooloo Bay might be built on Garden Island, and the bay, as far at least as this store is concerned, left free for commercial purposes in connection with the trade of the port.

With reference to whether the proposed works will afford the accommodation anticipated from them, the evidence shows that unless the jetty be widened considerably they will not. The width proposed is 100 feet, and Captain Jackson is of opinion that this would be too narrow. As ships would be discharging at each side of the jetty at the same time, and there must be a roadway along the centre of the jetty for the passage of drays, there would not, in the opinion of most of the witnesses, be sufficient space for the discharged cargo and the drays, and as one witness of experience put it "there would be a regular block." Moreover, there is a difference of opinion as to the number of vessels the jetty would accommodate. Captain Jackson says it would accommodate six of 1,500 tons, the length of each being from 230 to 250 feet. Forty feet of the jetty would be taken up by the approaches from the main wharf, and would not be available for berthing vessels, so that the berthing space would not exceed 660 feet, and this would have to accommodate, according to the evidence of Captain Jackson, three vessels, the total length of which would be something between 690 and 750 feet. But other witnesses, whose testimony in a matter of this kind must, from their experience in regard to the berthing of vessels, be considered valuable, are of opinion that the accommodation at the jetty would be much less than Captain Jackson anticipates.

The question of the extent of accommodation afforded bears directly on that of the revenue expected to be derived, and Captain Jackson represents the expected revenue at £1,000 per annum from each of the jetty berths, which would make a total increased yearly revenue from Woolloomooloo Bay of £6,000; but inasmuch as it is uncertain whether the jetty would afford the accommodation upon which this estimate of revenue is based, it is doubtful whether these figures can be regarded as accurate.

Whether

Whether the proposed works would, if carried out, be likely to interfere with the navigation of the bay, is a matter which relates chiefly to the jetty. The evidence upon this point is conflicting, but though it does not appear that the navigation of the bay would, by reason of the jetty, be made unsafe, it would, in the opinion of the Committee, be rendered in many cases difficult, as such a projection into the centre of the bay as this jetty, especially if it were widened to the extent considered necessary, would very materially lessen the space for the movements of vessels and boats.

Coming now to the importance of Woolloomooloo Bay as a State property, which might, by a comprehensive and well-devised scheme, be advantageously improved, it is the opinion of Mr. Norman Selfe, whose acquaintance with the question of wharfage improvement is well-known, and of others, that the bay offers an opportunity for a broad and perfect scheme of wharfage accommodation, and in this the Committee concur. "Looking at the thing on broad grounds," Mr. Selfe says (*Question 1157*), "I think the Government should utilize a number of side wharves on shore before they extend the accommodation. The facilities for building walls under water are now so great that I think it would add far more to the dignity of the port, if I may use such an expression, to build a grand stone quay down one side of the bay. When that is not enough, build one down the other side, and as a very last resource build a jetty in the middle of the bay. The sewage, as long as it is discharged into the bay, would certainly fill up against the jetty, and it would be difficult to dredge it away." Such a scheme as he here suggests could, he explains, be carried out gradually, as circumstances required. His idea, definitely stated, is,—“that the Government should begin at the south-east corner of the bay, and gradually build a continuous wall 1,500 feet long towards Potts' Point, levelling the rocks and filling in the space behind the retaining wall with the material, and making a broad quay.” On the other side he would “build the wharf as part of the continuous whole, and then give the Admiralty whatever might be arranged.” Or, he proceeds to point out—“The Admiralty have Garden Island, and in the course of a year or two, when it becomes inconvenient to have war ships here, it may be desirable to give them another spot, or they may desire to go elsewhere. A continuous quay might be made on this side, the same as on the eastern side. It is easy enough to enclose the Admiralty portion with strong walls which can be taken down, if it is ever thrown into a general system, at some future time.” The proposed jetty he regards as a piecemeal project, and unworthy of a national work.

The last point in the plan of inquiry respecting which further notice is necessary, is whether the proposals are justified by the extent of the shipping trade and the wharfage accommodation already available, including the proposed improvements at the Circular Quay. Captain Jackson considers that the shipping trade justifies the carrying out of the proposed improvements, but the evidence generally shows, indisputably, that if the private wharves are taken into consideration, there is more than sufficient wharf accommodation in the port of Sydney for the number of vessels coming here. Then, in addition to what at present exists, there will shortly be extra accommodation at the Circular Quay. These circumstances, as already pointed out, do not form sufficient ground for concluding that Woolloomooloo Bay should not be improved, but they are certainly reasons why a large amount of money should not be expended upon the proposed works. Mr. Norman Selfe, who is of opinion that there is plenty of wharf accommodation here, states that if the owners of private wharves had power to alter the levels of the streets forming the wharf approaches, those wharves would be equal to requirements for some years to come, and, on behalf of the Wharf Association, it is represented in the evidence that irrespective of shipping permanently provided for at their own wharves, there is wharf accommodation at the present time for 800 or 900 general cargo vessels per annum, while the average number of arrivals annually is 230.

On the grounds set forth in the foregoing portions of this report, the Committee consider that it is not expedient the proposed works should be carried out, and they are of opinion, that for the reasons which will be found in the evidence of Captain Kane, R.N., and in a letter from Rear-Admiral Fairfax, an effort should be made by the Government to have the proposed naval store and wharf provided at Garden Island instead of at Woolloomooloo Bay.

The

The following resolutions were passed by the Committee on Thursday, 6th December :—

Moved by Mr. Abbott, and seconded by Mr. Kethel—

“That in the opinion of the Committee the present requirements for wharfage accommodation in the port do not justify the expenditure necessary for the construction of the proposed wharfage improvements and additions at Woolloomooloo Bay.”

Moved by Mr. Abbott, and seconded by Mr. Kethel—

“That the Committee recommend that the Government enter into negotiations with the Imperial naval authorities with the view of providing the necessary accommodation at Garden Island in lieu of the proposed site for a naval wharf and store at Woolloomooloo Bay.”

JOHN LACKEY,
Chairman.

Office of the Parliamentary Standing Committee on Public Works,
10th January, 1889.

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PARLIAMENTARY STANDING COMMITTEE ON PUBLIC WORKS.

MINUTES OF EVIDENCE.

(TAKEN BEFORE FIRST COMMITTEE.)

WHARFAGE ACCOMMODATION, WOOLLOOMOOLOO BAY.

WEDNESDAY, 19 SEPTEMBER, 1888.

Present:—

The Honorable JOHN LACKEY (CHAIRMAN).	
The Hon. GEORGE CAMPBELL.	JOSEPH PALMER ABBOTT, Esq.
The Hon. WILLIAM HENRY SUTTOR.	JOHN RENDELL STREET, Esq.
The Hon. FREDERICK THOMAS HUMPHERY.	THOMAS MICHAEL SLATTERY, Esq.
ALEXANDER KETHEL, Esq.	JACOB GARRARD, Esq.
SYDNEY SMITH, Esq.	

The Committee proceeded to consider the proposed improvements and additions to the wharfage accommodation, Woolloomooloo Bay.

Joseph Barling, Esq., Under Secretary for Public Works, sworn and examined:—

1. *Chairman.*] Are you aware that we have under consideration the proposed improvements at Woolloomooloo Bay? Yes.
2. What is the estimate of the cost submitted for the work? £42,000. That is the sum asked from Parliament for the construction of the works.
3. Can you give us any information as to the circumstances under which the vote was initiated or the work undertaken? It was partly intended for the use of Her Majesty's navy, and to resume a piece of wharf originally constructed for that purpose in the bay. Captain Jackson will give particulars as to the necessity for the work.
4. Does the Imperial Government contribute anything to the work? No. There was an understanding come to between the Government of New South Wales, when Sir Alexander Stuart was Premier, and the Imperial Government, whereby certain lands were given up to the Colony by the Imperial Government in exchange for other places and works of which this wharf forms part. We have put up part of the wharf which is marked "Admiralty Wharf" on the plan now before the Committee. It is on the west side of Woolloomooloo Bay. We propose to use that wharf for general purposes, and erect a new wharf for the Admiralty.
5. I have in my hand a statement which I think comes from the Public Works Department, in which the cost of these proposed works is stated at £112,000;—will you look at this document, and see if it is correct? I think this document is a mistake. The amount of £112,000 is a clerical error; it is an error of transcription; it should be £42,000.
6. Is there another vote of £112,000? Yes.
7. Is that the amount estimated for the Newcastle improvements? Yes.
8. Then the correct amount for these works at Woolloomooloo Bay is £42,000? Yes.
9. Is that the estimated amount submitted by the skilled officers of the Department after examination? Yes.
10. Have you a list prepared of the works proposed to be carried out for £42,000? Yes. It is as follows:—It is proposed to erect on the western side of Woolloomooloo Bay a wharf 588 feet in length, a portion of which, viz., 320 feet, is for the use of Her Majesty's ships, and the remaining portion for commercial purposes, and what is marked on the plan as "Admiralty Wharf" will be lengthened as shown, making a total length of 404 feet, the whole of which it is proposed to use for general commercial purposes. It is further proposed to fill in the part of the curved face of the wharf at the south-west corner, and thus construct a wharf having a straight face of 250 feet, and from the centre part of Cowper Wharf to run out a jetty 700 feet in length and 100 feet in width.
11. What is the length of the jetty now in existence at Woolloomooloo Bay? About 250 feet.
12. Has that been in use for some time? Yes, for some little time.
13. Have these proposed works ever been submitted to Parliament in any way? I think it is one of the votes passed.
14. Was it proposed by the Secretary for Public Works to refer the works to this Committee? Yes.
15. Is it within your knowledge that applications have been made at various times by maritime people to have these works carried out at Woolloomooloo Bay? I cannot say that it is.
16. Have any petitions been presented? No. It is a matter that came to our Department from the Treasury.

J. Barling,
Esq.

19 Sept., 1888.

- J. Barling, Esq.
19 Sept., 1888.
17. Is it a proposal partly to carry out the arrangement of an exchange of sites with the Imperial Government? Yes. The main reason, I think, for changing the site of the Admiralty Wharf is the difficulty of getting proper foundations for stores.
18. *Mr. Garrard.*] Have the Admiralty authorities complained about the accommodation at present given? No. They have not complained, because it does not matter to them what the foundations may be, so long as they are provided. It would cost an immense sum of money to get foundations at the present site.
19. Has the Colonial Government to carry out that work? Yes. It was part of the arrangements made by Sir Alexander Stuart. We found it so difficult to get settled foundations on the present site that it was decided to change the situation.
20. Will it not be a great eyesore in the Domain if those buildings are shifted farther out? I hardly think so. If we are going to use the present wharf for commercial purposes, I do not think it will matter much to provide the other accommodation farther away.
21. *Mr. Kethel.*] Could you furnish the Committee with a memo. showing the nature of the arrangement entered into between the Government of New South Wales and the Imperial Government by which the Colony is committed more or less to this scheme? It is not in my Department; still, if you wish it, I can easily get the document.
22. *Chairman.*] Is it part of the general exchange by which the Imperial authorities got Garden Island? Yes.
23. *Mr. Abbott.*] Can you state what is the expenditure on Cowper Wharf at the present time? Captain Jackson will be able to give it.
24. Can you tell me what the whole of the works have cost from the beginning? I have not the figures with me at present, but I will send them in.
25. Can you state what revenue has been derived each year from the wharfage accommodation at present existing? The collection of the revenue does not come within my Department. Captain Jackson will be able to give information on that point.
26. *Chairman.*] Will you supply the Committee with all the papers you have referred to? Yes.

Robert Hickson, Esq., M.I.C.E., Acting Engineer-in-Chief for Harbours and Rivers, sworn and examined:—

- R. Hickson, Esq.
19 Sept., 1888.
27. *Chairman.*] Are you aware of the project to make certain improvements at Woolloomooloo Bay? Yes.
28. Do you know the amount required to effect these improvements? £42,000.
29. What do the works consist of? An extension of the Admiralty Wharf, on the west side, for a length of 588 feet. I think its present length is 250 feet. This is a further extension at a cost of £8,000. Then there is an extension and filling up a little bit of the harbour at a cost of £4,500 in round numbers.
30. Is it for filling up alone, or filling up and a wharf? It is a wharf and filling up with dredged material and ballast, which will not cost much. We generally get ballast—rough stones—in front, and fill up with rubbish behind.
31. What work follows that? Straightening part of the circular portion of the wharf. It is very awkward for a vessel to get in there at present. We intend to cut off a piece so as to make a straight berth of 250 feet, which a vessel can lie alongside. That is a timber wharf; it will cost about £1,800. Then there is a jetty 700 feet long by 100 feet wide, which will cost a little over £27,700.
32. Is that jetty considered to be a desirable work? Yes.
33. Have you recommended it? No; I think it was mainly recommended by Captain Jackson.
34. Who was the professional man who designed it? Mr. Moriarty.
35. Is it in your Department that you have taken up the project? Yes.
36. Will the jetty of 700 feet be all piled? Yes; all timber.
37. What will be the exact cost? £27,740.
38. What will be the distance between that jetty and the present small jetty shown on the plan? Nearly 130 feet.
39. Will that be of sufficient space to allow of the use of the two jetties? Yes.
40. Will the long jetty of 700 feet affect injuriously the traffic of the bay generally? No.
41. If large vessels go there will they be able to turn? Yes; as a matter of practice, they will turn outside.
42. There was a project some years ago to carry out a similar jetty in Circular Quay;—was not that objected to because it would interfere with the traffic of the Cove? I do not know. It must have been before I came here.
43. Would that be the case in this instance? No; I think there is sufficient room.
44. Do you know anything of the conditions or circumstances under which this wharf has been conceded to the Admiralty? No; I do not know anything of the arrangement.
45. Have you formed any opinion as to the necessity of the work generally? From two or three visits which I have made to the place, I think there would be a very large business done, if there was sufficient accommodation.
46. Do you think the proposed works can be carried out at the estimated cost? I think so. I went through the estimates myself.
47. *Mr. Abbott.*] Do you know what the Cowper Wharf cost? No; but I could let the Committee know to-morrow.
48. What is the income? Captain Jackson will be able to tell you that. I think the wharf cost £18,000.
49. *Mr. Kethel.*] Have the Imperial authorities at any time complained of the accommodation at their disposal at Woolloomooloo? I have not been here long enough to be able to say. They have not done so to my knowledge.
50. At whose suggestion is the proposal made to change the site of the Admiralty Wharf? I do not know what are the arrangements with the Admiralty. I believe that the motive for moving from the present site is this: We want more wharfage accommodation in Woolloomooloo Bay, and it is more convenient to put the man-of-war ships on the outside than to have them coming backwards and forwards through the shipping.
51. Are you aware of a single instance in which a man-of-war ship has been brought alongside that wharf? No, because I do not think there is any place where they could go alongside. But I believe they intend to do so, and it is the object of the wharf.
52. *Mr. Abbott.*] Do you know anything about stores to be erected at Woolloomooloo Bay? No.

53. *Mr. Kethel.*] At whose suggestion is it proposed to extend the jetty 700 feet into the harbour? I believe it was proposed by Mr. Moriarty, after consultation with Captain Jackson; I believe that is how it originated.

R. Hickson,
Esq.
19 Sept., 1888.

54. Are there any minutes referring to the reasons why a jetty of these peculiar dimensions should be made? I have not seen them.

55. Does it not strike you as peculiar to have a jetty 100 feet wide for commercial purposes? I think it is wanted for large vessels, which are proposed to be accommodated. You want plenty of room for landing cargo. I do not think it is too wide.

56. *Mr. Garrard.*] We have been told that the reason for shifting the Admiralty Wharf is because you find a difficulty in getting foundations for stores which the Colonial Government have undertaken to build for the Admiralty;—is that the case? I cannot say. I do not know the arrangement.

57. Is there any difficulty in erecting stores on the present site of the Admiralty Wharf? There is a difficulty all along there, because it is made ground, and the foundation is not good.

58. Do you know the character of the buildings to be erected there? No.

59. Who is dealing with that matter? The Colonial Architect.

60. Do you know what was promised to the Admiralty with reference to those stores? No.

61. Do you know if the Colonial Architect has complained of the want of good foundations there? No.

62. Do I understand that it is intended to bring the man-of-war vessels themselves alongside? Yes; I believe that is the intention.

63. If stores are erected on the proposed new site, will they not shut out part of the view from the Domain? Not very much. The land is very high above it.

64. How many ships will the new large jetty accommodate? A large and small one on each side. That will be four.

65. Do you think it would be better to diminish the width of the jetty on the outside, so that the vessels lying inside could overlap, thus giving another berth? I do not think so. You could only take off 25 feet from the width, and most of the vessels coming here are of greater beam than that. The vessels with large cargoes go outside, and that is where you want most room.

66. Do you know the width of the Sandridge Railway Pier at Melbourne? I think there are six lines of rails on it. It is a very wide pier, but I do not remember the exact width.

67. Are the foundations at the back of the proposed new site for the Admiralty Wharf better than those at the back of the present site? Yes. It is good hard ground.

68. *Mr. Kethel.*] On whose authority is the statement made that a solid foundation cannot be obtained in the rear of the present Admiralty Wharf;—have you any personal knowledge of the fact that good foundations cannot be obtained? I believe a foundation could be obtained, but at a considerable expense. You would have to go down through a lot of made ground.

69. How far back does it extend behind the present wharf? I do not know.

70. Does not the sandstone cliff come down close to the railing of the Domain? At one end I believe it does, but it goes off immediately.

71. Do you speak from your own experience? No.

72. *Mr. Suttor.*] Is it part of your duty to give any opinion as to the desirableness of these works? No.

73. Are you simply instructed to prepare the plans? Yes; that is all I consider to be my duty.

Captain John Jackson, Manager of the Public Wharves at Sydney, sworn and examined:—

74. *Chairman.*] Are you the Manager of the Government Wharves generally? Yes.

75. Are you aware of the project to construct improvements at Woolloomooloo Bay, and the nature of those improvements? Yes.

Captain
J. Jackson.
19 Sept., 1888.

76. Are you aware of the amount required to carry out those improvements? I believe it is £42,000.

77. Have you formed any opinion as to whether that money will carry out the works? No.

78. Have you formed any opinion as to the necessity for the works? Yes; there is a very great necessity for them.

79. Is there a large commercial traffic in Woolloomooloo Bay? Yes.

80. Do you know anything of an arrangement under which the Admiralty Wharf is proposed to be enlarged? It was proposed at one time to erect stores facing the Admiralty Wharf.

81. Is that wharf used by the Imperial authorities? No.

82. For what reason is it not used? Because they could not get a foundation for stores at the back of it.

83. Is it used for shipping? Yes.

84. By what kind of vessels? Commercial vessels.

85. Is it ever used for Imperial purposes? No.

86. You are aware that it is proposed to construct a long jetty into the bay? Yes.

87. Were you a party to its recommendation? Yes.

88. Do you think it is required in the interests of the public? I do; but I do not think it is wide enough.

89. What width would you have made it? 150 feet.

90. Would that affect the traffic to the smaller jetty? No.

91. If large vessels came, would it not affect the traffic? No.

92. Is the trade of that part of the city increasing? Yes. It would increase more if there were accommodation.

93. What is the nature of the trade carried on there generally? Coal, timber, and general cargo.

94. Are there any warehouses about there? Yes; just completed.

95. Would they be built on the wharf? In the neighbourhood of the wharf.

96. Have you formed any opinion as to whether the vote is sufficient for the works? No; that is not in my province.

97. Are you clearly of opinion that the trade requires more accommodation? Yes.

98. Do you think that the accommodation here proposed is of a suitable character? Yes.

99. Have you formed any opinion as to the revenue that will be received? During the present year the revenue from Cowper Wharf will be £3,800. In its present state it is not capable of doing any more.

100. What is your estimate of the revenue so soon as these proposed improvements shall have been carried out? The new jetty will be able to accommodate six ships, and each berth will be worth about £1,000 per annum. That will be £6,000, in addition to the £3,800 at present received.

101. *Mr. Abbott.*] How long have you been in your present position? Four years.

Captain
J. Jackson.
19 Sept., 1888.

102. In what position were you before? Master of the ship "Gladstone."
103. Can you tell me what the wharfage accommodation of Sydney is at the present time? I can only state it approximately. I think that there is wharfage accommodation for forty-five large ships.
104. Is that exclusive of coasters? Yes, and of coastal and intercolonial steamers.
105. Do you know if any of the vessels in Sydney at the present time, or at any time since you have occupied your present position, have been inconvenienced through not being able to get wharfage accommodation? Yes.
106. When? In 1885.
107. What number? I had four ships lying out in the bay.
108. Was it on account of the whole of the wharfage accommodation being taken up? Yes; for a short time.
109. Was that an exceptional year? Very exceptional.
110. Has anything of that kind occurred since? I do not think so.
111. Or before? No. It was owing to a large contract with the Government for the delivery of water-pipes.
112. Do you know what Cowper Wharf cost? Only the timber portion, which cost £18,000. I do not know the cost of the other portion. £18,000 is exclusive of the small jetty.
113. What has been the revenue from Cowper Wharf during the four years you have held your present position? In 1884, when I joined the service, it was £1,500. In 1885 it came up to, I think, over £4,000. That was on account of the large number of general-cargo ships going there. In 1886 it fell off, and I think it was only about £3,500.
114. What was it in 1887? It was close on £3,800.
115. Does that revenue include harbour dues and all other dues? That is only wharfage and tonnage dues.
116. Was there a large quantity of Government goods landed during that period? The wharfage for the Government amounted to about £460 in 1885; in 1886 it amounted to £82.
117. What kind of cargoes are discharged at Cowper Wharf? General cargoes, timber, and stone metal. General cargo-ships from London and New York go there. Only a few days ago there was a large steamer there.
118. Is the principal revenue derived from intercolonial vessels? Yes.
119. Are any of these wharves let to Mr. George Hill? No.
120. All the metal brought by Mr. Hill is discharged at Cowper Wharf? Not all of it. The principal portion of it is.
121. Do you know what he pays in a year? I think it is about £1,500.
122. It is only in one year that you ever knew vessels to be unable to get berths? Yes.
123. At the present time, what is the state of the harbour in that respect? The Circular Quay is full.
124. And the private wharves? A good many of the private wharves are full.
125. Is not the Circular Quay let to three companies? It is not let. They pay rent equivalent to tonnage dues, but the Government collects the wharfage.
126. *Mr. Humphery.*] What is the annual cost of the maintenance of Woolloomooloo Bay? It is the same every year—£487.
127. That is the salaries? Yes. There is another sum of £50 for cleaners.
128. Any repairs? No; not lately. There may have been small repairs, but nothing important.
129. Do you estimate that, deducting the annual cost, the return will be something over £3,000 a year at present? Yes.
130. When the proposed new jetty is constructed, do you estimate you will receive £10,000 a year? I should say £1,000 for each berth. That will give £6,000 a year additional.
131. That will be 25 per cent. on the proposed outlay? Yes.
132. *Mr. Kethel.*] It has been stated that a portion of the Woolloomooloo wharfage consists of an additional wharf for the Imperial Government. Are you aware at whose instance or request this new wharf is to be constructed for the Navy? No.
133. Do you know the reasons why it is proposed to make that new wharf? I believe it was originally intended to erect stores at the back of the present Admiralty Wharf, but it will cost a great deal to get foundations there.
134. On whose authority do you make that statement about the foundations? Mr. Williams, assistant-engineer. It will be necessary to go down 23 feet to get a foundation.
135. Is it intended to berth ships there? I think so.
136. Is it necessary to provide a wharf 300 feet or 400 feet long for Imperial ships' boats to land or take off munitions of war? I do not know.
137. As a nautical man, are you of opinion that such an extensive wharf should be devoted to Imperial purposes? My opinion is that it is not required.
138. Do you know that extensive warehouses and wharves have been erected at Garden Island for the Navy? Yes.
139. Have you any reason to believe that the Imperial Government really require large additional wharfage and storage on the mainland besides what they have got on the island? I do not think so.
140. Do you know for what class of naval stores the proposed warehouses are required? No.
141. How many foreign ships have you had at Woolloomooloo Wharf this year discharging general cargo, as distinguished from timber? Three.
142. Can you give any idea of the number that have discharged general cargoes there since you have been in charge during the last four years? I should say about fifty.
143. Is it not a fact that sometimes during a whole year not a single foreign ship discharges goods other than timber at that wharf? In 1884 there was no foreign ships there. They first commenced to go there when the Government imported pipes came out here.
144. The fact is that the ships having been sent to Woolloomooloo to discharge pipes for the Government also discharged their general cargoes there? Yes; but it was only a few. Since then ships have gone in without any Government cargo.
145. Is not the long haulage up the hill from Cowper Wharf into the city proper regarded as a great objection on the part of consignees? No.
146. Are you not aware of that fact? No. I am aware that they would sooner cart goods from Woolloomooloo than go to the back wharves. The great drawback to Woolloomooloo is the rough element in the neighbourhood, and the pilfering which takes place.

147. Is not the eastern section of Cowper Wharf almost entirely used for landing blue-metal and coals? The south-eastern corner is.
148. Is any rent paid for the use of that wharf in addition to the landing charges on these materials? No.
149. Is it not a fact that cargo has been lying there for weeks and the wharf made a storehouse? No; because ships are in at night and out in the morning.
150. Have I not seen cargoes lying there for upwards of a month at a time? That might have been the case. Before my time it was a coal-yard.
151. You anticipate that the long jetty will berth six ships;—what class of ships do you allude to? The ordinary-sized sailing vessels.
152. Is that in addition to the present accommodation? Yes.
153. Do you mean that you will have five berths at the new jetty? No. Six additional berths; three on each side.
154. What description of ships—foreign-going vessels? Yes; ships of about 1,500 tons.
155. What is the usual length of a 1,500-ton ship, from the stern to the boom end? I should put the ship's boom end over the wharf. At the end of the wharf I would put it past the wharf. I do not reckon the ship's boom.
156. Well, the bowsprit? I should not reckon the bowsprit, except of one ship.
157. You would get three intercolonial ships berthed there? Yes.
158. Is it your experience that intercolonial vessels, whose cargoes consist almost entirely of agricultural produce, would yield the amount of revenue which you estimate to receive? No; not intercolonial vessels.
159. Do you think that ships would land produce there? No; I reckon on foreign-going ships.
160. Is it not a fact that ships with cargoes consisting of grain of every description prefer to land them where there are several warehouses within easy access? Yes.
161. Do you know whether warehouses are in course of erection at Woolloomooloo? Yes. They belong to Messrs. Holdsworth and Evans.
162. On the reclaimed ground? Yes; behind Cowper Wharf. At the present time I am given to understand Messrs. Hoffnung & Co. have purchased a large block of land there from Mr. Munro, on which they intend to erect warehouses.
163. Are there a great number of timber ships from Europe and America discharging timber at Woolloomooloo? No.
164. Is there not one there now? There are two from Puget Sound.
165. Have not the consignees of those vessels, and people interested in that branch of trade, asked the Government, instead of constructing jetties, to provide more storage accommodation for their cargoes? No; but I think it would be a capital thing.
166. But has it not come to your knowledge that an application has been made for more storage accommodation? No.
167. Will Mr. Hilliard be better able to answer that question? Yes.
168. As a seafaring man of considerable experience, do you think it conducive to the well-ordering of the harbour to project such a long jetty into comparatively narrow water? I do not think it will interfere with any shipping.
169. Would you not find considerable difficulty in berthing a large ship with the wind blowing into the harbour? No.
170. Have not nautical men a decided objection to wharfage improvements of this description, and was not a similar proposal in regard to the Circular Quay some years ago unanimously condemned by all seafaring men of experience amongst us? I never saw any difficulty in berthing ships at jetties.
171. Are you not aware that the intended projection of a jetty into Sydney Cove was abandoned on account of the opposition offered by the nautical authorities? Yes.
172. Notwithstanding that, do you recommend the construction of this jetty into the centre of Woolloomooloo Bay? Yes.
173. *Mr. Garrard.*] You say that you will have six berths at this jetty for 1,500-ton ships. What is the usual length of a 1,500-ton ship? About 250 feet.
174. How long is the jetty? 700 feet.
175. The approaches will take off 40 feet, so that the jetty will be 90 feet short. Is not that the case? They are not all 250 feet long. Some are only 230 feet. I reckon that the two end ships will project 50 feet outside the wharf when the six berths are taken up.
176. Then the outside ships can only work one hatchway? They seldom work more. The forehatch is generally so small that they cannot work it.
177. Would you prefer a wharf 150 feet wide? Yes; because the ships lying at the long jetty will be general cargo mainly. I would also suggest a roadway in the centre lowered so as to bring the floors of the drays on a level with the wharf.
178. What was the objection to that in the Department? I do not know.
179. Did the Engineer-in-Chief raise any objection when you suggested it? Not that I am aware of.
180. Do you not think that with six new berths at the jetty, and an additional one in the bight, you could do without a further extension of the Admiralty Wharf for some time to come? Yes; I do not think the Admiralty Wharf is required for some years. I do not think they will ever use it.
181. That will give you an additional berth? But I do not think it is required.
182. Do you think that the main jetty and the straightening of the wharf on the south-western side will give you all the accommodation required? Yes; and to fill in the present Admiralty Wharf.
183. Do you want to utilize it? Yes; I am doing it now.
184. Are you paying the Imperial Government anything for the use of it? No.
185. Then you really think it necessary to keep control of the present Admiralty wharf, and if the Admiralty want anything they could get it farther north? Yes.
186. *Mr. Sydney Smith.*] What is the accommodation at present at Woolloomooloo Bay? Five berths, such as they are. There is actually only one good berth; there is only one berth where you can lie properly alongside.
187. Have you had any complaints of want of accommodation at Woolloomooloo? Yes, frequent complaints. When ships have been in there there have been very great complaints of want of accommodation.

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188. How long have ships been waiting? They have not been waiting. When they were once in, there is no going out again; they have to take what they can get. At present there is a vessel discharging timber with a stage 20 feet long.
189. Have the wharves ever been blocked with timber and stones stacked on them? No; that has been all removed as soon as a berth is required.
190. How long are they allowed? Forty-eight hours by the Act; but with a large timber cargo it is impossible.
191. What is the depth of water at Woolloomooloo Bay alongside the wharf? 20 feet. It silts up very fast; it will be 24 feet at the end of the big wharf. It varies from 12 feet to 18 feet alongside the Admiralty Wharf. There is a patch of 12 feet just opposite the new crane.
192. Can you dredge it? Yes; it is on mud.
193. What depth can you get by dredging? 30 feet, I believe.
194. *Mr. Campbell.*] In connection with the silting up, will not almost constant dredging be required? Yes; every eight or ten months. The silt is so very soft that ships go five or six feet into it.
195. Is there great drainage there? Yes, just alongside the wharf.
196. *Mr. Suttor.*] With regard to the estimated revenue of £10,000, is it based on the idea that the berths will be always occupied? No; the revenue for each ship of 1,500 tons will be £280. I calculate on having four ships at each berth every year.
197. Do you make allowance for berths not being occupied? Yes; I make allowance for their not being occupied for six months in the year.
198. *Chairman.*] Would you be good enough to show us how far the Government property extends on the south-eastern side of the wharf. [*Witness indicated the point upon the plan.*]
199. Regarding the property as a valuable one owned by the Government, are you of opinion that the improvements proposed are necessary? Yes.
200. Do you think it will be valuable in view of the probable increase of trade and commerce in the Colony generally? I have not the slightest doubt about it.
201. *Mr. Kethel.*] I observe that part of the scheme is to fill in the present landing stages and afford other accommodation where steamers land their passengers on the south-western corner. Is not that where the Manly Beach and Watson's Bay boats land their passengers? Those boats do not go there now.
202. What are the landing stages now used for? Timber ships lie alongside.
203. Is any provision made in the proposed alteration of the passenger accommodation for that portion of the public who use Woolloomooloo Wharf as a landing place? Yes; there is a jetty there.
204. Do you intend to use the present jetty for passengers? Yes; that is my idea.
205. Are there not two berths at that jetty for large-sized ships? They are very narrow.
206. How do you reconcile your statements when you say that you will have six additional berths, and that you intend to deprive yourself of two berths at this jetty? There will be three berths on each side of the new jetty. I do not reckon the jetty you refer to as a berth.
207. Have I not seen vessels discharging there? Small vessels; I have put a vessel there because I had no other berth.
208. You have stated that there is a ship discharging timber with a stage 20 feet long. Is that long stage necessary because of the shallowness of the water, or on account of the wharf? On account of the wharf.
209. *Mr. Suttor.*] Do you think it is not desirable to carry out the work as proposed for the Imperial Government? I do not know whether the Imperial Government requires it.
210. Did you not say it is not required? I do not think it is necessary, as far as I know.
211. If that proposal is carried out, would it be a good alternative plan instead of making the proposed large jetty? I think the jetty will be more convenient.
212. But will not one work cost £8,000 while the other will cost £27,000? You could only berth two ships at the Admiralty Wharf, while you lose a valuable frontage. The jetty would only require 150 feet of frontage, while it would berth six ships.
213. Do you think it would not be possible to abandon the jetty; and carry out the Admiralty proposal? There would not be sufficient accommodation.

Capt. Henry Pettit, Harbour-master at Sydney, sworn and examined:—

Captain
H. Pettit.
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214. *Chairman.*] Are you Harbour-master of this port, and have you occupied that position for a number of years? Yes; for the last four years.
215. Have you been engaged in the same kind of work for a great number of years? Yes.
216. Have you given attention to the proposed improvements at Woolloomooloo Bay? Yes; I have seen the plans.
217. Do you recognize that portion of the bay where it is proposed to construct a long jetty? Yes.
218. You are a nautical man, and have had a lot of experience? Yes.
219. Do you think the proposal is a feasible one? The proposal will give very good accommodation for shipping in Woolloomooloo Bay.
220. Do you think it will cramp the action of vessels coming in and going out? No.
221. Is it a wide bay? Not particularly wide, but there is sufficient room to bring in vessels, either on one side or the other.
222. Is it much wider than Sydney Cove? No.
223. Do you recollect a project, some years ago, to carry out a jetty in Sydney Cove, which was strongly objected to? Yes.
224. Was it not contended that it would cause confusion in the shipping and bring about accidents, besides curtailing the facilities for getting about? Sydney Cove has a very great deal of traffic; but in Woolloomooloo Bay it is not so.
225. But taking a prospective view, have we not reason to believe that the traffic will increase in that bay as it has in Sydney Cove? Yes.
226. Do you think that the proposed works, as a whole, are essential for the improvement of a valuable Government property such as this is? I think that the proposed jetty will return very good interest on the money expended.

227. If that property were in the hands of private individuals do you think it would be improved to this, and even to a far greater, extent? Yes.
228. Do you know anything about the proposal to improve the Imperial frontage to the bay, the part now occupied by the Government? I see that there is a wharf on the western side of the bay, and that it is proposed to extend it farther to the north.
229. Do you recollect the place which used to be called the Centipede Rock? Yes.
230. Is that the locality? Yes.
231. Is that where the new wharf is proposed to be erected? Yes.
232. Do you know anything of the circumstances under which an exchange took place between the Colonial Government and the Imperial Government, with regard to Garden Island, and under which this wharf was conceded to the Imperial Government? No.
233. Is the traffic in Woolloomooloo Bay very large now? No, not particularly. Small craft go there.
234. Would it be increased if there were proper accommodation? Last year, in the wool season, there was a great deal of shipping in the port, and the wharf manager contrived to get large ships alongside the small jetty, and both sides were occupied during a part of the season.
235. Do you know the amount proposed to be spent on those improvements? No.
236. £42,000 is proposed for the whole of the works;—have you formed any opinion as to whether that amount will be sufficient to carry out the proposed works? No. I think the wharf manager would know what accommodation is required.
237. *Mr. Abbott.*] Was your opinion asked with regard to the necessity for these works before they were initiated by the Department? No. The first intimation I had was when I was summoned to give evidence here.
238. You were not asked whether or not sufficient accommodation already existed in Port Jackson before this work was proposed? I think that the wharf manager complained on several occasions.
239. Were you never called upon to give a report regarding the necessity for it? No.
240. Have you been Harbour-master about the same length of time as Captain Jackson has occupied his position? Yes.
241. Were you in the service before that? Yes; for the last 13 years.
242. Have you known any inconvenience to shipping to exist from want of wharfage accommodation in the port? A great many ships could not get berths during the wool season at the Circular Quay.
243. Could they go elsewhere? Yes.
244. Is there any wool trade at Woolloomooloo? No. Many ships would prefer to go to Woolloomooloo rather than to the back wharves. I have heard many shipmasters make that remark.
245. Do you know what the present wharfage accommodation in Port Jackson is;—how many ships would it accommodate at private and Government wharves? I have never particularly counted the number, but it would accommodate a great number.
246. Would it accommodate 100? That would depend upon the size and description of the ships. They vary from 500 to 100 feet long.
247. Has there ever been in your experience any great inconvenience from want of wharfage accommodation? No.
248. Do you think there is, in the interest of shipping, any real necessity for the construction of these works;—is there an absolute necessity for them? As far as getting berths is concerned I do not think at the present moment any shipping master is put to great inconvenience from want of accommodation. I have heard many remarks that if there were more accommodation at the Circular Quay, it was a very easy place for the carriage of goods, and it would be patronised a great deal more. There is no doubt there are a great many wharves, and I have never seen all the wharves full.
249. Do you think that wool ships would load at Woolloomooloo Bay;—do you not know that the wool comes into the city and is shipped through the warehouses, and that none comes direct from the railway to the ships? Occasionally pressed wool is brought down to the wool ships at the Quay.
250. But does it not all come through the commission agents in Sydney? Yes.
251. Do you think that any wool would go to Woolloomooloo at all? You would require to have stores there. It would go there if there was storage.
252. *Mr. Kethel.*] Are you aware that there is a large sewer draining the whole of Woolloomooloo and part of Surry Hills, flowing into Woolloomooloo Bay, near Cowper Wharf? Yes.
253. In relation to this proposed jetty where is the outfall of that sewer? It is very close to the eastern boundary of that jetty.
254. There is, I believe, a considerable deposit of silt and mud from that sewer which necessitates frequent dredging to keep the bay clear. Speaking as a nautical man of considerable experience, do you think that the construction of a jetty 100 feet wide and 700 feet long, close to the outfall of a sewer, will have a tendency to cause the bay to be silted up so that it could not be dredged? Very much of the mud that comes down is easily dredged away. At one time it was filled up there, but a short time ago a large steamer drawing 28 feet was alongside that jetty.
255. Are you aware that rainstorms cause a great accession to the silt at the mouth of the sewers, and that the last season in Sydney being exceptionally dry there has not been nearly the same quantity of silt carried down; but that if we have a recurrence of wet seasons we shall have a large quantity of accumulated dust and *débris* carried down? Yes.
256. Is it your opinion that the construction of a jetty close to the outfall of one of the greatest sewers in the city will not have a tendency to accumulate the foetid mud and slime from the sewer which will become a cause of danger—firstly, by silting up the harbour, and secondly, by causing a deposit of filthy slime to be permanent in and about the piles of that jetty? There is no doubt there is a deposit of silt there, but in my opinion a dredge periodically working can keep it clear. It is a matter of dredging. There is no tide there. As far as this sewage matter is concerned there is always the continual working of steamers which would not allow anything to remain stagnant there. It would require occasional dredging, the same as the sewer off Macquarie Point, and the old tank stream sewer in Sydney Cove.
257. Can you suggest any means whereby the wharfage accommodation at Woolloomooloo Bay can be increased without running out a jetty, which many people believe to be objectionable? The shores of the bay adjoining the Domain might be utilized for wharves, but it would be a very expensive job.
258. *Mr. Garrard.*] Is that owing to the precipitous character of the land? Yes. By the expenditure of a great deal of money it might be made equally as good for wharfage accommodation as the Circular Quay, but it would be costly.

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259. *Mr. Kethel.*] In reply to a question you said that you have been Harbour-master for four years, and that you were thirteen years previously in the Service;—what was your position in the Service before? I was Assistant Harbour-master.
260. And before that? I was a master in the tug service.
261. From that are we to understand that prior to your appointment as Harbour-master you had ample opportunity of being thoroughly conversant with the state of the shipping in the port? Yes; I have been connected all my life with shipping.
262. *Mr. Garrard.*] I suppose there is more silt washed down by summer thunderstorms than by ordinary rains? Yes. Thunderstorms bring down a great deal more silt.
263. And the silt off the streets, brought down by these sewers, is not offensive? No, not as a rule.
264. The sewage matter from the houses is the offensive matter? Yes.
265. Are you aware that a very extensive system is being carried out to convey the sewage to the ocean? Yes.
266. So that although silt may be washed down from the streets it will not be accompanied by offensive sewage matter? Not if there is a main outlet to the sea at Bondi.
267. *Chairman.*] With reference to the sewers emptying into the harbours at the edge of the bays, how many sewers have been extended into deep water? The only one I know of is the one at Macquarie Point. The buoy there denotes the shallow water off the Point. The sewer goes down to within a very short distance of the buoy.
268. Then the idea is that the sewer carries off the accumulation of silt? Yes.
269. Is it the only one where this extension has taken place? I do not know of any other.
270. What has been done in the case of Rushcutters' Bay? I do not know of any pipe being laid out there, because in Rushcutters' Bay there is no tide.
271. Is it not the accepted practice to get rid of the inconvenience of sewage, emptying into a place like Woolloomooloo Bay, by extending the piping into deep water? It is recommended to put it clear of the flats.
272. Where the tide is strong and there is a scour at certain seasons? Yes.
273. Is the tide active in Woolloomooloo Bay? No; there is a rise and fall, but no stream.

Mr. John William Hilliard, Wharfinger at Cowper Wharf, Woolloomooloo Bay, sworn and examined:—

Mr.
J. W. Hilliard.
19 Sept., 1888.

274. *Chairman.*] Are you the wharfinger at Woolloomooloo Bay? Yes.
275. Have you full opportunity of seeing the shipping traffic there? Yes.
276. Is it very large now? The revenue this year will be about £3,800.
277. From what class of vessels generally is it derived? From coasters and general cargo ships from London.
278. Are London ships berthed there? Yes.
279. Many? Not very many. In 1885 £5,000 was collected.
280. Have you noticed any inconvenience arising at various times owing to the want of accommodation for vessels? Yes. On several occasions I have seen ships go away from there to other wharves.
281. Do you know what the proposed improvements are at Woolloomooloo Bay? Yes.
282. Do you think that the proposed jetty, 700 feet long and 100 feet wide, will cause any inconvenience to the traffic of the bay? Not in the least. It is the very thing that Cowper Wharf wants.
283. If there was sufficient accommodation do you think the bay would be more frequented by ships? Yes. The masters are rather disgusted when they first go to the bay; but once there they express an opinion that they will go there again.
284. Are there any mercantile stores in the neighbourhood? There are four or five bonded stores now being built, and nearly finished. I believe that Hoffnung & Co. have taken up a large piece of ground for the purpose of erecting large stores.
285. Do you think it is likely that wool will be shipped from there at any time? I should not wonder if it were, provided there was a store to receive it.
286. During a busy season do you think it would be the case? Yes.
287. Are you of opinion that, as Government property, it is wise to improve the wharf to this extent? Yes.
288. *Mr. Humphery.*] Have you formed any opinion as to the probable income from the proposed new jetty? If we had a jetty 500 or 600 feet long and 150 feet wide we should have it full all the time. I think that if we had a jetty of that kind, instead of having a revenue of £3,000 or £4,000 a year we would have a revenue of £20,000. We would then have room for ten vessels.
289. What is your reason for saying that the jetty should be 150 feet instead of 100 feet wide? Because 50 feet on each side will be required for a loading berth, and another 50 feet would be required in the centre for a cart track.
290. Do you believe that vessels would come and make use of that jetty? Yes. Cowper Wharf has facilities which a great many other wharves have not. That is for getting away. The drays can come in and load and get right away without waiting. There are four streets there by which they can get away.
291. *Mr. Kethel.*] The Admiralty have a wharf on the western side of Cowper Wharf—what use is made of it by the Government? I have put metal on it principally, but two small cargoes of metal will fill it up. It is about 30 feet wide. I have to leave a roadway for carts to come up, so that there is only the centre space.
292. Do the naval authorities allow you to use their wharf in that way? I think it is turned over to Cowper Wharf now.
293. Have the naval authorities ever used it? Never.
294. Do they not send boats ashore to land ships' stores? No; they land at all parts of the wharf; sometimes at the jetty. They do not use it at all.
295. For what purpose do you intend to use the small jetty if the large one is extended? For colliers to discharge coal; it is very useful for it.
296. Will you make no provision for accommodation for passengers landed from steamers? They can come and land there.
297. Have you been much pressed for space at Cowper Wharf for landing cargoes? Yes.
298. For what description of goods have you been pinched for accommodation? Timber, metal, and sometimes coal.
- 299.

299. Have the people engaged in the importation of timber and landing it at Woolloomooloo Wharf expressed a desire that they should receive more accommodation, or have they expressed a desire that the Government should resume some of the adjoining land to make storage-yards rather than that a jetty should be extended into the bay? No; I have heard it rumoured that the Government would resume all the frontage to the wharf.

Mr. J. W. Hilliard.
19 Sept., 1888.

Mr. Alexander Brown Portus, Superintendent of Dredges, sworn and examined:—

300. *Chairman.*] Have you a good deal to do with Sydney Harbour? Yes. I am Superintendent of Dredges.

Mr. A. B. Portus.
19 Sept., 1888.

301. Do you know Woolloomooloo Bay? Yes.

302. Are you aware of the proposed improvements there? Yes; I know that a long jetty is to be run out. I am not aware of the other improvements.

303. The Naval Wharf is proposed to be extended, and other improvements are to be made, at a total cost of £42,000;—do you think such improvements are necessary? I think so, so far as the commerce of the port is concerned.

304. Do you know the accommodation that will be given by these improvements? Yes.

305. Do you think that the proposed jetty 700 feet long and 100 feet wide will interfere with the traffic of the bay in any way? It will to some extent.

306. On the whole, do you think that it would be desirable to construct that jetty? I think so.

307. In your official capacity have you been consulted? No.

308. Nor your opinion asked? No.

309. Have you had anything to do with the dredging of that bay from time to time? Yes.

310. Does the sewage empty itself there? Yes. There is a sewer at the foot of Forbes-street, another at Dowling-street, and another at Duke-street, and a great quantity of sewage comes in.

311. How far does the pipe go into the water? I cannot say. We have dredged close up to it.

312. Then the pipe empties close to high water? Yes. Generally speaking there is a deposit outside the mouth of the sewer.

313. Is the tide strong there? No.

314. Does your experience in dredging lead you to conclude that the sewage being taken out by pipes into deep water loosens the deposit, so that it is more easily removed by the tide? I do not think it makes much difference.

315. Is it not supposed that the scour is greater when the sewage is taken out some distance to where the tide is more active? The scour would remove it to some extent, but I know we have had to dredge at the mouths of all the sewers.

316. Do you recollect where the sewer at Fort Macquarie first emptied itself? Yes; some distance out.

317. Was it extended afterwards? I do not recollect it.

318. How long have you had control of the dredges? Eight years. I was in Newcastle before that.

319. Are you an engineer by profession? Yes; a millwright and engineer.

320. Does the harbour suffer much more in flood seasons from deposits from sewers and such things than it does in dry seasons, such as we have had recently? Yes; there is more dredging to be done in wet seasons.

321. Do you keep any record of the number of tons of silt removed from time to time in the different localities? Yes.

322. How many dredges are there in Sydney Harbour? Three.

323. Actively at work? Yes.

324. Can you keep them at work at all times? Yes, except when it is very rough weather, when it is dangerous to send the punts with silt to sea.

325. The delay in continuous work would be attributable to that alone? Yes.

326. I suppose that to work the dredges economically they ought to be kept at work at all times? Yes.

327. But that you cannot do? Our most economical dredging was at Newcastle, when we were working night and day.

328. Is that the rule in dredging services? Yes.

329. Have you not been able to do it in Sydney? It was done in Sydney for four years, when the dredge was working at the Heads. That was before I came to Sydney.

330. Did you experience much difficulty in deepening Woolloomooloo Bay, and other places where sewers make deposits? No; there is no difficulty, except when vessels are sometimes in the way, and then there is a little delay.

331. Mechanically there is no difficulty? No.

332. What number of tons can you remove? That would depend upon the size of the dredge.

333. If an ordinary dredge were used to deepen the frontage to the wharf of this bay, how long do you calculate it would take you to do so? One of our dredges lifts about 700 tons per day, and another does the same. The large dredge is at present dredging over 2,000 tons per day.

334. Can you send that to sea? Yes. These figures are approximate. The "Sampson," our largest dredge, has three punts of about 350 tons capacity. There is one steam hopper barge which takes 400 tons. They go three miles outside.

335. Have you all the modern appliances in your dredges? Yes.

336. Have not dredges been improved to a great extent during the last few years? As far as the size of dredges is concerned there is a decided improvement. The larger a dredge is the more economically it is worked; I think we have kept pace with the times.

337. Do you think there would be sufficient inducement to warrant the Government in constructing these improvements at Woolloomooloo Bay? I think so, judging from the fact that the present jetty was very largely used some time ago. I think it is very largely used now, and the facilities offered by the Government are more than are offered at other wharves.

338. Are you aware that warehouses are being built in the neighbourhood of the wharf at Woolloomooloo Bay? There is a shelter shed at the wharf, but I am not aware that there are any warehouses there.

339. Would the small jetty continue to be used if the large jetty were built? It was constructed for the Manly Beach traffic at first, but it is not used for that now.

340. Is it proposed to construct a roadway along the large jetty? I am not aware.

341. Is it not usual to place a line of rails on such jetties, so that merchandise may be easily moved backwards and forwards? Yes.

- Mr. A. B. Portus.
19 Sept., 1888.
342. As a property belonging to the State, do you think Cowper Wharf is of sufficient value to warrant these improvements? I think so.
343. *Mr. Abbott.*] Do you know, as a matter of fact, whether the wharfage accommodation which exists in Port Jackson now is not more than ample for all the shipping that has ever come to it, taking into consideration all the public and private wharves? Judging from occasional observation, I imagine there is a necessity for increased accommodation. The accommodation offered by the Government is better than that provided by private individuals—the approaches are better.
344. Do you think the Government will get a fair return in revenue for the construction of such a work as this, having regard to what it has already cost them to construct works at Woolloomooloo Bay? It will very much depend upon how matters are arranged between the Government and private individuals. If private individuals offer rebates and other facilities to shipping which the Government cannot offer them, the Government may be at a loss.
345. Is that the case with regard to wharfage in Sydney? I do not know.
346. Was it not the case a short time ago? I do not know.
347. Was your opinion ever asked as to the necessity for these works? It is not usual to ask my opinion. I have generally to do with the dredging of the harbour. Mr. Moriarty and Mr. Darley have to do with those matters. I may have been asked, but I cannot charge my memory with it.
348. *Mr. Humphery.*] Can you state approximately what is the yearly cost of dredging Woolloomooloo Bay? I could by referring to my books.
349. Can you say whether the cost will be appreciably increased if these proposed wharfage improvements are carried out? The continuation of the jetty would not make the bay more difficult to dredge than it is now, because the distance of the jetty from the shore is sufficient to allow of dredging without hindrance.
350. If the return upon the cost hitherto is deficient, will it be a fair criterion as to the future cost? Yes.
351. *Mr. Kethel.*] You observe the distance between the old jetty and the proposed new one—perhaps 150 feet;—in working a first-class dredge what room do you require for the punts to lie alongside and load, and to move the vessel about with the punts fast alongside, the dredge being as close as possible to the piles on each side;—do you think there is sufficient space there to enable one of your large dredges to dredge this portion of the harbour from side to side? The dredge “Sampson” can work well in about 110 or 120 feet.
352. Dredging between the jetties where the sewage out-fall occurs is principally done by the “Charon”? Yes; and the dredge “Hercules” constantly dredges there.
353. Could the “Hercules” work there conveniently with her punts;—do you think there is space between the two jetties to dredge successfully? Yes; the dredge “Hercules” could work very well with a distance of 130 feet.
354. You are aware that several sewers flow into Woolloomooloo Bay under Cowper Wharf, one on either side, and one perhaps right underneath the proposed jetty. In your opinion, would there be a tendency for the silt to accumulate amongst the piles under the jetty when extended where you could not reach it with any of your dredges? Yes, probably it would; but I do not see any great disadvantage from that, because the dredge would remove it from time to time.
355. How could a dredge get the stuff from among the piles? The sewage would fall down alongside the jetty.
356. Do you think that, with a jetty 100 feet or 150 feet wide, the action of the dredge beyond the outer piles would cause the central deposit to give way;—would it not remain and silt up to the water's edge in course of time? I daresay it would, but there would be no great inconvenience if it did silt up.
357. If it was impure sewage would it not become a public nuisance and dangerous to health? I do not think this is a contingency of the future, because the sewage will eventually go to Bondi.
358. Is it not a fact that such a state of things exists at the present time among the piles on the wharves;—has not the deposit reached nearly to high-water mark, at all events above low-water mark, where it cannot be reached by any of the dredges? That may be the case where there is not sufficient width to go in.
359. *Mr. Garrard.*] I understand your largest dredge, the “Sampson,” a double-sided dredge, can work very well in a space of 120 feet? Yes.
360. As there will be a space of 130 feet between the two jetties, the “Sampson” could work there easily? Yes; the new dredge which is being constructed is 28 feet wide, with no side ladders, and could work in a smaller space than the “Sampson.”
361. *Mr. Suttor.*] Do you think there would be an accumulation of sewage at Forbes-street? No, the dredge could go round from time to time, and keep it down.
362. Does the silt accumulate where the new jetty is to be erected? Yes; the dredge has to go there frequently. The worst place is between the two jetties.
363. What is the depth of water near the jetty? About 22 feet at low water.
364. *Chairman.*] Can you supply us with a report of the cost of dredging Woolloomooloo Bay, say for four or five years? Yes. [*Vide Appendix A.*]
365. *Mr. Garrard.*] What is the bottom at 22 feet? Rocky, close in. That is on the eastern side, and very close in.
366. *Mr. Kethel.*] Have you been right down on the bed rock in the middle of the bay? No; only where the sewage is.
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- Mr. John Joseph Earl, timber-merchant, sworn and examined:—
- Mr. J. J. Earl.
19 Sept., 1888.
367. *Chairman.*] Are you engaged in business as a timber merchant in Sydney? Yes.
368. Where is your place of business? At Dawes' Point.
369. Have you been long engaged in that business in Sydney? Yes; forty years.
370. Have you been carrying on business at the same place all the time? No, principally at Darling Harbour,—Sussex-street, and at the head of Darling Harbour,—Liverpool-street.
371. Have you carried on business transactions at any time at Cowper Wharf or Woolloomooloo Bay? Yes, during the last three or four years.
372. Have you a place of business there? No; I receive cargoes there.
373. Foreign shipments? All foreign shipments.
374. Baltic and American timber? Yes; I had a cargo berthed there this morning.
375. Have you ever found a deficiency of wharfage accommodation at Woolloomooloo Bay? Yes, frequently. We want more wharfage accommodation now.
376. Have you had reason to complain from time to time of want of accommodation? Yes. 377.

377. Have you heard of others being placed in the same circumstances? Yes, frequently.
378. Are you aware of the proposed improvements there? I now see the plan for the first time.
379. Do you think that these improvements are desirable ones? I think that the jetty, by all means, should be made.
380. Do you think that the traffic of the bay would be impeded by the construction of a jetty there? No.
381. Do you recollect a similar project being proposed for Sydney Cove? Yes.
382. Was that strongly objected to? It was. A gentleman lately deceased (Mr. Flood) had strong objections to it.
383. Do you think that the same objections would suggest themselves in this case? No. I think this would be a very great advantage.
384. Suppose that in twenty years the traffic of this bay increased to the same extent as the traffic of Sydney Cove has increased since you recollect it; do you think the jetty would then be an inconvenience? No. I do not think a jetty at the Circular Quay would be an inconvenience. I think it would divide the traffic and make it safer.
385. Do you know anything of the relative widths of Sydney Cove and Woolloomooloo Bay? No. I should think that Sydney Cove is a little wider.
386. Do you know the two localities well? Yes.
387. Do you recollect the Centipede Rock? Yes. It was near the boat-harbour.
388. Do you know the small jetty now in existence? Yes.
389. Do you think the two jetties would cause great inconvenience? I think I would prefer to do away with the small jetty when the other is built. I have a ship berthed alongside the eastern side of the small jetty.
390. Its distance from the longer jetty is about 130 feet;—would that cause great inconvenience? Not very great; but I think it would be better without the smaller jetty, if you extend the longer jetty 600 or 700 feet.
391. Do you know anything about the proposed expenditure? No; I have never heard anything about it. I had some conversation with the Manager of the Circular Quay. I wanted him to try and get a place between the Admiralty Wharf and the mainland filled in, so as to use it as a timber-wharf. That led to other conversation with respect to the extension of the wharf out to Lady Macquarie's Chair; but I did not know then that the Admiralty had a right to any portion of it.
392. Do you know anything of the proposed alterations to the Admiralty Wharf? Nothing whatever; I only know the present one.
393. Do they use the present one very much? I never saw a boat of theirs alongside.
394. Is it used at all? It is used as a stone-wharf, I think, by the Kiama people. I have seen a lot of metal stacked on the wharf.
395. Do you think the traffic would be likely to increase if proper accommodation were provided? I am sure of that.
396. In view of the probable increase of traffic generally in the port in the course of years, do you think it is desirable to improve this State property to the extent proposed? I certainly do. I think it would be quite as good a paying property as the Circular Quay, in proportion to the amount spent upon it.
397. *Mr. Abbott.*] How long have you had a place of business at Woolloomooloo? I have never had a fixed place of business there; I receive cargoes there. Timber cargoes have to go there because there is no other accommodation for them except at Dibbs' wharf, and that is sometimes occupied. There is another wharf—J. C. Ellis' wharf at Pyrmont, which is sometimes available for landing timber upon.
398. Are there not timber-ships at the Circular Quay? No; vessels having small lots of timber, mixed with other goods, sometimes discharge there.
399. *Mr. Humphery.*] It is said that the width of the proposed jetty is to be 100 feet;—is that sufficiently wide? It is not wide enough. It should be at least 130 feet wide. You must have a roadway. There must be room for several drays to pass, otherwise it will not be of any use, because you cannot get the goods away.
400. It should not be less than 130 feet, but I suppose 150 feet would be better? Yes; the wider the better; there will be more landing accommodation.
401. *Mr. Kethel.*] With reference to the accommodation which you required recently, and had reason to complain of at Cowper Wharf, was it the want of berths or the want of room to store your cargoes? The want of room to stack cargoes ready for delivery.
402. Principally? Yes. The wharf is generally filled up with coal, metal, and hardwood, and we sometimes have to wait two or three days to have that cleared away, and that causes expense and delay.
403. The principal portion of the cargoes which have been landed by you at Woolloomooloo is what is known to the trade as Oregon? Yes, principally.
404. Is that generally discharged out of the bow port, or the gangway? Nearly always out of the stern or bow port; but in the case of several ships I have come across lately we have had to discharge from the hatch. That is one great evil at present—the curve in the wharf prevents ships from getting alongside. I have had a large ship during the last two months on which I had to run out a stage 25 feet long to reach the rail of the ship. That is a great disadvantage compared with getting the timber direct on the wharf from ships' tackles.
405. Have you ever suggested to the Government wharfage authorities that they should obtain more space for landing and stacking timber on Woolloomooloo Wharf? Yes. I spoke of it two years ago, and even a longer time back. Mr. Bell was the first person I spoke to. I suggested that the best thing to do was to resume the block of land from Bourke-street in a line with the street at the back of the quay right away from the eastern extremity of the wharf.
406. Did Mr. Bell then occupy the position that Captain Jackson now occupies? Yes. I have since spoken to Captain Jackson about it.
407. If a timber-ship were discharging out of the bow or stern port, what amount of berthage would she require—would 50 feet be enough? Quite enough.
408. So you could put four timber-ships in the same space required by one ordinary merchandise vessel? Yes, if we had space to run the timber out. We could not berth and discharge four vessels at one time unless we had space to stack the timber.
409. I believe I am correct in saying that the greater number of the foreign ships discharging at the existing jetty are ships timber-laden? Yes. I have seen a few large steamers of 2,000 or 3,000 tons discharging their cargoes, and one or two English ships. The greater number are timber-ships. 410.

Mr.
J. J. Earl.
19 Sept., 1888.

- Mr. J. J. Earl.
19 Sept., 1888.
410. Do you think that the proposed jetty is the most suitable improvement for landing and getting away cargoes of long timber? No; unless the ships discharged out of the hatches. Then it would answer very well.
411. How would you stow and get such long timber away;—would it not be extremely inconvenient? Yes.
412. Can you suggest any other means of improving Woolloomooloo Bay equal to or better than this proposal? No; I do not know that I could. There is one thing certain. If that jetty is constructed you can berth general-cargo ships with merchandise from England, and leave the timber-ships the whole space outside of that.
413. Did you not suggest some time since the construction of a quay from the present Admiralty Wharf out to Lady Macquarie's Chair? I did. Looking from the point down to the Admiralty Wharf it struck me that it would be a very good place to berth all the mail-boats, and I do not think it would be a very expensive undertaking.*
414. Are you still of opinion that that would be a feasible plan? Yes; but I was not aware until now that the Admiralty claimed any portion of it. Of course they would have to give up that berth on the proposed wharf.
415. Is it only within the last few years that you have been largely using Cowper Wharf for a timber-wharf? Yes, about four years.
416. Prior to that, where did the greater number of ships discharge? At the Circular Quay and at Dibbs' Wharf.
417. I understand they will not allow timber to be landed at the Circular Quay, owing to its bulkiness? Yes.
418. Are there any objections to landing timber at Dibbs' Wharf and other wharves other than those which existed when you landed timber there? No. We find that purchasers prefer Cowper Wharf, because there is a better get-away. All the back wharves have steep gradient approaches, and you cannot take as much timber from any on a dray as you can from Cowper Wharf.
419. The wharves further up Darling Harbour are not sufficiently spacious for timber? On the Sydney side you cannot land timber, and on the other side I do not think there is water enough for a ship of any great tonnage. You have to partly discharge cargo before you get the ship into the wharf.
420. Is it not a fact that a larger proportion of the imported timber coming into Sydney now is discharged at private wharves—the consignees' own wharves—than at any previous time in the commercial history of the Colony? Yes. The operations of timber merchants are larger, and they are able to buy whole cargoes. Before they could only buy portions.
421. Many years after you were first interested in the trade nearly every cargo was submitted to the trade generally, but now it has become the practice for retail timber merchants to import their own cargoes and land them at their own private wharves? Yes.
422. Mr. Suttor.] Do you know if Cowper Wharf is used largely by other ships than those you speak of? Yes. All the berths are full. I have seen ships with general merchandise there.
423. Have you had difficulty in getting berths at Cowper Wharf? No; perhaps we have had to wait a day or two, but no longer. That might be the case at any wharf.
424. I suppose that sometimes you use private wharves? Yes, frequently. If I am going to store timber for any length of time, I take a private wharf, because they will not allow me to keep it on a Government wharf.
425. What is the advantage of using Cowper Wharf when your place of business is so far away? There is a better get-away. You can get quit of the timber much easier than at any other wharf, because there is a greater space to work at.
426. If there were greater facilities at Cowper Wharf would it be used more? I am certain of it. Captain Jackson speaks of that portion of the wharf at the back of the Admiralty Wharf—that portion which has to be filled in—being kept as a bond or storage wharf. If so, it would pay very well; a rent would have to be charged. In fact it would be under his control.
427. Chairman.] But it belongs to the Admiralty? I am speaking on the assumption that the Admiralty will accept the position further on.

THURSDAY, 20 SEPTEMBER, 1888.

Present:—

The Honorable JOHN LACKEY (CHAIRMAN).

The Hon. GEORGE CAMPBELL.	ALEXANDER KETHEL, Esq.
The Hon. WILLIAM HENRY SUTTOR.	JOSEPH PALMER ABBOTT, Esq.
The Hon. JAMES WATSON.	JOHN RENDELL STREET, Esq.
The Hon. FREDERICK THOMAS HUMPHERY.	JACOB GARRARD, Esq.
HENRY COPELAND, Esq.	SYDNEY SMITH, Esq.

The Committee further considered the proposed improvements and additions to the wharfage accommodation, Woolloomooloo Bay.

[The Chairman reported that several members of the Committee—Mr. Campbell, Mr. Suttor, Mr. Kethel, Mr. Abbott, and himself—had that morning visited Woolloomooloo Bay, and, by personal observation, and inquiry from persons engaged at the wharves there, had made themselves better acquainted with the works represented in the proposals before the Committee.]

James Barnet, Esq., Colonial Architect, sworn and examined:—

- J. Barnet, Esq.
20 Sept., 1888.
428. Chairman.] Have you occupied your present position of Colonial Architect for many years? Yes.
429. Have you been charged with the different works to be carried out under an arrangement made between the Imperial and Colonial Governments with respect to naval matters? Yes, at Garden Island, Woolloomooloo Bay, and Spectacle Island. 430.

*NOTE (on revision):—I am told there is a depth of water 30 feet all the way from the baths to the point, immediately outside the straight ledge of rocks; and without encroaching on the Domain beyond the present line of the existing fence, an esplanade, 200 feet wide, could be formed, and the material for filling in and levelling is on the spot.

J. Barnet,
Esq.
20 Sept., 1888.

430. Have you anything to do with other works? No; with the exception of the Admiral's house.
431. The reason why we have been brought to this investigation is that we have had placed before us proposed improvements at Woolloomooloo Bay. We find that an Admiralty Wharf forms part of the wharf improvements we are now considering. They have been inspected by several members of the Committee, and we find that the works on the Admiralty Wharf are *in statu quo*. Comparatively nothing has been done. There is a wharf, but no improvements of any moment carried out? No; the foundations for the store are found to be very difficult.
432. Is it proposed to build a store there? Yes.
433. Is it still intended to build a store there in addition to the store on Garden Island? I believe so. There is no store on Garden Island.
434. What works have been carried out on Garden Island? They have all to be carried out under my supervision. On Saturday, 16th June, I went over the Island with his Excellency the Governor and Sir Henry Parkes, and at their request I furnished them with a *précis* of the whole matter. That *précis* has just been read to the Committee.
435. Have you been aware of the interchange of certain lands between the Government of the Colony and the Admiralty, for any time? Yes.
436. Were you Colonial Architect at the time the arrangement was first made, a good many years back? Yes.
437. Do you recollect what the exchange consisted of at that time? I do not. The whole of the lands were leased to the Colonial Government.
438. How far did Dawes' Battery extend? It included the Corporation baths.
439. Did it include Dawes' Point absolutely? Yes.
440. And the Queen's stores? They were not included. They were not surrendered. I think they are not leased to the Government.
441. What else is there? Victoria Barracks.
442. And Imperial lands all through the country? Yes—at Newcastle, Parramatta, Liverpool, and other places. I think there was also something in Brisbane. I think Fort Denison was included.
443. In exchange what was given? Garden Island.
444. And a condition that a residence should be purchased for the Admiral? Yes; also the erection of a store at Woolloomooloo Bay, and at Spectacle Island.
445. When was that arrangement completed? About Sir Alexander Stuart's time.
446. Have the works at Garden Island been carried out at the expense of the Colony? Yes; entirely.
447. Do you know approximately what they cost? I cannot say from memory, but I stated the whole matter in a minute to the Colonial Secretary.
448. I find that there is a vote of £165,000 in 1888? Yes; it is in the present year's estimates.
449. And there is a past vote of £50,000? Yes; that is expended.
450. Is it still intended to carry out the improvements at Woolloomooloo Bay? I have had no instructions since I wrote that letter, describing the whole matter. When I met the Governor and Sir Henry Parkes at Woolloomooloo Bay, as well as at Garden Island, I produced a plan, and Sir Henry Parkes asked me to give him the particulars. I gave him a full history of the whole matter, pointing out that the erection of this store would encroach upon the Domain, as the plan would show.
451. What is the estimated cost of the proposed improvements at Woolloomooloo Bay? About £40,000.
452. I refer to the Admiralty portion of those improvements? As far as the store is concerned it will be £40,000.
453. Do you know whether it is the intention of the Admiralty to recommend that those improvements be carried out? I may say that the plans were made under the direction of an officer for the Admiralty, Mr. Fishenden. They were all approved, and copies sent Home to the Admiralty; and the store is a portion of what was approved of by the Admiralty.
454. Are you acquainted with the proposed improvements generally at Woolloomooloo Bay? No; I am not aware of them, except in connection with the Admiralty store. I know that Mr. Darley recommended that we should go further north to avoid the bad foundation. I pointed out that it would perhaps be better to allow the Admiralty people to have some of the newly purchased property at the Circular Quay.
455. Would not going further north at Woolloomooloo Bay encroach still more upon the Domain? I do not think so. It would encroach upon the baths, which are Corporation property.
456. How are they held? I do not know.
457. Have you formed any opinion as to the propriety of building upon the frontage where the baths are? No.
458. Do you think it is a suitable place for the baths at all? No; not in the present condition of the water.
459. Supposing it was not used as baths, do you think it should be taken from the public, who now hold it for recreation purposes as a frontage to the Domain? No; but we have progressed so rapidly with wharfage frontage that we do not know where to go. When we visited Woolloomooloo Bay, Captain Hammill, of the Navy, was with us, and he expressed the opinion that Garden Island was the proper place for the store. The store was designed on the mainland principally to please the storekeeper of the time.
460. May not the present storekeeper hold a different view? He may. The objection the former storekeeper had was, that when contractors delivered the stores, it would be better to receive them on the mainland; but I think it is just as easy to receive them on the island. I was always opposed to building at Woolloomooloo Bay.
461. Can you form approximately an estimate of the value of the frontage given to the Admiralty in Woolloomooloo Bay? No.
462. You see from the plan that it is proposed to build a new jetty in the bay 700 feet long and 100 feet wide;—do you think that is a desirable improvement of the bay? That is a matter I have not studied.
463. Do you know whether the Admiralty improvements are nearly completed at Garden Island? The buildings I have had instructions for—that is, the barracks and the store—are completed, and the foundations are in for all the other buildings. Plans were submitted months ago. In fact, Sir Henry Parkes, when he was there the other day, asked what was the reason why the works were not going on, and I said they were simply awaiting his authority.
464. What was the cost of the Admiral's residence? I think it was more than £20,000.
465. Has there been further expenditure upon it since? Yes.
- 466.

J. Barnet,
Esq.
20 Sept., 1888.

466. Is it a very complete residence? Yes; it is now.

467. *Mr. Copeland.*] What is your opinion in reference to the construction of a jetty, 700 feet long, running out right into the centre of Woolloomooloo Bay;—do you not think it will interfere with the navigation of the bay? I have never considered that matter. I recollect that some years ago when a similar proposal was made in regard to the Circular Quay it was very strongly objected to.

468. Will it not have the same effect as if the bay had been naturally divided in two? Certainly, it will have that effect.

469. Can you give the Committee any information as to whether the same objects could not be carried out on the frontage without interfering with the navigation? No, I cannot. Wharf matters are outside my line.

470. What is the nature of the stores intended to be kept in the proposed new building in Woolloomooloo Bay;—any explosives? No explosives. Shipchandlery more than anything else. The explosives are supposed to be kept on Spectacle Island. Anyone who visits the Circular Quay Admiralty Stores will see that they comprise almost everything that can be mentioned.

471. Is there any equally suitable place on the other side of Woolloomooloo Bay without interfering with the Domain? I cannot say. In my opinion the store should go to the island.

472. Your opinion is decided that it should go to the island? Yes. In its present position it will necessitate the removal of the stores twice.

473. Do you know if the opinion of the present Imperial storekeeper has been taken on the question? I am not aware. I know that the former storekeeper was very strong on the point of having the stores at Woolloomooloo Bay.

474. Is there plenty of water alongside the island for vessels to discharge stores? There is a wharf now erected which the "Nelson" could lie alongside of. It would only be necessary to lay down rails and build the store in a suitable situation.

475. Did the storekeeper at that time give any reasons for desiring to have the stores on the mainland? The principal reason he gave was that contractors should bring their goods to the store on the mainland instead of to the island; but I could not see the force of that reason. There were quarters for himself there, and perhaps that was the principal reason.

476. Is it intended to bring the Imperial vessels alongside these stores and load them as required? I think not. The stores have to be taken out in tenders to the ships. Ships bringing stores from England would come alongside.

477. You are not charged with the building of the proposed jetty? No; the agreement was that Mr. Moriarty was to do all the waterwork and put in the foundations. We were to work jointly so as to get the matter out quickly.

478. *Mr. Garrard.*] There is a plan here showing the original site of the Admiralty Wharf, and also the proposed alteration;—do you recognize it as yours? No; it is not my plan.

479. Have you ever seen it before? I think I have.

480. Where did it come from? It is from the Harbours and Rivers Department.

481. It is a sketch plan showing how the site of the building might be altered? Yes; Mr. Darley proposed to put the stores underground.

482. Upon this there is a minute endorsed to the effect that you see no objection to the removal to the new site, but you objected to inflammable stores being together? Yes.

483. Can you tell us what plans you prepared originally for the Woolloomooloo site? The whole matter is shown on the plan I now produce.

484. Has this plan received the approval of the Admiralty? Yes; this is a copy of the plan which received the approval of the Commodore.

485. Were there any detailed descriptions given with it? No.

486. Do you recognize this paper as being the specification of the work to be performed? Yes.

487. Is the work there mentioned included in your plan? Yes.

488. *Mr. Campbell.*] Was anyone present representing the Admiralty when the works were recently visited by the Governor and Sir Henry Parkes? Yes; the Admiral and Captain Hammill.

PARLIAMENTARY STANDING COMMITTEE ON PUBLIC WORKS.

Wharfage Accommodation, Woolloomooloo Bay.

APPENDIX.

A

[To Evidence of Mr. Alexander B. Portus.]

MEMO. of Dredging performed at Woolloomooloo Bay from 1st January, 1881, until 31st December, 1887.

The attached memo. affords the information asked for by Mr. Humphery last night in connection with the Woolloomooloo Bay proposed jetty.

It will be seen that 281,650 tons have been lifted, at a total cost of £11,402 11s. 6d. for dredging and towing. Of this quantity, 191,295 tons were sewage deposit; the balance was original bottom removed to deepen the channel and wharf-berths for heavy-draught ships. The average cost of the dredging and depositing three miles outside of Sydney Heads has been 9³/₄d. per ton.

Sydney, 20 September, 1888.

A. B. PORTUS.

DREDGING at Woolloomooloo Bay.

Name.	Dredging.			Towing.		
	tons.	£ s. d.	per ton d.	£ s. d.	per ton d.	
1883.						
“Hercules”	42,750	1,013 10 7	5·69	757 0 7	4·25	
“Minos”	1,420	34 0 5	5·75	14 17 0	2·51	
1884.						
“Hercules”	2,600	73 11 2	6·79	98 11 8	9·1	
1885.						
“Hercules”	64,080	1,949 13 0	6·99	955 0 0	3·57	
“Sampson”	18,550	381 0 0	4·93	183 19 1	2·38	
1886.						
“Hercules”	45,710	1,258 11 0	6·60	678 0 0	3·56	
“Sampson”	101,980	2,609 15 0	5·16	1,117 2 0	2·63	
1887.						
“Hercules”	4,560	175 12 0	9·24	102 8 0	5·39	
	281,650	7,495 13 2		3,906 18 4		

MINUTES OF EVIDENCE.

(TAKEN BEFORE SECOND COMMITTEE.)

WHARFAGE ACCOMMODATION, WOOLLOOMOOLOO BAY.

THURSDAY, 15 NOVEMBER, 1888.

Present:—

The Honorable JOHN LACKEY (CHAIRMAN).

The Hon. GEORGE CAMPBELL.

The Hon. WILLIAM HENRY SUTTON.

The Hon. JAMES WATSON.

The Hon. FREDERICK THOMAS HUMPHERY.

JOSEPH PALMER ABBOTT, Esq.

HENRY COPELAND, Esq.

THOMAS MICHAEL SLATTERY, Esq.

JOHN RENDELL STREET, Esq.

DANIEL O'CONNOR, Esq.

The Committee proceeded to further consider the proposed improvements and additions to the wharfage accommodation, Woolloomooloo Bay.

Robert John King, Esq., sworn and examined:—

- R. J. King, Esq.
15 Nov., 1888.
489. *Chairman.*] You are engaged in mercantile pursuits in Sydney? Yes; and have been for some time.
490. You have had to do with the wharfage accommodation of the port amongst other things? I had a great deal in former days to do with the shipping.
491. Your firm was originally, I think, Thacker & Co., and then Thacker, Daniell, & Co.? Yes.
492. You are aware that the question now under the consideration of this Committee is the providing additional wharfage accommodation at Woolloomooloo Bay? Yes.
493. It is proposed to expend a considerable amount of money there in improving the wharfage accommodation for mercantile purposes generally, and for Admiralty purposes as well? Yes.
494. Have you seen the plans? Yes.
495. Have you given any attention to the necessity for improving the wharfage accommodation of our harbour? I have; and, I think, with some alterations of these plans, that it would be a great benefit if a portion of the trade—the discharging of inward cargoes—could be diverted to Cowper Wharf, so as to relieve the Circular Quay, and leave the wharf entirely for loading. At the present time it is very often impossible to get vessels into the wharves from the want of room.
496. Is the whole of Woolloomooloo Bay known as Cowper Wharf? I believe that name applies to the whole wharf; I have always heard it called Cowper Wharf.
497. You think it would be an acquisition for commercial operations if additional accommodation were given there? I think it would be a very great benefit indeed.
498. You are aware that it is the property of the Government? Yes.
499. You think the property is of so much value that it ought to be improved to its fullest extent? There are capitalists in Sydney who would be very glad to take it from the Government, and to lay out the money which the Government propose to expend upon it. I have consulted with several gentlemen about the matter, and I think there would be no difficulty at all if the Government wished to lease the property.
500. Are you aware of the character of the proposed improvements? Yes.
501. You know the jetty which it is proposed to erect? Yes.
502. And you are aware of the small jetty existing there now? Yes.
503. Do you think the proposed improvement a desirable one? I think that the proposed jetty should be widened, that on each side there should be about forty feet, with a roadway of fifty feet for the drays to go up. The drays would not then go in among the goods, and there would be very little labour in passing the goods on to them. If there were a fifty feet passage for the drays, trollies could carry the goods from the ships, and they would not get damaged, as is now the case on our wharves.
504. Then you would give sufficient room to enable the drays to be taken up right to the centre of the jetty, with room to load or unload at either side? Yes.
505. Would that be better, do you think, than a tramway? I think it would be better. There is only one handling. The trolley runs flush with the ships; the heavy luggage is then put on; and there is no second handling.
506. That would necessitate the jetty being considerably wider than is now proposed? It would need to be 130 feet wide; it is now 100 feet wide.
507. The additional thirty feet would give sufficient room, you think, for carrying out the different work that would be required in the way you describe? Yes.
508. You know nothing, I suppose, about the proposed Admiralty Wharf at Woolloomooloo Bay? Nothing beyond what I have seen on the plan.

509. Is it the fact that, from the means of access to the water being more level on that side, the wharf would be appreciated to a greater extent than some of the wharves in Sydney? I am sure it would. I have spoken to some of the draymen on the subject, and they would far sooner cart from Cowper Wharf than from any other wharf in Sydney, except of course the Circular Quay, where the get-away is very good. R. J. King,
Esq.
15 Nov., 1888.
510. Of your own knowledge, would the facilities for access to Cowper Wharf be greater than they are now to many of the wharves at Darling Harbour? Yes; I am sure they would.
511. The ascents are not so great, and necessarily the horse-power required to move goods to warehouses in the city or other places would be less? The haulage would be very much less from Cowper Wharf.
512. You have had a great deal of experience with shipping, I suppose, in the commercial establishments you have been identified with during a number of years? Yes.
513. And the nature of the access to the wharf has always exercised considerable influence upon the removing of goods? The preference has always been given to the Circular Quay, on account of the get-away being so good.
514. The Circular Quay is regarded as a wharf offering greater facilities for traffic than other wharves—those at Darling Harbour, for instance? Decidedly so.
515. And Cowper Wharf would be regarded in a similar light? I think so. I do not think Cowper Wharf is quite as good as, but it is the next best wharf to, the Circular Quay.
516. In point of facility of access? Yes.
517. *Mr. Abbott.*] You said just now that you would have the Circular Quay as a loading wharf, and use Woolloomooloo Bay for discharging at;—would a vessel load at one wharf and discharge at the other? That is what they invariably do at the present time. They discharge their cargoes at the back wharves, and then when they are ready to load wool they lie alongside the Government wharf at the Circular Quay.
518. Do you not think that a jetty 700 feet long running out into Woolloomooloo Bay would interfere a great deal with the navigation of that bay? No.
519. Do you not know that that system was objected to years ago as applied to the Circular Quay? I believe it was.
520. And generally condemned? Yes.
521. Have you seen the report of Mr. Powell in reference to the harbour accommodation of the port? I read something in the paper the other day about the Circular Quay; would that be the report you refer to?
522. Yes. Do you know that he stated that the present wharfage accommodation is ample for all the shipping that comes into the harbour—more than ample? Yes.
523. Is that the case? I rather question it.
524. Do you know that any ships are unable to get berths to discharge their cargo here—not particular berths, but unable to get accommodation at all? I believe that at times there is a difficulty; and that that was the reason why some ships first went to Cowper Wharf.
525. Can you mention any instance? Dangar, Gedye, & Co. were unable to get berths some time back, and they were the first to send ships to Cowper Wharf.
526. Is Cowper Wharf utilized now to the fullest extent? I have seen Cowper Wharf full, not room for another ship.
527. That is very rare, is it not? No; I have seen the wharf, and thought it a very busy place.
528. *Mr. Suttor.*] Do you know if many ships discharge at Cowper Wharf? A good many ships have discharged there; I have seen the wharf full of ships. I used to go by there very frequently, and I have seen five or six ships lying there at a time, some of them large London ships. About 50,000 tons of large pipes have been discharged at Cowper Wharf.
529. How long since? About eighteen months ago.
530. The pipes for the Sydney water supply scheme? Yes.
531. That is not likely to occur again? No; but these ships bring large general cargoes.
532. Do you know that there is a great deal of accommodation on the west side of the Circular Quay, and that it is proposed to erect wharves there;—would not the erection of those new wharves have the effect of giving all the additional accommodation required? My idea is that the small steamers will require all the accommodation at the Circular Quay.
533. But provided they make fresh accommodation for small steamers, such as the Watson's Bay boats—it is proposed to remove them to fresh wharves? Yes.

Captain Henry Coey Kane, R.N., H.M.S. Calliope, sworn and examined:—

534. *Chairman.*] You are the captain of Her Majesty's ship Calliope? Yes.
535. Are you acquainted with the site of the proposed Admiralty Wharf at Woolloomooloo Bay? Yes. Capt.
H. C. Kane.
15 Nov., 1888.
536. Have you given your attention to the nature of the improvements proposed to be made there? Yes; the Admiral has spoken to me about them.
537. A site has been reserved for an Imperial wharf? Yes, for many years past.
538. And for stores also? Yes; so I understand.
539. Some alteration of opinion has occurred as to the character of the site. This is an alternative site that we are now speaking of. The original site was objected to on the ground that it was not possible to find proper foundations for the stores? Yes.
540. Then it was considered desirable to alter the site to one further north? Considered desirable, but not in any way by the Admiral. The Admiral is in no way a party to the alteration.
541. We are anxious to know the opinion of the Admiralty with regard to the proposed new site to enable us to perfect the improvements proposed to be carried out;—do you know whether the Admiralty has given

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given any consideration to the site? The Admiralty has not yet had an opportunity of expressing an opinion on the subject, because the Admiral, although he received a letter about it a couple of months ago, was away, and the matter was very indefinite. It was understood that the question was going to be considered by this Committee. He therefore wrote a letter expressing in general terms his willingness to advise the Admiralty to assent to anything which would not prejudice the navy in what they had at present:

542. That is exactly the feeling as far as we are concerned. Then of course there is no strong opinion on the part of the Admiralty with reference to one site or the other so long as they get a desirable one? In view of the fact that there is no foundation for the store at the rear of the old site, there is no question something must be done. Whether the new site is the best that can be obtained may be a matter for consideration. The opinion of the Admiral is that there should be a pier of suitable length. The new pier is to be altogether 558 feet long, 320 feet of it to be devoted to the navy. That does not seem to be quite as much as existed in the old pier. It appears that the navy loses in that respect. That is one point to which the Admiral desires me to call attention. In the next place the stores should be as large and built practically on the plan which has now been approved for five years—on the 13th March, 1884. The plans having been approved for these buildings, the Admiral of course could not advise the Admiralty to agree to any reduction in the space or style of the buildings. Then this quay or pier in front of the store should be exclusively reserved for the navy. This, from a military and naval point of view, is very important. I think everyone will agree that we cannot get on with our work in a satisfactory way if all the larrikins of the town are allowed to loaf about the wharf, and if carts are coming backward and forward blocking up the road. In that connection I may mention that the present state of the frontage to the depôt at the Circular Quay is about as bad as it can be. We are experiencing what a bad thing it is to have a depôt without having the whole frontage of that depôt belonging to us.

543. Have you visited Woolloomooloo Bay? Yes; several times. I know the place fairly well. Of course I cannot give an opinion upon such technical points as to whether there is a good foundation behind the proposed site. The only point that struck me was as to whether or not there was sufficient space behind the new pier and in front of the hill to build the stores. I am told that it has been surveyed, and that by cutting into the hill it can be done. All that we want is to get the stores.

544. I suppose, generally, as far as the Admiralty are concerned, if the original conditions and stipulations are carried out as to the frontage and capacity of the stores they will have no objection? I do not think that under those circumstances there would be any objection on the part of the Admiralty.

545. As far as I can see the alteration has been made in the interests of the Imperial service, because it was found that the original site failed as far as the foundation of the stores was concerned? Undoubtedly it is in the interests of everybody that the agreement which was come to several years ago should be carried out.

546. But the original agreement could not be carried out because nature interposed? I am referring back to a more ancient agreement, by which the Colonial Government agreed to provide proper stores and so on for the navy, and a proper wharf. At the time this first agreement was made, in 1882, there was then no question about the particular site which was afterwards chosen. It was then merely whether or not it should be put in Woolloomooloo Bay. It was once a question whether it should be at Dawes' Point or Fort Macquarie. The agreement by the Colonial Government to provide suitable stores is relied on.

547. But this forms part of the original agreement upon which the exchange of Garden Island was made? Yes.

548. It is in carrying out that part of the agreement that our condition failed of putting stores on the original site. It is necessary to select a site further north, and we are anxious to know the opinion of the Imperial authorities? The Admiral desired me to state in his name that provided the new buildings are in accordance with the contract, and that the water frontage is sufficiently deep, there will be no objection on his part to change the site, and he will recommend the Admiralty to adopt it.

549. Mr. Copeland.] Has your attention been drawn to the jetty proposed to be run into the centre of the bay? I have seen it on the plan, but not *in situ*.

550. Do you think that jetty extending 700 feet into the bay will cause any difficulty in handling vessels and berthing them? It did strike me at the time that the extent of deep water on either side of the pier was not very much, and that there would be some difficulty in getting vessels alongside and away from it, but I do not think it is insuperable.

551. Would it do an injury to the bay to build such a jetty? Speaking in such general terms as I can, I think it is a step which would more or less injure the bay in several ways, but which might be undertaken to meet the necessities of commerce, which should come before everything.

552. Will it injure the bay with respect to the berthing of vessels? No doubt it will make difficulties in berthing vessels around the shore. It will be less easy to come alongside the present jetties than if the pier were not there.

553. Would you recommend that such a jetty should be taken into the centre of a narrow bay, supposing that it was properly a naval harbour under the control of the navy? No; but the conditions of a naval harbour and a commercial harbour are entirely different.

554. Could you manœuvre a vessel easily in that bay with a jetty 700 feet long? Undoubtedly not. It would be more easy in a schooner or coaster to come alongside one of the small piers or jetties which exist at present without the pier than with it. The pier would be an impediment undoubtedly. At the same time one thing has to give in to another.

555. Do you think that the additional length of wharfage accommodation would more than compensate for the inconvenience which would be caused with respect to the berthing of vessels? It is not a subject to which I have paid particular attention, nor is it one in which I feel I would be very competent if I had paid attention to it. It is entirely a commercial question. If you ask me if I could bring my ship alongside that pier without danger or difficulty I will say yes; but I am not prepared to go into the question as to whether or not it is a good thing for merchant vessels, because I do not know what are the conditions.

556. I understand you are erecting naval stores and wharves on Garden Island? Yes.

557. Then what necessity exists for additional stores here? The buildings which are being erected on Garden Island are not what are properly called stores. They are buildings for making repairs to ships, for making castings, in fact the general workshops you have in a factory like Mort's. The building which

is to contain all the rope, all the provisions, and the other hundred things required for the ships, was to be put on the main land. The question was raised at one time as to whether or not those stores should also be on Garden Island. There were several objections, one being that there was not room on Garden Island without removing a hill which exists there, and which would involve a great deal of expense. The main reason why the store, as distinguished from the factory, was proposed to be kept on the main land was the fact that it would be more convenient for the ships to go to the main land for their stores. A large number of stores are bought in the town, and these are continually coming in from all quarters. It was thought at the time that it would be inconvenient to have this depôt on an island, as it would necessitate constant lighterage backwards and forwards.

558. Will there be any explosives placed in these stores? No; they are all stored at Spectacle Island.

559. What is the length of the water frontage formerly proposed to be given? I think it was 400 feet, and the length proposed in the letter to the Admiral was 320 feet.

560. Do you think that it is absolutely necessary that the Admiralty should have absolute control over this wharf? I think so.

561. And that the public should be excluded? I think so. I think that is very necessary for the efficient carrying out of the service, which is for the well being of the Colony, and not merely a question for us. I may point out that an accession to the fleet, known as the Australian Squadron, will be coming out next year. We have now no fit place to put our stores, and what we are to do when the five extra ships come out, I do not know. The old depôt is decayed. We cannot stow things on the upper floors. They are crowded together in a most inconvenient manner down below. Five years ago the Government drew out the plans. Nothing has been done since.

562. Do you think that the necessities of the service will require such a large strip of water frontage to be locked up specially? Perhaps I had better put it that the Admiral thinks so. I am directed by the Admiral to express his opinion strongly on that point. It is quite certain that the Admiralty would, as far as lay in them, claim that part of the agreement, that the jetty as well as the stores should be exclusively devoted to the navy, and railed around, or otherwise separated from the Domain or general thoroughfare.

563. Would the navy use this particular wharf in future so that all traffic between the ships and the shore would be directed to this particular spot? All the traffic would. I do not mean to say that we should never land at Fort Macquarie steps. All our traffic, with regard to stores, would naturally be concentrated at this wharf. Of course, we would, I suppose, be allowed to land at Fort Macquarie steps as well as the rest of the world.

564. *Mr. Street.*] I think I understood you to say that you did not see any insurmountable objection to having the stores proposed to be erected at Woolloomooloo Wharf erected on Garden Island? That is a question which the Admiral spoke to me about, and, with the permission of the Committee, I will go into that, though it did not appear to me to be a question on which I should speak without being asked. The Admiralty having agreed to a definite plan which was proposed and sanctioned by the Government, the Admiral feels that it is not his place to initiate any change. On the other hand things have changed to a certain extent, and he thinks, as he has heard it mooted in some places, that if a change could be made to Garden Island, if Garden Island could be levelled right through—which will involve a considerable sum of money, but I do not know how much—if the same sized building as is shown on this plan were built on Garden Island, and if at the same time we had in some convenient position in the town an office for the paymaster, and a small receiving store, where the townspeople who contract to supply the navy with various articles, could deliver the goods, it is a question which might be submitted to the Admiralty whether it would not be better to have the depôt at Garden Island.

565. Your opinion is that it might possibly be a greater convenience for the service to have all your buildings within a short radius? I am rather of that opinion myself. I am not prepared to give it as the Admiral's dictum that it is so. I have for some little time past been in favour of that idea. Of course there are many considerations. It might cost much more, and it might not be convenient to give an office and receiving store in the town. But that is a feature which the naval authorities, and probably most people, will think is a necessity. You could not have a person who wanted to see the paymaster for five minutes to talk about a contract going over to Garden Island. On the other hand when he had to deliver some small goods he could not be expected to pay for lighterage, nor could we. Therefore the proposal to have the depôt at Garden Island would involve, in the opinion of the Admiral, an office and receiving-room at some convenient place in the town.

[*Mr. Suttor* : At this stage I wish to raise a point of order. The Public Works Act at Clause 12, says :—
“The Committee shall, subject to the provisions contained in the next following section, consider and report upon all public works (except fortifications and works connected with the military or naval defence of the Colony),” &c. It appears from Captain Kane's evidence that there can be no doubt that these works are connected with the naval and military defence of the Colony, and that being the case, I submit that it is clearly out of order for the Committee to deal with this matter in view of the express wording of the Act. I submit that it would be better to get the opinion of the Attorney-General on the point as to whether or not we can take these works into consideration.

Chairman : As far as my opinion goes, the course the questions have taken is quite in keeping with the object for which we have met to-day. We have met for the purpose of considering improvements in Woolloomooloo Bay generally. When we proceed to the consideration of these improvements we find that a portion of them are included in an agreement made and completed between the Imperial authorities and the Government of this country, completed and not pendent in any sense. That is for the exchange of land at Garden Island for Imperial lands in different parts of the city. Part of that agreement was that the Government should give the Imperial authorities a wharf at Woolloomooloo Bay, and construct stores on the wharf or behind it. It was subsequently found by the skilled men employed to carry out those works that there was a difficulty in getting foundations for the stores on the site first proposed. It was then proposed to alter the site of the Imperial wharf from one site to another. When we come to consider these improvements we desire to ascertain the opinion of the Imperial authorities as to the change of site, and it seems to me to be quite in order to ask these questions from the gentleman now giving evidence before the Committee as the representative of the naval authorities. I take it that there is nothing extraneous or irregular in the character of the evidence sought to be obtained from the gentleman who has so readily and kindly come here on behalf of the Imperial authorities.]

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566. *Mr. Street.*] Do you think that privacy and freedom from obstruction by the general traffic of the city could be better obtained by the erection of these stores at Garden Island rather than at Woolloomooloo Bay? I think they would. I think that the advantages of privacy and security of the stores would be increased by having them at Garden Island instead of at Woolloomooloo.

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Mr. William Glen Deuchar sworn and examined:—

Mr. W. G. Deuchar.
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567. *Chairman.*] In what occupation are you engaged? I am shipping clerk for Dangar, Gedye, & Co.
568. Have you had considerable experience in shipping business? Yes; for ten years. I manage the whole of the shipping business for the firm.
569. Have you had an opportunity of becoming acquainted with the shipping accommodation at the whole of the wharves in Sydney? Yes; we generally have most connection with the Circular Quay.
570. Is there a scarcity of wharf accommodation? At times there is. In 1885–86 we had the ships carrying pipes for the Sydney water supply, and on one occasion we had three ships lying in Neutral Bay for a week or ten days. We could not get a berth at the Circular Quay. At last we applied to the Government, and they authorized us to take the ships to Woolloomooloo Bay. We did so.
571. Have you ever known the same pressure to exist since? No.
572. Have you ever known a scarcity of wharf accommodation at the wool season or any other time? No. I think if many vessels came in at present from London, and we wanted berths at the Circular Quay, there would be great difficulty.
573. Is there a particular kind of commerce carried on at Woolloomooloo Bay? No; we have had ships there with general merchandise.
574. Is it not generally used for blue metal and timber? Yes.
575. Does that require a certain amount of accommodation? Yes.
576. Do you think that if the proposed improvements were carried out at Woolloomooloo Bay it would interfere with the commerce of the port? No; I think it would be the other way. As far as we are concerned it would be. We have ships coming here now, which we would be quite willing to send to Woolloomooloo instead of to the Quay, and that would give more space at the Circular Quay for steamers.
577. Do you think that the long jetty proposed to be constructed is a desirable improvement? Yes; my idea is that it should be about 130 feet wide,—50 feet for drays, and 40 feet on each side for goods.
578. Is Woolloomooloo Bay favourably regarded for facility of access? Yes; the grades are better than at some of the other wharves.
579. Do you think that the existing wharfage accommodation is sufficient for the commerce of the port? I think it is at present; but if it goes on increasing at the present rate there will not be sufficient accommodation.
580. During the wool season have you seen much inconvenience from the want of accommodation? Yes; we have sometimes been obliged to keep ships out for a week, and sometimes we have had to lighter the wool to the ship out in the stream. There is very often a rush of inward cargo vessels which have the preference for berths at the Circular Quay, and the wool ships are consequently shut out. If these improvements were carried out at Woolloomooloo Bay we would send general cargo ships there, which would leave space available at the Circular Quay for wool ships.
581. Do you think that if Cowper Wharf had belonged to private individuals these improvements would have been carried out before now? I think improvements would have been made, but I do not know to what extent.
582. *Mr. Watson.*] You said that during 1885 you had three vessels lying in Neutral Bay;—what did that arise from? We were bound to discharge their cargoes of pipes at the Circular Quay, and we could not get berths there.
583. Were there not other berths available? We would not be able to cart the pipes from the other wharves. The carters objected. They said they could not carry out their contract.
584. At the large wharves have they not machinery to lift the pipes? The expense would be much greater.
585. Then it was on the score of economy for yourselves that you wanted to go to the Circular Quay? No, not that alone. It was on account of the charterers of the ships.
586. You were acting as agents? We acted as their agents, and we did the best we could.
587. You do not put all the ships of your firm to the Circular Quay? No.
588. Will it be as convenient for carters to land goods at Woolloomooloo Bay as at the Circular Quay and other wharves? Not as convenient as the Circular Quay. I have heard it remarked by draymen that the Circular Quay is the best wharf in Sydney.
589. *Mr. Street.*] Do you say that the firm you are connected with give the preference to the Circular Quay? Yes; we are not interested in any wharf, and we prefer the Circular Quay when the ships are free. But some come in fixed for certain wharves.
590. Is any rebate given now by private owners? Not that I know of.
591. If rebates were given would not the other wharves compete very much with the Circular Quay? Yes; we would put our ships where we could get most.
592. Have you ever found a difficulty in getting accommodation for inward cargoes? Yes; in 1885 and 1886.
593. With regard to the ships detained for a time during the wool season, was that only for a short time? Yes; it was not a very great inconvenience.
594. *Mr. Suttor.*] Do you unload many ships at Woolloomooloo Bay during the course of the year? We have not had any ships there since the pipe ships, because we have always got accommodation at the Quay. But if these improvements were made we would put our ships there, and leave more space at the Circular Quay.
595. Are you aware that more accommodation is being provided at the Circular Quay? Yes.
596. Do you think that when that additional accommodation is provided at the Circular Quay there will be any necessity for this additional accommodation at Woolloomooloo Bay? I think it is required at the present time.
597. Is not Woolloomooloo Bay at a great distance from the city? Not greater than other wharves, except the Circular Quay.

598. Is it likely to be used if other wharves are available? It all depends. If the Circular Quay was full we would avail ourselves of Woolloomooloo Bay. We would sooner go to the Circular Quay. We have a large steamer coming in now, and I do not know that we shall be able to get accommodation at the Circular Quay. If there was no accommodation there we would send her to Woolloomooloo Bay.
599. If there was accommodation at the private wharves, would you prefer to go to Woolloomooloo Bay? Yes. Our ships generally load wool, and our reason for putting them at the Quay is that we only pay half dues there. That is $\frac{1}{4}$ d. a ton per day instead of $\frac{1}{2}$ d. The next best thing is to put them at Woolloomooloo Bay.
600. *Chairman.*] Have you considerable imports as well as exports? Regularly eight or ten ships every year. Sometimes a great deal more. We export largely—wool, tallow, hides.
601. Do you think that the wharfage accommodation is in excess of the commerce of the port at the present time? I do not think so.
602. Do you think that the commerce of the port is increasing very largely? Yes, very much.
603. Do you think it will go on increasing, and that consequently more accommodation will be required? Yes.
604. That being so, are you of opinion that these proposed improvements should be carried out at Woolloomooloo Bay? I think so, to a certain extent. Of course I am not aware of the whole of the improvements proposed. As far as we are concerned the jetty would be a very desirable improvement. If it were 130 feet wide it would be the best wharf in Sydney for unloading cargo; I will not say for loading, because there are no dumping stores, and unless they are erected we could not load wool ships there.
605. Do they dump now on many stations in the interior? Yes; they are now going in for dumping on every station which has over 1,000 bales.

Mr. W. G.
Deuchar.
15 Nov., 1888.

Mr. George James Harvison sworn and examined:—

606. *Chairman.*] Are you shipping clerk in Hoffnung & Co.'s? Yes; I have been so for five or six years.
607. Have you had a good deal to do with the shipping of the port during that time? Yes; with all shipping connected with the firm.
608. Have you had an opportunity of seeing the surroundings of the wharf accommodation and appliances? Yes.
609. Do you export as well as import? Yes; but not very largely. It is all intercolonial trade—general merchandise. We import very extensively from England and nearly all the ports.
610. What wharves do you do business with generally? Several of the ships come to the Circular Quay, Dibbs' Wharf, and Dalton's Wharf, and all round. We have ships occasionally at Woolloomooloo Bay.
611. Do you think that the commerce of the port is increasing largely? Yes; it has increased wonderfully during the last three or four years. I think it will go on increasing. The imports are certainly on the increase.
612. Do you know the wharfage accommodation at Woolloomooloo Bay? I have seen it frequently. We have had ships consigned there.
613. Have you found that it gave abundant facilities? It is far better than the back wharves, not for the accommodation there at present, but for the access to it. The haulage from the back wharves is very great. No one would attempt to bring up a couple of tons from those wharves with less than three or four horses. From Woolloomooloo you could bring a ton on a one-horse dray, and a couple of tons with two horses. That is a matter of considerable moment to importers. Another consideration is that to get to the back wharves you have to go through the busy part of the city where traffic is considerably impeded. In Woolloomooloo there is very little to obstruct the traffic.
614. Have your vessels had no difficulty in coming up to the wharf at Woolloomooloo? No. They drew a good depth.
615. Are you clearly of opinion that the commerce of the port renders it absolutely necessary to have additional wharfage accommodation? I have no doubt of it.
616. *Mr. Watson.*] What position do you hold in the firm of Hoffnung & Co.? I am despatch and shipping clerk.
617. Do you deal with exports? I deal with all the imports.
618. Not with the consignment of vessels? No; I have nothing to do with that.
619. Then you do not know anything of the shipping of the port so far as inward vessels are concerned? I have to deal with incoming shipments, but I have nothing to do with the vessels.
620. How many vessels do your firm get consigned to them? Twenty or thirty or something of that sort.
621. Who looks after them? Another man looks after the ships when they are consigned to us.
622. As a matter of fact, you know nothing of the vessels consigned to the firm? No.
623. Do you do not know anything about the accommodation? No; except as it concerns myself. I have nothing to do with the shipping.
624. *Mr. Campbell.*] Has your house any store or stores at Woolloomooloo? No; we have stores at the Circular Quay.

Mr. G. J.
Harvison.
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Captain Alexander Young sworn and examined:—

625. *Chairman.*] Are you master of the ship Gretna? Yes; she has traded to this port for some years from London. She is a wool ship, and I am loading wool now at the Circular Quay. She is 1,705 tons register.
626. Have you found any difficulty during the time you have been trading here in getting wharfage accommodation? Yes; I was detained a week three years ago, when I wanted to load wool at the Circular Quay.
627. Have you found any difficulty in getting a berth to discharge inward cargo? I had a little difficulty this voyage, but I got half a berth at Woolloomooloo Bay. I think Cowper wharf could be greatly improved. I discharged a cargo of timber there. I think 100 feet will not be sufficient width for the new jetty. It should be 150 feet wide altogether. That would allow a dray to turn.
628. How long have you been trading here? Eighteen years.

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- Capt. A. Young.
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629. Have you seen a great increase in the commerce of the port? Yes; especially at the Circular Quay. It has been growing all that time. I do not see why it should not go on increasing.
630. Do you think that the proposed improvements at Woolloomooloo Bay are desirable? I think they are wanted very badly.
631. If the property belonged to private firms do you think that increased accommodation would have been given before now? Yes; long ago.
632. Do you think that the construction of a jetty would be detrimental to the commerce of a bay like that at Woolloomooloo? No; it would afford additional facilities.
633. Have you heard any opinion expressed as to Woolloomooloo offering greater facilities for haulage than some of the other wharves? I expressed that opinion myself before I had any idea of giving evidence.
634. Have you paid any attention to the improvements in wharves now going on around Darling Harbour? I have discharged at the Grafton, and several other wharves there. I know that most of the wharves have been improved, and are being improved.
635. Do you still think there is room for improvement at the Circular Quay? Yes; I think the present state of the Circular Quay would point to that. There is not a single berth vacant at the Circular Quay.
636. Can accommodation be got at private wharves? I do not know. It is a matter of drawing trade to the Circular Quay. All the wool ships would discharge at Woolloomooloo Bay, if there was no accommodation at the Circular Quay. Seeing that a very fair amount is obtained by the Government for ships berthed at the Circular Quay the accommodation might be better.
637. *Mr. Humphery.*] The new jetty will accommodate six vessels;—do you think that those six berths will be constantly occupied? I think so. If I had the same accommodation at Cowper wharf as there is at the Circular Quay, I would as soon discharge there as at the Circular Quay. If there was a jetty, and it was regulated more like a private wharf, I would prefer Woolloomooloo to the Circular Quay, because the latter is too open.
638. *Mr. Watson.*] You say you are charged a fair amount for wharfage accommodation at the Circular Quay. Have you been to Melbourne and Adelaide? Yes.
639. Are you aware that the wharfage rates there are double what they are at the Circular Quay? They are higher at Melbourne.
640. Why did you go to Cowper Wharf with timber? Because I knew I was going to load in Sydney, and preferred going to Cowper Wharf to any outside wharf.
641. Was there an outside wharf which could take your cargo? I think Smith's Wharf and several others could.
642. Do you not know that all timber ships which cannot go to the Circular Quay go to Woolloomooloo? No; a great many go to Johnston's Bay.
643. What is the advantage of discharging at Cowper Wharf with the view of ultimately coming to the Circular Quay? The advantage is that if we discharge at a Government wharf our rates at the Circular Quay are one-half while loading wool.
644. Can you not load wool at Lamb's Wharf? That is conditional on being consigned to Lamb's Wharf. He has his regular vessels; we are chartered to Burns, Philp, & Co.
645. With reference to this jetty, could you berth three ships at a jetty 700 ft. long? Not three vessels of our size. You might not always have ships of that size.
646. For the purpose of berthing three ships there would it not be advisable to make the jetty a little longer? Possibly that should be done, seeing that vessels are being made larger. There is room to make the jetty 1,000 ft. long without injuring the bay. You would then have more room to move ships alongside the jetty than there is in the London docks at any time.
647. If that jetty were run down the middle of Woolloomooloo Bay there could be no ships lying outside to load or unload? I think there would be quite room enough at the sides of the bay. There would be sufficient room to take in the largest vessels visiting your port.
648. *Mr. Campbell.*] Do you think that the existing passenger jetty will interfere with the proposed new jetty? I do not think so. There would not be room to swing a ship, but you could move her in and out. You would not be likely to have large ships at the small jetty. If there is 100 ft. of space that will be sufficient.
649. *Mr. Suttor.*] Have you had any difficulty in getting a berth since you were delayed three years ago? Not exactly a difficulty, except this trip; there was no berth at the Circular Quay and I do not think there is room at Cowper Wharf. I would not go there again with a general cargo.
650. It is proposed to make new berths on the western side of the Circular Quay;—do you not think that when they are finished they will be sufficient for present requirements? That is scarcely for me to say. You can always rely upon the Circular Quay being taken up for four months in the year with the loading of ships alone.
651. You have not had any great inconvenience during the last three years? I do not consider that I am at a loading berth now, but I had no choice. Three years ago there was one vessel lying out in the stream at the Circular Quay, and all her wool had to be lightered. There were three or four ships discharging at the west side of the Quay. If you had accommodation at Cowper Wharf those vessels might have been discharging there, and the loading ships could have got sufficient wharfage.
652. I suppose Cowper Wharf could only be used by vessels unloading? Yes; new stores might be put up there seeing the advancement of Sydney.

FRIDAY, 16 NOVEMBER, 1888.

Present:—

JOSEPH PALMER ABBOTT, Esq. (VICE-CHAIRMAN).

The Hon. GEORGE CAMPBELL.

The Hon. WILLIAM HENRY SUTTON.

The Hon. JAMES WATSON.

The Hon. FREDERICK THOMAS HUMPHERY.

HENRY COPELAND, Esq.

JACOB GARRARD, Esq.

SYDNEY SMITH, Esq.

JOHN RENDELL STREET, Esq.

DANIEL O'CONNOR, Esq.

The Committee further considered the proposed improvements and additions to the wharfage accommodation, Woolloomooloo Bay.

Captain Benjamin Jenkins sworn and examined:—

653. *Vice-Chairman.*] You have been a captain in the mercantile navy? Yes.
654. For how long? Over twenty years.
655. You are now a member of the Marine Board, are you not? Yes.
656. How long have you been living in Sydney? Since I first came here, nearly thirty-four years.
657. You have been a resident for many years? I have been trading here. I have always made Sydney my home since that time.
658. You know Woolloomooloo Bay very well, I suppose? Yes; I have taken cargo in there several times—timber.
659. You know Cowper Wharf that is there now? Yes.
660. And you have seen the plan of the proposed improvements to Woolloomooloo Bay, more especially that jetty? Yes; that long jetty.
661. How many large ordinary vessels can be berthed at Cowper Wharf at the present time without the jetty? I do not think they could berth more than three, leaving the jetties out.
662. Leaving the new jetty out, as the wharf is now? With the other jetty, of course, there is a vessel along each side—two vessels.
663. That would be five vessels? Yes.
664. What is your opinion about the advisability of constructing that proposed long jetty? It appears to be a very good idea; but I think it is narrow for that length. In my opinion three short ones would be better than one long one.
665. That is, I suppose, it is not wide enough to allow two ships to be taking in cargo, or discharging, on each side? No; the cargo would have to go down to the outer ships along the centre of the wharf.
666. Do you know the width of that jetty? No; I do not.
667. We are told it is 100 feet wide? That would not be wide enough to take two ships on each side.
668. What width would you say it ought to be? I should say it ought to be 140 or 150 feet.
669. Do you think there is any necessity for the Government to provide any more wharfage accommodation in Sydney than they already possess? I do not know. I have always considered that that wharf ought to be a timber wharf. That Woolloomooloo Wharf is admirably adapted for a timber wharf, for ships discharging long lengths of timber, simply because there is a get-away from it in different ways; and the wharves up here have not got that space.
670. Do you know whether the wharfage accommodation there is, at the present time, has ever been fully used, even for that purpose? No; I do not know that.
671. Then you do not know that there has been any demand for increased wharfage accommodation there for timber vessels? I wanted a berth there myself a short time ago, and, owing to the quantity of stone and things on the wharf, I could not get one.
672. But suppose the owners of that stone were compelled to take it away as quickly as it was discharged from the vessels, do you think then there would be any necessity for additional wharfage accommodation there? No; I think there ought to be enough, unless the trade increased of course.
673. But at the present time? At the present time I should think there would be enough.
674. I suppose you know that the stone is continually there—that the wharf is never cleared of it? No.
675. Do you think if the owners of that stone were compelled to remove it as quickly as it was landed, there would be plenty of accommodation for all the ships that would be likely to come there? Yes; I should think there would be.
676. Of course you would compel all ships discharging to do the same thing—clear their cargoes away as quickly as possible? The cargo should be allowed to remain a certain time on the wharf.
677. Do you think if the pier were built in the shape and position proposed, it might interfere with subsequent improvements to that part of the harbour? Undoubtedly it would.
678. Might it not interfere with other wharfage improvements to that part of the harbour—will they not be for all time bound to that system of wharfage, jetties—would it not interfere with the present wharfage accommodation? It certainly would, because you could not get vessels in on either side the same as you can now; still there would be two more vessels admitted that we could not get there now.
679. By reason of the jetty? Yes.
680. That is, the jetty would accommodate two more;—although the construction of the jetty would decrease the accommodation at Cowper wharf as it is, the jetty itself would increase the accommodation in the bay? Yes; about two ships more, I think.
681. Do you think it would be worth spending £42,000 to produce that result? I should not like to say that.
682. Do you think it would be worth while spending £27,000 in the present state of the wharfage accommodation? Even that I could not say.
683. Do you approve of this system of jetties at all for berthing ships? I do approve of them. At the Circular Quay you cannot put a ship well alongside; it is jammed up against it fore and aft, and 20 or 30 feet away amidships.
684. But do not ships at the Circular Quay come right up to the wharf; it is only a question of dredging? No; because it is curved.

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685. Do you think if that jetty were constructed in that position there would be room to run out other jetties subsequently, and work ships at them? I do not think there would be much room for other jetties.
686. And by constructing that 700 feet of a jetty, you think you are only giving additional berthing accommodation for two more ships? Yes; that is what I think.
687. *Mr. Copeland.*] Do you think there would be only room to berth one ship on each side of that jetty, 700 feet long? Two on each side only.
688. That would be four vessels? Yes.
689. Supposing that long jetty were constructed would it not make it much more inconvenient to berth large vessels at other parts of the wharf? There would be less room certainly.
690. There would not be the same room to swing? No; it would be more difficult to swing large ships with that wharf out that way.
691. Supposing nature had divided that bay into two bays, would you not consider it less serviceable than it is now;—supposing a reef of rocks ran along where it is proposed to put that jetty would you not think it a misfortune? Yes.
692. Would you not have gone to the trouble to blast out that reef of rocks so as to clear the harbour of all impediments to navigation? Certainly; there would not be much room for anything but merely to haul vessels in and out. They could not do then as they do now, sailing in and out from that wharf.
693. Supposing larger vessels were to go there than go now, vessels as large as those that now go to the Circular Quay, would it not be a great inconvenience to have that jetty protruding 700 feet into the bay? Yes; it would. I do not think that you could put large vessels such as you have at the Circular Quay at either of those corners.
694. That is if you built that long jetty? Yes; they would have to be smaller vessels.
695. On the whole, you consider that that jetty protruding 700 feet into the bay would be a serious obstacle to the navigation of the bay? Yes, it would, of course.
696. Supposing you were holding a responsible position in the Government service, would you, from your nautical experience, recommend a jetty like that to be built;—supposing we were asking your advice from a professional point of view, would you recommend it to be built? I would not object to giving my opinion for building a jetty like that so that timber ships could be discharged.
697. You think, in point of fact, it would be an improvement, do you? More ships would be able to discharge there.
698. Would that counteract any disadvantage owing to the impediment to navigation? Well, a vessel that now sails in and out would not be able to do it then; it would have to be towed or hauled in. It could not sail in with impunity as it can now.
699. Do you know any other traffic besides the timber traffic that that proposed jetty would be serviceable for? It might for ironwork such as boilers or water or drain pipes, or anything of that sort. It would be a handy place to discharge them.
700. Would that jetty have any advantages over an ordinary wharf alongside the shore on account of its reaching out into the middle of the bay? You would have deep water; that would be the only advantage.
701. These wharves at the shore would, of course, be dredged? Yes; still you have to go out a certain distance.
702. There is no special kind of traffic a jetty like that would be required for other than timber? I do not think so.
703. I suppose these timber vessels generally discharge through bow or stern ports, do they not? Yes; the 'tween decks is generally put through the bow ports, and the other very often through the stern port, or sometimes both holes are through the bow port.
704. Would there be any convenience for discharging timber through the bow port at that wharf, supposing that jetty were not constructed? You could haul the vessel's bow on to the wharf. At the outer wharf there you would not be able to discharge through a bow port; you would want a lighter.
705. Unless you launched the timber overboard? Into a lighter or launched it overboard. It is much easier to moor a ship alongside a jetty like that than to moor her bow on.
706. *Mr. Humphery.*] How many vessels will Cowper Wharf accommodate at the present time? I think about five, with the short jetty.
707. If Captain Jackson says the new jetty will give additional berths for six vessels, is he correct or not? That is according to the size of the vessels.
708. Vessels of 1,500 tons? That would be 300 feet long.
709. Captain Jackson says the length of the jetty would accommodate six vessels of 1,500 tons each; is that correct? I do not think that jetty would support more than two vessels on each side.
710. *Mr. Watson.*] You have been a long time connected with the port of Sydney? Yes; since 1854.
711. You have a great deal of knowledge of the wharfage accommodation of the port? Yes.
712. From your experience and what you know, do you think additional wharf accommodation is necessary? I think additional wharfage is required for timber. It is very awkward for timber vessels.
713. Cowper Wharf is almost the only place at which you can discharge timber? Yes. If you take it to the Circular Quay the long lengths have to go through the city, and they block the Quay. I have always thought that it ought to be left for timber discharging.
714. Exclusively for a timber wharf? Yes.
715. Do you think London ships would go there to discharge, as well as to the Circular Quay, or around to the Blackwall? They could do so.
716. Would it be to their advantage? I should prefer any of the wharves up here to going down there.
717. Are there any wharves at Darling Harbour where you can discharge timber as at Cowper Wharf? No.
718. Where do Goodlet and Smith discharge? They have their own works at Pymont; I mean public wharves.
719. Suppose Woolloomooloo Bay belonged to you, and you thought it desirable to give further facilities; would you run out that jetty, or make it the same style as the Circular Quay? I think I should be inclined to put out short jetties.
720. Notwithstanding what you said just now about interfering with the navigation of the bay? Yes.
721. *Mr. Street.*] Do you think the necessities of the port are so great as to justify the expenditure of £27,000 upon that jetty at the present time? I said just now that I would not like to say such a thing; but really I do not think so.

722. *Mr. Garrard.*] How many timber vessels have you known to be unloading in Woolloomooloo Bay at the one time? I do not think I have ever seen more than two there.
723. The present Cowper Wharf would satisfy the requirements in that respect? Yes.
724. In the event of its being decided to run out this jetty, do you think it would be desirable to give it a more easterly inclination than it has now? I think it should run straight out in the bay.
725. More towards our prevailing north-east winds? Yes, straight out.
726. It would be very easy for vessels to go in there? It is awkward there now for vessels.
727. It only means drawing out in the bay a little further to turn? These big ships require some manœuvring, and must have room.
728. You think that if it is decided to carry out that wharf, it should be at least 140 feet wide? Yes; if you are going to make it 700 feet long, you must have it wider, on account of the two vessels working on each side; you would want room for the goods to go up and down.
729. Do you think it would be an advantage to have a sunk roadway in the centre? You would have to have room for drays to pass up and down freely.
730. That would only necessitate the wharf being wider on the two berths nearer the shore? You might taper it off that way if you thought fit.
731. If all Woolloomooloo Bay were yours, do you think the circumstances of the port would justify you in improving it to the best known extent? I do not think I should like to lay out that money.
732. You think there is sufficient wharfage accommodation to make it a very risky thing, if this were a private matter, to go to this expense? Yes.
733. *Mr. Sydney Smith.*] You are aware of the width of the wharf? 100 feet.
734. Do you think that two vessels lying on each side of the proposed jetty could discharge cargo without interfering with each other? It would do very well if it were half the length of what it is now.
735. As proposed, do you think they could discharge without inconvenience? They would inconvenience each other; there would be so many drays required on it at once. I think they would interfere with each other tremendously; there would be a regular block.
736. You would recommend that if the jetty were carried out it should be wider? 40 feet wider.
737. *Vice-Chairman.*] I think there has been some misunderstanding. You said that the increased accommodation would afford facilities for two more ships; you mean two more than the present facilities. Suppose the present wharf would accommodate five ships, then with the new wharf and the jetty there would be seven. I understood you to mean that though the jetty would give accommodation for many more vessels, it would take away some of the existing accommodation; and you think that altogether there would be only additional accommodation for two more vessels? That is what I think.
738. Between this long jetty and the short jetty a vessel could not be put at all? No; you see the width of the two ships would be there, and it would be all taken away.
739. And the base of the jetty would take away some of the present accommodation? Yes.
740. *Mr. Garrard.*] Are you aware that the base of this wharf that you say would deprive you of two berths is only about 108 feet wide? It would be more than that.
741. What berth that is now useful would you do away with? At the east and west of the long wharf.
742. That would be about 300 feet? Yes.
743. You would only lose one berth and gain four? You would lose two berths. I consider you would lose two berths and gain four.

Mr. James M'Mahon sworn and examined:—

744. *Vice-Chairman.*] You are a carrier? Yes.
745. What is the name of your firm? M'Mahon & Company, carriers.
746. You have seen the plan of this proposed new wharfage accommodation at Woolloomooloo Bay; a jetty is to be run out into the bay, towards Robinson's baths, 700 feet long and 100 feet wide;—do you, yourself, know anything as to the advisability or necessity of the erection of a wharf of this kind at a cost of £27,000? It would give more accommodation.
747. But is there, in your opinion, any necessity for that accommodation;—is there such a deficiency of wharfage accommodation in the harbour of Port Jackson at the present time as to necessitate an expenditure of £27,000 for additional accommodation? I could not say at the present time. There are times when the wharves are pretty well blocked up, and you cannot get sufficient accommodation.
748. Have you ever known an instance, since you have been a carrier, of such a thing happening, that ships could not get berths, because all the wharves were occupied; was it not rather because they could not get a choice of berths? No; I have known of no instance where ships could not get berthed at some place, with the exception of choice of wharves. There is a certain class of wharves where they cannot discharge certain goods. Locomotives, and very heavy boilers cannot be discharged at some places very easily.
749. I suppose most of the ships have their own particular wharves, which they like to go to? Well, I suppose so. That is very much amongst themselves. You generally find certain ships at certain wharves.
750. What evidence do you propose to offer the Committee with reference to this wharf? I was simply asked to come here to-day to say that it is quite as accessible as any other wharf in Sydney, with the exception of the Circular Quay, and I told two or three gentlemen who asked me, that in my opinion Woolloomooloo Bay Wharf was quite as accessible as any other wharf.
751. Has it any advantages over any other wharf? As it now is, it has advantages, from a carrier's point of view, because there is more scope to work in.
752. That is because it is not fully occupied, I suppose? Of course, I cannot speak nautically. A ship lying broadside gives you the whole 250 or 300 feet, whatever her length may be, for access; but if two vessels are discharging at a jetty 38 or 40 feet wide you cannot have the same access as if a ship was lying broadside.
753. The width of the jetty, 100 feet, would be far different from 38 or 40;—do you think 100 feet ample? I should think that to give sufficient accommodation it would require 120 feet.
754. *Mr. Garrard.*] Is it not a fact that what are called the back wharves are very difficult to get away from, owing to the steepness of the inclines? Some of them are; some are worse than others.
755. It is difficult to get from the majority of the back wharves to the central parts of the city? Well, all the wharves are pretty steep.

- Mr. J. M. Mahon, 16 Nov., 1888.
756. Circular Quay and Woolloomooloo Bay are an exception to the general rule? Circular Quay is, of course, an exception. You have level carriage from that to any part of the city.
757. Is not Woolloomooloo Bay much of the same character? No; it is nothing like the Circular Quay.
758. But better than the back wharves? Better than some of the back wharves.
759. Can you mention any wharf that is as easy to get away from as Woolloomooloo Bay? I could not say as the accommodation is at present.
760. You do not know of any private wharf in the city where the getting away is as easy as the getting away from Woolloomooloo Bay? That would depend upon circumstances. If there were only one or two vessels at a certain wharf the accommodation would be as good as that at Woolloomooloo Bay. For instance, take Sussex-street: The Grafton Wharf has not as steep an access as other wharves, but the narrow space coming away from there prevents carriers from getting access and egress as readily as they would to other places.
761. You spoke just now about there being a dearth of accommodation for the unloading of heavy weights;—where are these heavy weights usually unloaded? At the Circular Quay principally.
762. Do you think it desirable that the Circular Quay or Woolloomooloo Bay should have proper appliances erected for the unloading of these heavy weights? There are no appliances.
763. Do you think it desirable that there should be? I do.
764. Great loss of time and blockage of the traffic occurs at the present time owing to the means employed? Yes.
765. Have you been in Melbourne? No.
766. Do you know that there is a large crane for lifting these weights on the banks of the Yarra? No.
767. You think it would be desirable to have some means of lifting these heavy weights from vessels? I do.
768. At present there is no such appliance? There is no appliance, except what we term screw-jacking, or manual labour.
769. *Mr. Sydney Smith.*] Have you ever noticed a large quantity of metal or stone on the wharves at Woolloomooloo Bay? Yes.
770. And timber? And timber.
771. Has not that interfered greatly with other people having the use of the wharf? It did not affect us very much, because there are never more than two large ships, London ships, there at a time. The metal is discharged pretty well at the eastern side, and the timber at the western side, leaving the two middle berths for any English ships that may be discharging there. There are four or five outlets from Woolloomooloo Bay.
772. Supposing the metal and timber were taken away as quickly as it ought to be, do you think there would be a want of wharf accommodation in Woolloomooloo Bay at the present time? Not according to the amount of ships that comes there now.
773. You are aware of the proposed extent of the jetty, and of its width. It is proposed to unload vessels at each side. The length is 700 feet. Do you think that there would be any inconvenience felt if the jetty were 100 feet wide, with drays travelling along the jetty, and ships unloading on each side;—do you think there would be any inconvenience with cargo being discharged on both sides? Not if the jetty were the proper width.
774. What width would you propose, having regard to the length of the jetty, 700 feet, and the fact that vessels will be unloaded on each side, and that the cargo will be stacked on each side, and that drays will have to come backwards and forwards? Under the present system the cargoes would not be stacked much at the side, because they would be taken away as fast as they came out. When two vessels are discharging at the present jetties at the back wharves, which are only 38 or 40 feet wide, one each side, we have to work our passage up and down that 38 or 40 feet the jetty gives us, so you have an idea what room 120 feet would give you.
775. You reckon the width ought to be 120 feet? To give ample accommodation I think it should.
776. I understand from your experience of Woolloomooloo Bay, and you have had a good deal of experience there, that no inconvenience has been felt there from want of wharf accommodation? Not at the present time that I know of, because there are no more than two large English vessels in at a time.
777. In view of the present accommodation, and if the property were your own, would you feel justified in expending £27,000 in additional wharf accommodation? Well, taking it from a speculative point of view, it would be according to the interest I had in the ships. If I had influence with the shipping agents at home or here I certainly would have it done.
778. In an ordinary business way;—I mean without any influence at all? I daresay it would take seven vessels in the year to pay the interest on that.
779. *Mr. O'Connor.*] How long have you been a carrier? Thirty-four years.
780. In your experience you have found out, I suppose, that the trade is increasing proportionately every year? Yes.
781. You think the trade is greater now than it was last year? The wool trade alone up to to-day has increased 25 per cent.
782. In your opinion it is natural to suppose that it will go on increasing, so that the question after all is not to know what is required at the present day, but what will be prospectively required in the next two or three years? If it keeps increasing as it has during the last ten years I feel confident that you will want the whole of Woolloomooloo Bay.
783. *Mr. Suttor.*] I suppose you employ a large number of men and horses? I have about 207 horses and 106 men.
784. You do a great deal of carting from the wharves? Yes.
785. Have you carried much from Woolloomooloo Bay? I have carried a large portion of the cargoes discharged there. I had the carriage of the water pipes that were landed at Woolloomooloo Bay.
786. How long ago? About two years ago.
787. Have you carried much from there since? Yes; a few ships have been in there since.
788. How often are you employed on the average in carrying from Woolloomooloo? Every day.
789. What kind of stuff do you carry? General merchandise.
790. Much timber? Yes; a good deal of timber.
791. Have you ever carried timber from the Circular Quay? Not for many years; it is not unloaded there now.

- now. In years gone by it was the depot for timber, as Woolloomooloo Bay is at the present time. Opposite Mort's, and around the eastern side before the wharves were made, was all for timber.
792. It is proposed to make two new wharves for large vessels at the west side of the Circular Quay;—supposing timber were unloaded there would there be any difficulty in getting it away? Yes; there would be a difficulty from the length of it and the great traffic there is up George and Pitt streets—the only good outlets you have from the Circular Quay.
793. Is there difficulty in getting it from Woolloomooloo Bay? You have not the same traffic from the eastern or the southern portion of the City as you have along Pitt and George streets.
794. You think it would be convenient to carry timber from Woolloomooloo Bay? More convenient than from the Circular Quay.
795. Would that be a relief to the streets to any extent? I suppose so.
796. There is not much traffic in the streets about Woolloomooloo Bay, I suppose? Not so much traffic as there is down here.
797. To what part of the city is timber generally carried? Wherever it may be ordered;—to the buildings, back wharves, and one place or another.
798. Is it carried direct to the buildings being constructed, or is it taken to the timber-yards first? Some to the buildings, and some to the timber-yards.
799. I suppose the haulage is pretty easy from Woolloomooloo Bay? It is easy from Woolloomooloo Bay.
800. What would be the difference of haulage, as far as a horse is concerned, from Woolloomooloo Bay, and from some of the wharves at Darling Harbour, steep wharves? The difference would be from 7 cwt. to half a ton for a good horse.
801. That is half a ton from Woolloomooloo Bay? I could take 30 cwt. from Woolloomooloo Bay; a ton would be quite sufficient from the other wharves, taking it from the drayman's stand-point, if he had a good horse and wanted to work him properly.
802. *Mr. O'Connor.*] It would be a very good horse that would take a ton or half a ton from some of them? We are supposed to take that.
803. What is the name of that wharf in Lower Fort-street, near Cumberland-street, where the 'bus-stand is? Lamb and Parbury's.
804. What would two horses pull from there? That would depend upon the class of horse.
805. The best horses you have? Two tons.
806. *Mr. Suttor.*] Do the carters make any difference per ton for carrying from the different wharves, or is there a regular rate? One regular rate. We have to take the good with the bad, that is, the majority of us.

Mr.
J. M'Mahon.
16 Nov., 1888.

Mr. William Henry Shortland sworn and examined:—

807. *Vice-Chairman.*] Are you a member of the firm of Shortland and Sons, carriers? Yes.
808. Your business has been established for a long time? For a very long time, about forty years, during which I have been connected with it for about twenty-one. For four years I served in Mr. Powell, the Collector of Customs' office, when I left school.
809. Do you know of the proposal to run a jetty out into Woolloomooloo Bay from Cowper Wharf? I do.
810. Do you see any necessity for that at the present time? Yes. I should say that, next to the Circular Quay, this is the best wharf we have in Sydney, and a most desirable wharf in which to put improvements. It stands to reason that a good wharf like that has a superiority over what we call the back wharves, because it is so easy to come off that wharf. There is no necessity for carriers to keep trace-horses; and be put to the large expense they are now under in working the back wharves.
811. In the interests of the carriers who have to take the goods from the ships, you think it would be desirable to construct a wharf of the kind proposed for £27,000? I do; because there is likely to be an increase of business. It would be a saving to carriers, and a relief to the traffic of those crowded back wharves.
812. Would it cost the public less for the carriage of the goods;—we were just told by Mr. M'Mahon that you took one good thing with a bad? That is so. We have a regular rate, as a rule; still there are such places as bonded stores, where the question of carriage concerns them greatly. If a ship is unloaded at the Circular Quay they can afford to store goods in those bonds at a less rate than the owner of a bond at one of the back wharves, or far away; so he, as a general rule, has a differential rate with his carrier. The Circular Quay is, of course, always the cheapest rate.
813. To the public? Certainly to the public.
814. *Mr. O'Connor.*] You said that in the interests of the carriers you thought it would be well for the Government to expend £27,000 on these wharfage improvements. Did you mean that it would be expended at their interest, or did you mean this: That if you have to keep extra horses the charge to the public is higher? Yes; it is to a certain extent.
815. Then in reality it is not, after all, in the interests of the carriers but in the interests of the public? Certainly.

Mr. W. H.
Shortland.
16 Nov., 1888.

Captain John Vine Hall sworn and examined:—

816. *Vice-Chairman.*] You have been a captain of merchant vessels trading to this port? Yes.
817. For how long? I was not trading here very long. I have been living here, practising as a surveyor, for the last five years. I have made voyages to this port.
818. Are you commanding vessels now? No; I am practising as a marine surveyor here now.
819. You have seen the plan of the proposed wharfage accommodation at Woolloomooloo Bay;—it is proposed to run out a jetty 700 feet in length and 100 feet wide there? I see it now; I have not seen it before.
820. Do you know Woolloomooloo Bay and Cowper Wharf? Yes; I know them well.
821. What is your opinion, having regard to the existing wharfage accommodation in Port Jackson, as to the necessity for this work, which we are told will cost £27,000? I do not think that there is an absolute necessity for it. At the present moment, and (say) for the last six months, there has been no pressure on wharfage

Capt.
J. V. Hall.
16 Nov., 1888.

Capt. J. V.
Hall.
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wharfage accommodation at all; but I have known a time during the five years that I have been living here when Woolloomooloo Bay has been blocked up with London ships. That is several years ago.

821½. Was not that when they were bringing iron pipes for the Government? The ships I am speaking of were not discharging iron pipes; they were discharging general cargo; but that, of course, was an exception. Speaking of the present moment, and of the last six months or more, there certainly is no absolute necessity for the extension of the wharfage accommodation of Woolloomooloo Bay.

822. You know it is proposed to utilize the western side of the Circular Quay; there is to be a new wharf there? That is to be a mail-steamers' wharf.

823. No; that is to be on the eastern side. On the western side, where the Manly boats go, and the P. & O. boats are now. It will be relieved by these boats being located on the eastern side. Having regard to that fact do you think there is likely to be any necessity for this public work for some years? I could not honestly say I think there is now, or that there is likely to be in the immediate future a pressing necessity for this work.

824. Do you think, however, if there was any necessity for work of that kind, that Woolloomooloo Bay is a good place to find additional wharfage accommodation? Undoubtedly.

825. What do you think of the practice of running out jetties such as that proposed? I think it is a capital principle, but I would not run a wharf out blindfold into the middle of the bay like that. I should take one shore or the other, and measure my distance very carefully. For instance, looking at it very roughly, without measuring it, I should say that that jetty should either go considerably to the eastward or considerably to the westward. I would bring it so far to the eastward that there would be a space left of about 180 to 200 feet, and then there would be room to make a jetty facing the shore on the eastern side. I would leave room for another jetty on the western side by and by, because if it is necessary now, or within the next few years, to build this jetty, quite possibly in a few years more a second jetty will be wanted.

826. You think it is a bad thing to locate it right in the centre? Undoubtedly. You are spoiling your own space; you are not making the best of your room. It ought to be very carefully measured up, because you would probably have big steamers alongside this jetty, and if you had another jetty there must be room for another big steamer alongside it, with a collier alongside each. Two or three feet short in the width would make all the difference in the world when you have big steamers to deal with.

827. *Mr. Humphery.*] Do you think it is possible that these proposed wharfage improvements will be required within the next four or five years; that the increasing traffic of the port will render it desirable that they should be carried out? Well, it is a very difficult question to answer, unless one has studied the statistics of the port, which I cannot say I have done. It is very easy to give a haphazard answer, but I should not like to answer without having the statistics of the port before me. I spoke of Woolloomooloo Bay just now being so crowded with London ships. I quite remember that time, and all the wharves were pretty full then. There must have been some special increase of traffic for the time being. So far as I see, without having any special knowledge in the matter, speaking merely from my own observation, there is no pressing necessity for that wharf.

828. Do you think that the additional wharfage accommodation proposed would be constantly occupied? Well, judging from what they are doing at the Circular Quay, I should say yes; but I do not know whether, if I were a private wharf-owner, I should care for that competition on the part of the Government.

829. Do you think it would be remunerative work? Undoubtedly. I say again that I am only speaking haphazard, because I do not know what the exact percentage would be; but I should say that the probability is if you built that wharf that you would have it constantly full of shipping. You would have all the large outside steamers coming in there regularly, and probably have that wharf almost constantly full.

830. *Vice-Chairman.*] At the expense of others? Yes.

831. *Mr. Humphery.*] I suppose you think it would be unhealthy competition with private owners? Decidedly. If I were asked outside the question of Government competition with private enterprise—whether it would be a good thing to improve the Bay in that way I should say yes.

832. *Mr. Garrard.*] If it were your own property do you think there would be room to enter into competition with others? Certainly; if it were my own property I would put the wharf down in a minute.

833. This proposal of yours is, as I understand it, to run a jetty out parallel with the shore? Before I would make up my mind where the jetty should go I would measure up the space in the Bay carefully, having it in my mind that I might want to run two other jetties out at a subsequent time parallel to this one. I should so build the first one as to give myself as much room as possible for the other.

834. What is the width of large vessels of 2,000 tons? 48 feet—that is the outside.

835. It is not an unusual thing for a vessel lying alongside the wharf to have a collier alongside? You must have a collier; it is almost necessary in every case, whether the vessel is a steamer or a sailing-ship.

836. So there would have to be room for two colliers, one for each vessel? Yes; you would want nearly 200 feet space.

837. Between the two wharves, to allow an additional vessel berthing each side? Exactly.

838. If there is not sufficient width across Woolloomooloo Bay to give you that, one jetty will be sufficient? Quite so. Even then it would be just as well to place your jetty in such a way that when you ran the other jetty along the line of the shore you should not waste any room—to give as much room on the other side as possible.

Robert Hickson, Esq., M.I.C.E., Acting Engineer-in-Chief for Harbours and Rivers, sworn and further examined:—

R. Hickson,
Esq.,
M.I.C.E.
16 Nov., 1888.

839. *Vice-Chairman.*] Do you produce a return prepared by yourself in reference to the increased cost of the proposed jetty in Woolloomooloo Bay if the width is increased? Yes; it is as follows:—

ABSTRACT of Estimate for Wharfage Improvements, Woolloomooloo Bay.

Description of work.	Quantities.	Rates.	Amount.	Total.
	Sqrs.	£ s. d.	£ s. d.	£ s. d.
Large jetty, 700' x 100', with wings	730	38 0 0	27,740 0 0	
Widening Cowper Wharf	39	45 0 0	1,755 0 0	
Northern extension of Admiralty Wharf.....	218	37 0 0	8,066 0 0	
Filling and forming roadway .....	.....	.....	4,439 0 0	£42,000 0 0
Cost, with jetty 130 feet wide.				
Large jetty, 700' x 130'	940	38 0 0	35,720 0 0	
Widening Cowper Wharf.....	39	45 0 0	1,755 0 0	
Admiralty Wharf.....	218	37 0 0	8,066 0 0	
Forming roads .....	.....	.....	4,439 0 0	£49,980 0 0
Cost, with jetty 150 feet wide.				
Large jetty, 700' x 150'	1,080	38 0 0	41,040 0 0	
Widening Cowper Wharf	39	45 0 0	1,755 0 0	
Admiralty Wharf.....	218	37 0 0	8,066 0 0	
Forming roads .....	.....	.....	4,439 0 0	£55,300 0 0

840. That is your estimate of the increased cost? Yes.

841. And you hand it in as such from the Department? Yes.

FRIDAY, 23 NOVEMBER, 1888.

Present:—

The Honorable JOHN LACKEY (CHAIRMAN).

The Hon. GEORGE CAMPBELL

The Hon. WILLIAM HENRY SUTTOR.

The Hon. JAMES WATSON.

The Hon. FREDERICK THOMAS HUMPHERY.

JOSEPH PALMER ABBOTT, Esq.

HENRY COPELAND, Esq.

JACOB GARRARD, Esq.

ALEXANDER KETHEL, Esq.

SYDNEY SMITH, Esq.

THOMAS MICHAEL SLATTERY, Esq.

JOHN RENDELL STREET, Esq.

DANIEL O'CONNOR, Esq.

The Committee further considered the proposed improvements and additions to the wharfage accommodation, Woolloomooloo Bay.

Captain William Robertson sworn and examined:—

842. *Chairman.*] You are engaged in mercantile pursuits in Sydney? I have been engaged as stevedore at the Circular Quay for fourteen or fifteen years. Captain W. Robertson.

843. You have become acquainted with the trade carried on at the different wharves? Yes.

844. And before you settled down here? I was trading to the port for about twenty years before I settled down. It is twenty-two years since I first came to Sydney. 23 Nov., 1888.

845. And had opportunities of knowing the accommodation provided at the various wharves? Yes.

846. Where is your present place of business? We have two places—one on each side of the Circular Quay.

847. You carry on the wool trade? Wool dumping.

848. You are acquainted with Cowper Wharf at Woolloomooloo Bay? Yes.

849. You have had an opportunity of observing it since the wharf was first built, I take it? Yes.

850. Is there a large trade at that wharf? There is a good trade now, but with greater facilities I am sure the trade would be greater.

851. What is the nature of the trade carried on there mainly—timber, or general merchandise? General merchandise. There are sailing ships and steamers come there with timber and all sorts of cargo.

852. There is no wool sent from there? Not yet.

853. There are no appliances? No. I have no doubt eventually there will be.

854. Is it used specially for any particular branch of trade? I do not think so. It is available for all vessels.

855. Is it a fact that they have gone there in considerable numbers, from time to time, and been glad to avail themselves of the facilities it afforded? I think that ships, as a rule, if it were left in the hands of the captain, would go to Woolloomooloo or the Circular Quay in preference to any other wharf in Sydney.

856. One reason, I take it, is that the haulage is easier? Much easier.

857. You can get to and from it with greater facility? I think the dray proprietors prefer drawing goods from the Circular Quay or Woolloomooloo to any other wharves.

858. And that is a matter of considerable moment in working a wharf? Yes; it facilitates the discharge of the ship. The sooner the drays can get the cargo away the sooner the ship can get her cargo out.

859. Do you know anything of the depth of the water at Cowper Wharf? No.

860. Are you aware of the nature of the proposed improvements? I have only seen a rough outline of the wharf. I think it would be a very good improvement if carried out.

861. Do you know the length of the proposed jetty? No.

862. Are you aware of the width? I heard it was proposed to make it 150 feet.

863. It is only 100 feet? I think that is too narrow. 864.

Captain W.
Robertson.
23 Nov., 1888.

864. You think if the jetty were constructed it would be desirable to have means of access for drays down the centre? I think it would facilitate the discharging of the ships' cargo very materially.
865. And generally, from your knowledge of the trade of the harbour, you think it is desirable to have these improvements made? There is no doubt of it.
866. Of course you are aware that it is Government property now? Yes.
867. Do you think if it were private property it would be improved to the extent proposed in this project? I do not know that private enterprise would spend so much money.
868. Is it not the case that very extensive wharfage accommodation has been provided in various parts of the port by private enterprise? No doubt of that; but I think the facilities are better at the Circular Quay and Woolloomooloo Bay than any of them.
869. As it is now with the improvements? Yes.
870. Is it your opinion that as it is now it is sufficient to meet the requirements of the place? No; not by a long way. We got a berth yesterday for a ship that had been waiting fourteen days for one, and another I know that cannot get a berth for a week. They must come to the Circular Quay, because the wool is shipped there.
871. *Mr. Abbott.*] They are waiting for a particular berth? For any berth at the Circular Quay.
872. *Mr. Copeland.*] Can you suggest any better means of giving wharfage accommodation than this particular jetty that it is proposed to extend into the harbour? No; I think that jetty would be the greatest improvement that could be made, because it would make all the space available for other traffic and still accommodate the large ships alongside the jetty.
873. Do you not think it would make it very awkward for berthing other vessels on account of the narrow space between the foreshore and the jetty;—suppose there were a vessel at each side, and a collier alongside each? I do not think so, because it is almost like a dock. They move ships in the London docks in much less space than they would have here. In the London docks the ships go through places where there is barely breadth for them to pass.
874. Yes, but when they get into the dock there is generally a greater space than there would be here for them to swing? No; sometimes I have been pinching ships with handspikes to get them through a narrow passage. Neither wind nor sea could reach the ship there; you could move her anywhere almost to a hair's breadth.
875. You think that this jetty 700 feet long would be a real improvement to the facilities for shipping? There is no doubt about it.
876. *Mr. Kethel.*] I understood you to say that there were several ships waiting to get a berth anywhere at the Circular Quay just now? There were two; one I got a berth yesterday; the other I cannot get a berth for a week.
877. Are there no berths anywhere else in the harbour? That would not suit us.
878. What are the special reasons in favour of the Circular Quay in your case;—why would not another berth do? Because it would cost so much more money to get towed there.
879. Is it not because your wool dumping machinery and warehouses are alongside the Quay? No doubt about it.
880. Another reason I suppose is, that the ships berth alongside fore and aft the wharf, and they being broadside offer greater facilities for unloading? Yes.
881. That being the case that would not apply to the proposed jetty at Woolloomooloo? I cannot see any difference, if there is sufficient breadth on each side of where the drays go down to land the goods.
882. Are you aware that the objection that many carriers have to the jetty system of the private wharves is that the jetty becomes lumbered with cargo, and there is great confusion in loading the goods? I think the fault arises from the jetties being too narrow. A jetty 50 feet wide, with two ships discharging, would be blocked up in an hour.
883. That jetty is proposed to be 100 feet wide? It ought to be half a hundred feet wider.
884. How long have you been connected with shipping matters in Sydney? A little over fourteen years as a stevedore.
885. Did you take any part in the discussion that took place some years ago among commercial and nautical circles when it was proposed to run a jetty like this out from the middle of Sydney Cove? No; but the idea struck me the first morning that I landed in Sydney that it would be a grand idea. Since then my opinion has altered, because it would be a pity to block the traffic.
886. Are you aware that the opinion of all the nautical men in the port was against the proposal? No; as I say, it struck me it would be a good idea, but since then I have altered my idea.
887. *Mr. Garrard.*] One or more jetties? One jetty.
888. What made you alter your opinion? I think it would block the traffic; there are so many harbour steamers running.
889. Is there likely to be a large amount of harbour passenger traffic at Woolloomooloo Bay? I think the passenger traffic might be carried from Woolloomooloo Bay very successfully, because most of the travelling public come from Paddington, Waverley, and those places, and it could go to Woolloomooloo Bay as well as to the Circular Quay.
890. Do you not think the Circular Quay will always have the preference for harbour traffic? I daresay now the tram comes that way it will induce the traffic that way.
891. And there is less likelihood of Woolloomooloo Bay being availed of for passenger traffic? I could not say what will take place ten years hence.
892. *Mr. Kethel.*] If the proposed jetty and other improvements were made at Woolloomooloo Bay, would you be prepared to berth your ships there, and take your wool to them when you could not get a berth at the Circular Quay, in preference to any other part of the harbour? We would take it anywhere.
893. Supposing that the Government expended this money, do you think it likely that you and the gentlemen connected with you in the exportation of wool would put up machinery there and deliver wool at the wharf, or take your wool round there in any way in preference to any other part of the harbour? My idea is that it will come to that. We will have to put machinery up there before many years; but we can take it down now to Bradley's Head, and we could take it round to Woolloomooloo Bay.
894. Do you use your machinery in Windmill-street? We had machinery there, but we left that place many years ago.
895. Is the operation of wool dumping proceeded with there still? At the Central Wharf it is. We had plant at Dalton's Wharf, but when he bought that wharf we had to leave.

896. Have you had ships to load or unload at Woolloomooloo Wharf? I have unloaded several ships at Woolloomooloo. Captain W. Robertson.
897. What class of goods? General cargo from London. The San Francisco mail steamers too; we took a portion of the Zealandia's cargo in at Woolloomooloo Wharf. 23 Nov., 1888.
898. What is the reason you took her away from her usual berth? Those were all taken up.
899. Is it not a fact that they had a contract with the A. S. N. Co. to occupy that long jetty? I am not aware of it, but all the jetties there are occupied at the present time.
900. *Mr. Street.*] Do you consider that the scarcity of wharfage accommodation in Sydney harbour at the present time justifies so large an expenditure as the erection of this jetty would involve? I think so. I think any improvement the Government carry out in wharfage accommodation for vessels would repay them better than any works the Government have.
901. You think there is a scarcity of wharfage accommodation? In the height of the wool season there is always a scarcity. I have known ships three deep at the Circular Quay.
902. Do you think if this jetty were constructed there the wool would be lightered round or carted round? I have no doubt of it. Any vessel that cannot get wharfage accommodation moors out at Neutral Bay, and I have lightered over there. It does not matter where we take it to.
903. I suppose it is the busiest season of the year just now? Yes, from November till February.
904. How many ships have you had a difficulty in berthing during this season? There is a difficulty in berthing. There is not sufficient accommodation at the Circular Quay for the number of ships. The wool is increasing year by year, and a greater number of ships are employed.
905. Suppose this jetty were erected at Woolloomooloo Bay, that would not help the wool traffic? Ships could discharge there, and come round to the Quay to load. There is not accommodation for both inward and outward ships.
906. Do you know that more accommodation is being provided at the Circular Quay on the west side;—suppose you were told that two berths were to be provided on the west side for sea-going ships, instead of giving that part up to passenger steamers to Manly and other places? It would be a great help no doubt.
907. Do you not think that extra accommodation would be sufficient to provide for the shipping for some time to come? I do not think so. I do not think that two years hence it will be half enough.
908. Do you think the wool will increase so much as to require so much additional accommodation? I fancy the increase this year will be 100,000 bales.
909. What about next year after the drought? It may be less, but a good season will bring it up again.
910. Generally is there any great difficulty in getting berth accommodation? In the wool season.
911. The whole year round? In winter there is no difficulty, in summer there is.
912. You have only had difficulty with one ship this year? Two, within the last fortnight.
913. *Mr. Abbott.*] Do you think the Government can make their work as productive as private individuals can? I am pretty sure that any outlay on extra wharfage accommodation would pay the Government 25 per cent.
914. They are in just as good a position to make returns from that outlay as private individuals? Yes; I am sure of it.
915. You spoke about warehouses;—will you tell me the rent of warehouses about the Circular Quay? We pay for rent and the use of the plant at the Blackwall Stores £1,650 a year, independent of taxes.
916. You have recently leased from the Government some property that was the A. S. N. Co.'s, on the opposite side of the wharf,—what rent do you pay? We pay £100 for the six months we use it.
917. Have you as much accommodation in those stores as you have the other side? Nothing near it; this is only a very narrow shed.
918. Is it the big store, or the shed? Just a galvanized store, only about 28 feet wide and 264 feet long.
919. Have you any idea of the cost of construction? No; but it is only a galvanized shed; it cannot have been very expensive.
920. What is the comparative size of the stores,—those you lease for £1,600 and those you lease for £100? It would hold less than half the Blackwall Stores would hold; and then we have the use of the machinery there—six large wool-presses, engines, and wool-trucks. The Government gets about £4,000 a year wharfage for the wool that comes through that place.
921. They would get that anyway? Not if we left the Circular Quay.
922. Someone else would go there if you left it? ———
923. *Chairman.*] From your observation, do you think the commerce of this port is increasing? Yes, very rapidly.
924. Has it suffered any impediment or shock from the present protracted drought? It has hardly had time to be felt yet.
925. There is no large grain trade carried on at the Circular Quay? No; there never has been. Any grain I have had the handling of has generally come from Victoria. I have never handled any grain to be landed here.
926. Are there large quantities of grain from New Zealand? Not lately. Most of the grain I have had to do with has come from Victoria.
927. Do they not import oats and barley somewhat largely? Yes; but that does not come to the Circular Quay, as a rule.
928. *Mr. Watson.*] You are referring to what passes through your own hands? Yes. I have heard of some lots of New Zealand oats being landed here, but only now and again—not as a rule.

Captain John Jackson, Manager of Public Wharves, sworn and further examined:—

929. *Chairman.*] What is your appellation? Manager of Public Wharves.
930. That includes the whole of the Government wharves, I take it? Yes.
931. And necessarily, of course, the Woolloomooloo Bay Wharf—Cowper Wharf? Yes.
932. There has been a return prepared of the receipts for Cowper Wharf;—was that return prepared by your Department? Yes. Captain J. Jackson.
933. I see by that the receipts for some years have amounted to a considerable sum—upwards of £4,000? Yes; but I produce an amended return. [*Vide Appendix B.*] 23 Nov., 1888.
- 934.

- Captain J. Jackson. 934. Do you give this in as evidence? Yes.
935. Then the highest sum received in one year for wharfage rates, in 1886, amounted to £5,181 4s. 10d.?
Yes.
- 23 Nov., 1888. 936. Last year to £3,811? Yes.
937. This year, up to October 31, for ten months of the year only, it has amounted to £2,807 6s. 11d.? Yes.
938. Is the accommodation at Cowper Wharf usually largely availed of for purposes of commerce? Yes, very much. Of course there is a large number of coasting vessels; there is only one proper berth for large ships.
939. Is that generally occupied? Well, not at all times; there is a large steamer expected there to-morrow, and the Zealandia left the day before yesterday, so that there has only been two or three days between.
940. Would the accommodation for such large ships be considerably improved if the proposed jetty were constructed? I have not the slightest doubt about it.
941. It has been stated by some witnesses here that the jetty ought to be much wider than it is to admit of vehicular traffic, the traffic of drays down the centre? I quite agree with that.
942. You think it would be an improvement? As it is at present it is 700 x 100 feet; it is actually of very little use without a space for vehicular traffic in the centre.
943. You think it would be a matter of much greater convenience, and give greater facilities for the carrying on of the traffic of the wharf? Far greater.
944. What is about the width that would admit of that—130, or 150 feet? I should suggest 150.
945. Do you think that the extra width would interfere with the navigation of the bay in any way? I think not.
946. Not in any perceptible way? I think not.
947. As far as your observation of the trade of that part of the port is concerned, you think it is desirable that the improvements should be carried out? I do.
948. You have no hesitation in recommending it? No hesitation whatever.
949. *Mr. Humphery.*] What is the annual expenditure? £487.
950. Does that statement show the expenditure? No; there is only a salary that is expended.
951. Then the evidence you gave upon a former occasion as to the annual expenditure would be correct? Yes.
952. You still think that this jetty would give accommodation to six vessels? I do.
953. And have you altered your opinion as to the probable income for each berth? No; I have no reason to alter my opinion upon that.
954. You still think that there will be £1,000 a-year obtained for each berth in addition to the present income? I think so.
955. *Mr. Garrard.*] Do you think that there will be sufficient trade for this jetty in Woolloomooloo Bay, considering the increased wharfage accommodation you have at Darling Harbour on the Pyrmont side? I do not think that large ships will go to Darling Harbour. I think it will be more for railway traffic.
956. Do you not think that there will be a large amount of exports for foreign countries brought down by the railways? Yes, but not shipped from Darling Harbour wharves.
957. You think that the wharves at Pyrmont will be confined more to the intercolonial trade? I think so.

William Robeson Benson, Esq., Manager of the Wharf Association, sworn and examined:—

- W. R. Benson, Esq. 958. *Chairman.*] You are chairman of the Wharf Association? I am not the chairman; I am the manager.
- 23 Nov., 1888. 959. In connection with the duties of your office you have become aware, to a large extent, of the commerce of this port generally? Certainly.
960. And the extent to which that commerce is carried on at the various wharves of the port? Yes.
961. Amongst other wharves you are aware of the existence of Cowper Wharf, Woolloomooloo Bay? Yes.
962. Do you know anything about the proposed improvements there? No; I have not seen the plan of them.
963. There is a plan before you. You see from that plan that it is proposed to erect a new jetty? Yes.
964. Are you aware it is proposed that that jetty should be 700 feet long? Yes; so far as I have been informed, and having seen the plan.
965. And a width of 100 feet? Yes.
966. I suppose you have had practical knowledge of the working of the various wharves in the port? For the last seventeen or eighteen years.
967. Do you think that these dimensions are good ones for the construction of a jetty of the character proposed? My practical knowledge would tell me no, not at all.
968. What would be the nature of your principal objections to it? Am I called upon to give an opinion in regard to it?
969. You are simply asked for information;—we want to get information with reference to the propriety of carrying out certain improvements, and we heard that you were desirous and capable of giving us useful information? In the first place the jetty is too narrow. It is impossible to discharge at the same time two or three ships on each side of a jetty so narrow, unless you had trucks on the wharf to remove goods as soon as they came out of the ships. Then you might work it, but otherwise there would be great inconvenience.
970. What would you think would be a sufficient width—150, or 200 feet? 200 feet. The wider, of course, the better.
971. In that case do you think it would affect the traffic in that part of the harbour in any way? Any jetty extended 700 feet out into a narrow place like Woolloomooloo Bay, I think, could not but affect the traffic.
972. Is it your opinion that there is sufficient wharf accommodation in Sydney at the present time for the commerce of the port? It is far in excess of the requirements. To illustrate that, I may say that there are about fifty berths now open to navigation, excluding the China Navigation, E. & A., P. & O., Orient, and

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and Messageries steamers' wharves. Each wharf is capable of berthing a ship and a half, or 75 a month, which would be 900 a year. The average number of arrivals in the port is about 230, so that therefore shows that only one-fourth of the present accommodation is required for the shipping arriving in the port during the twelve months. Besides this, there are large wharves being constructed by the Government at Pymont, now almost completed, which, when completed, will berth at least three ships, and on the site of the old A. S. N. Company's property at Pymont there are wharves being constructed for six more ships. Then again there are the wharves leased by private individuals, who are under obligations by the terms of their leases to increase their accommodation, so that within the next twelve months you will have wharfage accommodation in this port for 1,200 ships, whereas the number of arrivals per annum is only 230.

973. Is it your opinion that the commerce of the port is increasing? It is increasing; but the wharfage accommodation is increasing in a greater ratio.

974. Is there any special demand in the trade for accommodation at certain wharves because of there being facilities of access to those wharves, or a better position? Not that I am aware of.

975. Supposing that the wharves which you speak of to the west of Darling Harbour, now being constructed, were completed, would they answer the purposes of wool-shipping with equal facility to those already in use? Well, the trade of the harbour is located on this side of the water, and it would take some great inducement to disturb it.

976. Is it the case that the access to the wharves being hilly or otherwise influences their trade to a large extent? The access to most of the wharves under my management is pretty fair. I have had no complaints in that direction.

977. Would carriers taking produce to the wharves and merchandise away charge any more per ton for removing it from Darling Harbour wharves than for removing it from the Circular Quay? Not that I am aware of.

978. I suppose that there are special rates of charges for the removal of goods? I think most of the carriers have one all-round rate to remove goods from any wharf. Many of them are under a contract on that plan.

979. You are a manager of the Wharf Association—is it a private company? It is an association of private wharf-owners.

980. Are there any recognised rates of wharfage at the different wharves throughout the port? The wharfage rates are fixed by Act of Parliament. At all the wharves under my management the Government rate, the schedule rate, is exacted.

981. There is a Government rate then? Yes.

982. Does that apply equally to Government wharves and private wharves? Exactly, as far as I know.

983. Then the competition between the Wharf Association and the Government wharves would be to get the most custom, the most ships at the various wharves? There is no rebate existing, as far as I know, between the Association of wharf-owners and the Government; so there is no competition in that respect.

984. There has been a rebate? There was a rebate up to the end of June last. I believe rebates were given on both sides.

985. I suppose that was found injurious to both interests? That was the reason of the formation of our Association—to work in unison with the Government to abolish the rebate system.

986. And has the intention under which the Association was formed been carried out and observed? Yes, strictly.

987. In all cases? Yes, as far as the Wharf Association is concerned.

988. And so far as the Government are concerned? So far as I am aware the Government have adhered to the letter of the law in that respect.

989. *Mr. Garrard.*] Does your estimate of the number of ships per annum include intercolonial ships? No; they are all provided for.

990. And did your statement exclude the intercolonial ships' wharves? Yes. The statement I made was irrespective of the intercolonial trade, which is provided for. They generally have one part of the harbour, with smaller wharves than those under my control.

991. Irrespective of the intercolonial trade, which has its own wharves? Irrespective of the intercolonial trade, the China Navigation Co., the E. & A., the P. & O., the Orient, and Messageries Companies' wharves, the average number of vessels arriving is 230, excepting timber ships, which are generally provided for by the timber merchants at their own yards.

992. What about sailing ships? I include sailing vessels carrying general cargo, and steamers except the lines I have mentioned.

993. I understand that you think that the improvements at Woolloomooloo Bay are not required? Certainly not.

994. Do you think that the improvements being carried out at Pymont, and by a private firm, at the old A.S.N. Company's site are not required? Well, outside the Pymont works and the Government works at Pymont, you have accommodation for 900 ships at the present moment, and 230 is the average number of arrivals; so that, therefore, we have accommodation about four times in excess of that required.

995. I suppose that the proprietors of the old A.S.N. Company's works would not have spent money there without having a reasonable chance of recouping themselves? They might have some motives in view, but private enterprise is sometimes astray as well as Government enterprise.

996. What motive could they have? Well, I did not divine their motives.

997. Do you think any proposition has been made to the Government to take it over? No; I am not aware of it.

998. *Mr. Street.*] How many wharves are included in the Association you represent? Twenty-nine berths.

999. Are they always occupied? No.

1000. How many ships could you berth in the year? About 500 over-sea vessels; being 270 in excess of the average number of arrivals.

1001. Do you know how many you have berthed this year already? No; I could not tell you.

1002. You could berth a very much larger number than you do? I think we could accommodate all the trade of the port, excepting of course, the mail lines of steamers, which I have mentioned before.

1003. That is all the ships with general cargoes arriving in this harbour from foreign ports? Yes.

1004. *Mr. Suttor.*] Is any season more busy than another? Yes; this is about the busiest time of the year.

1005. How many months does that extend through? About four months in the year.

1006.

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1006. And how do you find the private wharves occupied at that time? Just now I have very few ships alongside.
1007. Could you give us any information in the shape of a return of the number of ships berthed at private wharves within the last two years? I could furnish you with such a return, and I should be happy to send it in to the Committee. [*Vide Appendix C.*]
1008. Stating the berthing accommodation and the actual berths occupied? Yes.
1009. *Mr. Copeland.*] I suppose that when these new wharves, which are being constructed at Pyrmont, are completed, they must reduce the necessity for building this increased accommodation at Woolloomooloo? Exactly so, because there will be more berths then, and fewer ships to occupy them in proportion.
1010. I suppose it is just possible that if increased accommodation had been given at Woolloomooloo Bay, it might have been the means of preventing these people from building new wharves on their own account? No; because they are already commenced, and many of them nearly completed.
1011. But if this increased accommodation had been gone on with previously by the Government that might have been the means of preventing these private persons from expending their capital? I cannot say.
1012. You said that the intercolonial vessels were already provided for;—do not a large number of intercolonial vessels discharge at Woolloomooloo? Not that I am aware of. There may be one occasionally, but the number is very small; in fact I do not know whether during the last two years there has been one there—they discharge principally ballast, coal, and timber. I think, in the last three years, there have been eight over-sea vessels there each year.
1013. Allowing for the increase in the intercolonial trade, do you think there is sufficient accommodation for these vessels for many years to come? Yes; I should imagine so.
1014. At the present time the wharves where the intercolonial vessels discharge are not fully occupied? No, I do not think so. I do not think the wharves in Sydney harbour are ever all occupied, or ever have been.
1015. I am directing your attention now principally to the intercolonial vessels;—you said that they are provided for? Yes; in this way: the intercolonial trade is now being principally done by steamers, and therefore the steamboat companies have their own wharves for the reception of the cargoes of their steamers.
1016. You think that there is plenty of accommodation at the present time—even in the busiest season? Yes; in fact I may say that the wharves are never full—not the whole of them.
1017. Not even in the busiest season of the year? No.
1018. Would it be requiring too much to ask for information as to what returns these private wharves are giving to their owners;—I suppose you could hardly be possessed of that information? If you take the capital value of the wharves, they have given a very small return; I should say about 3 per cent., irrespective of returns from Stores, Bonds, &c.
1019. That is 3 per cent. clear of the working expenses? Yes. I have never worked the question out in figures; I can only say approximately.
1020. Is it possible for you to furnish the Committee with that information accurately, with a view to guiding them to decide whether these improvements would be likely to be remunerative to the Government? I shall think over it, and if I can give you the information I will.
1021. *Mr. Humphery.*] Can you say if Cowper Wharf has much increased in favour of late years? I do not think it has, taking the number of vessels that have been berthed there during the last two or three years. Out of the eight ships berthed there each year during that time six or seven were laden with pipes consigned to the Government. The average number of ships going there would be eight per annum.
1022. Is it a fact that a preference is given to Cowper Wharf, next to the Circular Quay, over any of the other private wharves? Well, I should imagine that no ship-owner would go there in preference to some of the private wharves.
1023. *Mr. Copeland.*] You said just now that you did not think the business had increased very much at Cowper Wharf during the last few years? No.
1024. We have a return here showing that the revenue from Cowper Wharf in 1880 was only £514, the year before that it was only £314, whereas in 1886 it had increased to £5,181, and for ten months of the present year it has been £2,807, which would be at the rate of £3,100 per annum? Of course when the busy season is over, the revenue will fall off greatly.
1025. You see that the revenue has increased approximately about six times since 1880? The rates have probably increased there during the same period. Perhaps there are rents derived from stores and other buildings.
1026. This revenue is exclusively from berths? I am speaking of deep-sea vessels, not of intercolonial vessels.
1027. This includes all vessels? I was speaking only of deep-sea vessels.
1028. *Chairman.*] What number of vessels did you say had berthed there during the last three years? On an average eight, that is including, of course, the pipe-laden ships consigned to the Government.
1029. We have it here, in a published return, that the number of vessels altogether in 1886 was 521? Yes; but that is taking the small coasters and steam launches.
1030. There are 24 over-sea vessels, and 497 coasters? That includes timber ships. My figures do not include timber ships.
1031. Why do you omit timber-ships? I take no notice of them because I regard them as being specially provided for. As a rule they generally go to the yards of timber merchants who have water frontages.
1032. It is the case that timber-ships very frequently come to this wharf in preference to others? Possibly some years they went there, because whereas rent was charged on timber lying on a private wharf the timber was allowed to lie at Cowper Wharf without charge.
1033. *Mr. Copeland.*] Do you know whether the practice is amended now in that direction, whether they are compelled to clear the cargo away? There are so few ships go to private wharves, or to the Government wharves; they generally berth at the timber merchants; but I have not paid any attention to the matter.
1034. It is your opinion, from the position and site of the wharf, that it is deserving of being provided with fair accommodation for shipping and commerce? In the face of the fact that the wharfage accommodation is largely in excess of the requirements I cannot see the utility of doing so.
1035. Do you think that if the wharf belonged to the company you are connected with they would improve it to the greatest extent for the purpose of giving facilities to the shipping public? I am certain they would not.

1036. Suppose the wharf belonged to a company outside yours? Well, in view of there being so many wharves there must of course be competition, and therefore the revenue must tumble down perhaps 50 to 75 per cent.

1037. Do you think that the trade of this port is increasing? Yes.

1038. Largely increasing? Yes.

1039. Do you think it is likely to go on increasing? That is a question I cannot answer.

1040. You have not made up your mind on that point? No.

1041. It is the case that the population is increasing, and as the population increases does not trade necessarily increase;—I suppose that there are greater numbers that have to be fed and clothed? Yes; but the question is whether we should not produce many things ourselves that are now imported.

1042. On the whole you think that the wharfage accommodation of the port is sufficient for all present requirements? More than sufficient for many years to come, as far as my knowledge serves me to answer the question.

Alfred Lamb, Esq., merchant and wharf-owner, sworn and examined:—

1043. *Chairman.*] You have given evidence before I think on matters connected with wharfage accommodation? Yes.

1044. And you have had a considerable amount of experience in the management of and in the dealing with wharves in the city of Sydney? Yes, I have been connected with them pretty well all my life.

1045. And you are still engaged in the same occupation? Yes.

1046. What is the name of the wharf where you carry on your business? The Central Wharf.

1047. I suppose you are pretty well acquainted with most of the wharves round the port? Yes, I think I know pretty well all of them.

1048. Is it a fact that there are new and large wharves being constructed,—at Pymont especially? Yes.

1049. Anywhere else? And the Government wharf on both sides of the Pymont Bridge.

1050. One of these wharves is being constructed by private enterprise? Yes.

1051. What is the name of that wharf? I think it is generally known as the Pymont Wharf, the late A. S. N. Company's works.

1052. A large amount of capital is being expended there? A considerable amount, I believe.

1053. Can you form an approximate idea of the amount of the capital that is being expended there now? I believe already some £150,000 has been spent in purchasing and improving that property.

1054. It belongs to a private company, I take it? Yes.

1055. Do you think that they have good ground for the large improvements that they are undertaking? I think it is doubtful.

1056. Is it your opinion that the trade of the port is increasing largely? No doubt there is a fair increase.

1057. An ordinary increase? Yes.

1058. Notwithstanding the dearth in trade, and the bad times, and the drought that we have suffered from? There is a fair increase in shipping, and I should think a fair increase in the trade of the port.

1059. The population of the community is increasing too from immigration and other sources? I suppose that causes increased trade to some extent—it is bound to do so.

1060. Is the export trade largely increasing? Yes, the exports are largely increasing.

1061. In various products—mineral, pastoral, and others? In all products.

1062. A great deal of coal is sent away from this port, amongst other things, is there not? Yes.

1063. But more from Newcastle? Yes.

1064. Large quantities of wool too? The Customs statistics published every three months show that.

1065. And tallow;—there is not any large increase in the grain export? That varies more than anything else from the seasons we have; but still there is no foreign export of grain from this country yet.

1066. Is there a large import? Yes; an intercolonial import.

1067. Mostly from New Zealand, South Australia, and Victoria? Yes; but those are matters so generally stated by Customs statistics that one can hardly follow them without following the statistics.

1068. On the whole is it your opinion that the wharfage accommodation is keeping pace with the trade generally, with the commerce of the port? I am satisfied that wharfage accommodation is ahead of the requirements at the present time.

1069. You are aware of the proposed improvements at Woolloomooloo Bay and Cowper Wharf? Yes; I see them on the plan here.

1070. Do you think they are desirable? I do not think they are desirable because there is no necessity for them. This proposal to put out a large jetty not only interferes very much with the traffic of Woolloomooloo Bay, but increases the wharfage accommodation to an extent that, as I said before, is not required. Of course the evidence that has been already given is public property, and it is there shown by the people most conversant with this question that the wharfage accommodation is ample, and a good deal ahead of present requirements. The most practical man who gave evidence to that effect was Captain Pettit, the harbour-master, who berths all the vessels, and he said that he had never known a vessel to be delayed for a berth; and the opinions of those who have been closely connected with wharfage matters coincide with my experience. The improvement to this jetty by Government expenditure is simply Government taking upon itself an extension into the harbour to an extent that private enterprise is always prepared to do; but is limited from doing. Then when private proprietors do make these extensions they are taxed with a heavy rental, and have to make their revenue in competition with public wharves and the public expenditure. The Government building out a wharf such as this taxes itself with no such expenditure. If a private man were to build out a wharf like that the Government would charge him from £700 to £800 per annum. We are paying in that proportion for what we already have, and if we found the demand for wharfage was so great, I am certain every private wharf owner would be prepared to make any reasonable extension to provide accommodation. But the necessity has not arisen. From the number of vessels entering the port, and the berths available, it has been shown conclusively from the figures and evidence before the Committee that the berths are far in excess of the requirements of ships.

1071. Have you known it to be the case that wool ships have been delayed waiting for particular berths;—we have it in evidence that it is so? For about two months in the year, in the height of the season, a ship may be delayed for a particular berth; but it is absurd to say that there was necessity for a ship being delayed for a berth for any purpose.

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Alfred Lamb, Esq., 23 Nov., 1888. 1072. Viewing this prospectively, how long do you think that the present accommodation will be sufficient for the port, supposing the trade to go on increasing at the same ratio that it has done within the last three or four years? Well, that is hard to say; but I think that for the next ten years the accommodation would be sufficient, with what we know is actually going to be done, with the improvements at Circular Quay and this Pyrmont scheme, and the other public wharves that are being made. This property being Government property I take it that it is always there available, and a wharf could be built out in ten or twelve months. Therefore there cannot be any necessity for the Government building a wharf five or ten years before it is needed. Then, again, when this public expenditure is made, should it be made, the accommodation then, I say, being far ahead of the requirements, you come into the question of the revenue from these wharves being considerably reduced, because the competition to secure the shipping from the different wharves must necessarily reduce the revenue.

1073. Under the present circumstances, if Cowper Wharf were your property, would you improve it to the extent proposed? Well, I would prefer to sell it to somebody else, and let him do it.

1074. You know the nature of the improvements? I see it from this plan.

1075. Do you think they would be desirable improvements, supposing it were decided to improve the accommodation;—do you think that would be the character of accommodation that would be necessary or desirable? No; I think it would be very undesirable to block up the harbour with so long a jetty.

1076. Do you know the width of the jetty? It is 100 feet on this plan, but I have heard it mentioned that it might be 150 feet.

1077. Do you think that 100 feet would be wide enough for the purpose of carrying on the commerce of a place like that, where ships would be berthed, to facilitate the loading and unloading of vessels without unnecessary delay;—do you think it is desirable to have vehicular traffic down the centre? Vehicular traffic would have to go down the centre.

1078. Do you think that width would admit of it? You could do it; but the wider you made it the better.

1079. Could you carry vehicular traffic down a width of 100 feet? Oh, you could do it.

1080. It would give you a very limited space? The wider it could be the more convenient. But I am speaking more on the main question whether there is a necessity for an expenditure of this sort for wharfage purposes. I think the more the wharfage can be consolidated into one part, instead of distributing it, the more convenient it is. This wharf I look upon, and I think most people are of the same opinion, as adapted for the timber, produce, coal, and metal trade, for the eastern parts of the city. It is very suitable for that, and not really required for big shipping purposes at all.

1081. You think the accommodation will be sufficient for those purposes without the improvements? Certainly.

1082. *Mr. Copeland.*] This expensive wharf that is being built at Pyrmont—I suppose a number of gentlemen have formed themselves into a company or syndicate to carry out those works? Yes.

1083. I suppose they have gone into this business purely as a matter of speculation? Just so.

1084. And they expect to be remunerated for their expenditure? Yes.

1085. Do you not think that as trade increases there will always be found other persons ready to go into similar speculations, so as to get the wharfage accommodation up to the necessity of the times? I think you will always find private enterprise ready to do what is necessary.

1086. You think it has done hitherto what was necessary? Undoubtedly it has.

1087. Do you think these proprietors of this new wharf anticipate realizing payable results from their speculation? I presume they do, or they would have been very foolish to go into it. Whether they will is another question.

1088. Seeing that they have to pay rent that the Government would not have to pay for this accommodation at Woolloomooloo, is it not reasonably to be supposed that the Government would also be able to obtain remunerative returns for their expenditure? Whatever may be the returns if the supply is far in excess of the demand there must be severe competition, and those returns will naturally be considerably lessened.

1089. Speaking as an Australian, as a private individual, outside of your being a wharfinger, would you not consider it the duty of the Government, where they have a fine property like that, to put it to the best advantage and make it reproductive? As a citizen I think the Government have no right to spend the public money in building what is not required. They receive certain rents from private individuals who have done a great deal for the wharfage of the Colony, and there is undue competition brought on by the action of the Government in spending public money, if they continue to do so and increase the supply above the demand.

1090. But if we have a number of people who are always prepared to avail themselves of every opportunity for building a new wharf, the Government would never have any opportunity of making use of its facilities for giving wharfage accommodation;—if the Government always allowed private individuals to make provision for these necessities, we should never have an opportunity of using that fine water frontage and putting it to its best use? But it is not necessarily the function of the Government to provide wharfage for individuals.

1091. But considering the fact that the Government stands possessed of that foreshore, with all the capabilities of making good wharfage accommodation, would you think it desirable for the Government to allow their property to stand neglected and unoccupied, while private individuals were allowed to scoop the pool? But the pool becomes so very much reduced by the very action of spending the money to increase the accommodation.

1092. Do you not think the Government ought to come in and get their share, so as to obtain a more reasonable return for what they stand possessed of? If they are a business Government, and going to enter into every class of business and competition, I suppose there is nothing to be said about it; the public must submit to see the public money put into what may be a very questionable investment.

1093. But assuming that view of the question to be a sound one,—seeing that the Government are actually in possession of that valuable property, do you think they should allow it to remain unutilized, simply to allow private wharfingers to get all the business into their own hands? I say the Government have no right to spend the public money in providing what is unnecessary, or to an extent that is unnecessary.

1094. You think the Government should not construct railways because they would be competing with bullock drivers and other carriers? That is a very different question; the railways were things that private enterprise could not have undertaken in this country. Had the Government not taken the job in hand we should never have had them. Wharves are in a very different position; private people gave the wharfage accommodation long before the Government did.

1095. The private people also gave carriage on the land, and in other countries private enterprise has carried out the railways;—would you go a step farther, and say that the Government ought to allow the Circular Quay to remain unused from fear of competing with private enterprise? It is not lying unoccupied or unused; it is sure to be used so far as the demand will enable it to be used.

1096. Remember, the question here is not of the Government resuming land for the purpose of competing with private individuals; they have the foreshore, and the question is whether they would be justified in failing to use it? I do not think the Government would be justified in building that improvement, as it is presented here, in the public interest.

1097. *Mr. Garrard.*] You complained just now of the Crown preventing private wharfingers extending their wharves to meet the requirements of trade? In many instances. I referred the last time I was here to an instance where a wharf was extended to an extraordinary extent—a wharf from the other side of Pymont Bridge; but, as a rule, private individuals have not been allowed to extend their wharves to the extent they were prepared to do, and to pay the Government for that privilege. I dare say I have applied to build out five or six wharves in my time. In every instance where I have applied to go out 450 feet, I have been told it would interfere with the harbour, and I could only go out 350 feet. I say the argument has not held good; we have not interfered nearly to the extent that this proposed jetty will interfere. What the Government refuses to individuals it will take upon itself.

1098. Was not the curtailment of your applications in those cases to prevent your encroachment on your neighbours' water;—if each man were allowed to go out, there would be a time when they would meet in the middle, and block each other? They may have been curtailed on that account in some instances.

1099. The Central Wharf, for instance;—is that the reason that extension was not allowed? No; because you could narrow your jetty as you went out.

1100. In this case under consideration the jetty runs from the centre, and there would be no one interfered with, as the Government owns the property all round the bay? Yes.

1101. You do not object to the nature of the improvements if they were required;—your objection is that the commerce of the port does not require this extra extension? That is it; and I think all the evidence that has been given before you by practical people on this question, unless they have been people who, to a certain extent, were answerable for recommending these improvements, bears me out in what I say. Of course I have had an opportunity of seeing it.

1102 You referred to Captain Pettit's evidence;—have you seen question 226:—"Do you think that the proposed works, as a whole, are essential for the improvement of a valuable Government property such as this is? I think that the proposed jetty will return very good interest on the money expended"? Yes; but when he was asked if he ever knew of vessels being inconvenienced waiting for berths, he said he never knew it in his experience, and I say that is the most practical experience the Committee could possibly have as to the necessity for increased wharfage accommodation.

1103. Is it not a fact that the get-away from Woolloomooloo Bay is very much easier than from any of the back wharves? No; I do not think it is so very easy as has been represented in some quarters. We have certainly some steep pulls from some of the back wharves, but they are very short, and the steep pull from Woolloomooloo Bay is rather long. Take one with another, I do not think there is much to choose. If you take special things, such as long timber, Woolloomooloo Bay has the easier get-away. I say that Woolloomooloo Wharf is essentially fitted for timber, produce, metal, coal, and things of that sort. For general cargo purposes very few ships ever go there or ever require to go there, so the necessity for it does not exist to a large extent at all.

1104. *Mr. Kethel.*] It has been stated in evidence that ships have occasionally been waiting several days for a berth;—now, I would like to ask you with whom rests the power of sending a ship to any particular wharf to discharge her inward cargo, and perhaps to take her outward cargo;—is it the shipper in England, the ship's agent here, or the consignees and owners of the goods that form the cargo? It varies in many respects. If you could tell me that what is known as the brokers' ring in London was not in existence it would probably be in the power of the shipowner to send his ship to any wharf; but at the present moment it is in the power of the people in England who load the ship, or the agent who has the ship out here.

1105. Is it or is it not generally stated on the bill of lading signed by the captain what wharf he should discharge at, or that the agent shall have power to send him to such wharf as he pleases? The custom in England is the same, I think, pretty well all over the world. Ships that come to these colonies are generally chartered, and in the charter party the charterer has power to send the ship to any wharf he likes. In the same way, if I charter a ship to London, I have it in my power to send it to any wharf or dock that I like. It is not the question whether the accommodation is good or bad that necessarily attracts the ship. I think your experience, Mr. Kethel, will bear me out in that.

1106. It has been inferred that ships have had to wait for a berth because the owners of the goods desired an easy access to the ship, or the captain desired to get one wharf as preferable to another;—I wish to elicit whether the consignee of the goods or the captain has any voice in selecting the wharf? The owner of the goods, not being the charterer, never has a voice; the captain very seldom has a voice.

1107. *Mr. Street.*] How many ships are you capable of berthing at the Central Wharf in the course of the year? I have one large steamer and four large ships at the present time—that is five.

1108. Are you always full? I have never been full for the year through in the whole of my experience. I have never been full for more than two or three months in the year—that is the wool season. I could accommodate comfortably, loading and discharging, sixty to seventy vessels per annum, and I will undertake to say I have never had half that quantity. Some of them are only loading wharves, and a wharf with the capacity of mine could discharge there from sixty to seventy ships; and I do not think we have ever had more than about a dozen.

1109. *Mr. Garrard.*] Is your property a jetty running out? Yes.

1110. What is the width? They vary from 30 up to 40 feet.

1111. Would that allow vehicles to go down the centre when there is a ship on each side? It does, but it is a little inconvenient. We generally run the goods off in some way, but the drays do constantly go up and down; but my wharf is somewhat differently situated, because I do loading on one side and discharging on the other.

1112. *Mr. Suttor.*] Does the same rule apply to the other wharves as to yours with regard to the accommodation being taken up? Yes, decidedly. To show what one berth is capable of, take some statistics Mr.

Powell.

Alfred Lamb,
Esq.
23 Nov., 1888.

Alfred Lamb, Esq., Powell gave with regard to the Washington Wharf, only an ordinary wharf, neither particularly good nor bad. Where the agent had plenty of ships coming to his consignment he berthed there twenty-one ships in the year. For an average of three to four years he berthed eighteen ships, which shows that one berth can do eighteen ships. Now, if you take the berthing capacity in the harbour at the present time at about half of that, you will get berthing accommodation for 700 to 800 general cargo vessels per annum outside the big regular steamers; and those Government statistics will show you what I know is the fact, that there are not probably 300 vessels of the sort coming into the port. You cannot get over the facts.

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1113. Do these private wharves berth wool ships? Yes, two of them—Dalgety's and my own.

1114. Are they the only two? Yes, at the present moment.

1115. Do the others berth wool ships? They can berth them, but they have not the presses and appliances for loading them. Dibbs' Wharf and Mort's Wharf could do it.

1116. As a rule they do not berth wool ships? Not as a rule. Mine, for four months in the year, is almost entirely confined to wool-loading.

THURSDAY, 29 NOVEMBER, 1888.

Present:—

The Honorable JOHN LACKEY (CHAIRMAN).

The Hon. GEORGE CAMPBELL.

The Hon. WILLIAM HENRY SUTTOR.

The Hon. JAMES WATSON.

The Hon. FRÉDÉRIK THOMAS HUMPHERY.

HENRY COPELAND, Esq.

JACOB GARBAARD, Esq.

ALEXANDER KETHEL, Esq.

SYDNEY SMITH, Esq.

JOHN RENDELL STREET, Esq.

The Committee further considered the proposed improvements and additions to the wharfage accommodation, Woolloomooloo Bay.

Norman Selfe, Esq., M.I.C.E., M.I.M.E., &c., Consulting Engineer, sworn and examined:—

N. Selfe, Esq.

29 Nov., 1888.

1117. *Chairman.*] Are you aware of the character of the proposed wharfage improvements at Woolloomooloo Bay? Yes, so far as I have gleaned from half-an-hour's perusal of the report.

1118. Have you inspected the locality? I have known it for years.

1119. Have you inspected or seen any plan of the proposed improvements? Just the plan which is attached to the report of the previous proceedings of this committee.

1120. Have you had much experience in wharfage accommodation or many opportunities of acquiring knowledge as to such accommodation in Sydney Harbour generally? I designed and carried out all the principal wharves round Miller's Point, and introduced new systems of wharf-building, which have since been largely adopted. I have seen and made a study of the wharf system of New York, the great quays at Antwerp, and so on. I know exactly how the wharves are built in those places. I was instrumental in saving the Government of this country at least £100,000 about fourteen years ago by preventing them from building some proposed wharves along the Circular Quay. On that occasion the proposal was to put six or eight wharves where there are now only three, and the leading principles I advocated then, I am very glad to say, have been since adopted, and every main principle which was proposed to be adopted has been abandoned. Since building the wharves at Miller's Point I have spent two years in travelling round the world, and in the course of my travels I paid particular attention to wharfage accommodation and the construction of docks and harbours, such as the new Tilbury Docks below London, the docks and quays at Liverpool, and especially the quays in Northern Europe, where there is much more canal system. I was very much struck by the fact that, in most countries, they take the trouble to dig into the land to make water accommodation. In New South Wales we take a deal of trouble to fill up a very beautiful harbour which Nature has given us. We have done that for years. Many estuaries which used to be navigable are filled up, as for instance Long Cove.

1121. With regard to the proposed improvements to Sydney Cove, what was the character of the design? It was a design which the Government were about to carry out until it with others was referred to a Select Committee. It was proposed to build a number of small iron berths only suitable for vessels of the smallest class. Being engineer to Mort's Dock, and being well acquainted with the class of vessels then visiting the port, I saw at once that the improvements, if carried out, would be wholly useless for the modern class of ships. I had the honor of presenting a number of plans to the Select Committee, and they were reported to the House.* All the Government proposals were then abandoned for, I think, seven years, and then new plans were brought up which embodied every leading principle I had advocated in my own plans before the Select Committee.

1122. By whom was the design submitted? The Harbours and Rivers Department, or Mr. Moriarty.

1123. To Parliament? I do not think so. Parliament voted £89,000, I believe, as a first instalment towards the work. A Select Committee inquired into the matter, and a plan marked B,† was recommended, which showed the largest vessel, the "Sobraon," at a wharf with 60 feet frontage. Before the contract plans were made some of the berths were very much extended. The plan I have given you is the one for which tenders were called, and had it not been for a second Select Committee being appointed it was intended, the Engineer-in-Chief said, to accept by wire the tender which the Horseley Iron Company had sent in for its construction.

1124. The plan on the easel showing the proposed improvements at Woolloomooloo Bay is a copy, on a larger scale, of the plan you have in your hand? Yes.

1125. Is this a desirable project to carry out? It is a waste of material, I consider, to make a jetty as wide at the extreme end as at the shore end. At the point of the jetty cargo only would be deposited, whereas at the root of the jetty the whole of the traffic would be congested. I think there would be very much less taking up of the waters of the cove if the jetty narrowed at the end. It seems to be unnecessarily wide at the end. Two very large "tramps"—immense cargo vessels—can discharge at a wharf I built.

* NOTE (on revision):—Ordered by the Legislative Assembly to be printed, 25th June, 1874.

† Ordered by the Legislative Assembly to be printed, 24th April, 1873.

- built 450 feet long, and only 35 feet wide at the end. I mean ships like the s.s. "Aberdeen," and the "Wilcannia," which was here the other day. At the same time, there is a great advantage in width.
1126. Do you know the dimensions of the proposed jetty? 750 feet long by 100 feet wide. I reckon at the price given it is making ground at a cost of £17,000 per acre.
1127. Supposing it is deemed advisable to adopt the design, do you think the jetty is wide enough? I think it is too wide at the end, and if it is desirable at all I would widen it at the root to get plenty of egress for carts. Of course, the engineers may have reasons I am not conversant with. There may be something in the depth of water, but I think the jetty should trend more to the eastward, and more in a direct line with the bay. I notice the price comes to approximately £40 per square. There may be, as I said, something in the depth of water, but I built jetties of the very largest type at a maximum cost of £25 per square. I mean a 10 x 10 square.
1128. Supposing you approved of a jetty being constructed, would you recommend it being carried out straight out or on the eschelon principle? As straight a line as you can go. With a long straight wharf you can berth ships of any length, and you can berth three medium sized ones or two long ones. You do not economize space very much by having the other.
1129. From your knowledge of the trade at the different wharves do you think further accommodation is necessary? There is plenty of accommodation in Sydney.
1130. Do you think the necessity for further accommodation is of such a pressing character as to warrant the Government in spending £42,000 on these improvements, this being a State property? I hardly think it is. I notice that it is expected to return a revenue of £6,000 a year. Of course as a matter of business it would be a good speculation, and the Government might be justified in doing it on that account, but as a matter of fact there are a large number of wharves which would be very much improved if the owners had power to alter the levels of the streets. Round in the neighbourhood of Windmill-street and Miller's Point if it was possible to alter the grades reaching the wharves—which cannot be done without an Act of Parliament—the wharves would be equal to the requirements for some years to come.
1131. Has large wharfage accommodation been provided during the last few years in the port—in Darling Harbour? Yes, very large.
1132. Some large works are going on there now? Yes.
1133. They will afford very large additional accommodation? Yes.
1134. It is essential to get power from the Government to make these reclamations for wharves? The Government regulations have been increased in stringency extremely during the last two or three years. A wharf which paid a rent of £5 a year until recently is now charged £50 a year—that is for permission to extend a wharf into the water.
1135. I suppose great efforts are made by the owners of water frontages to get power to extend into the harbour? Yes. The Government policy has not been very definite; it has vacillated a great deal, it has been very unequal. At one time extensions could be got quite easily, and at other times they could not do anything. For instance, when Mr. Moore placed his property in my hands for improvement he wanted to extend the wharf. We had some difficulty in getting permission to make a small extension. I said, "Well, apply for a 150 feet extension," never thinking it would be granted; but it was granted, and the wharf was built. It goes right beyond the limit line. Mr. Moore was a fortunate man in obtaining a berth which will accommodate the largest vessel that may ever come to this port.
1136. Do you know of any similar cases? No; but I know of cases where extensions had been refused where no injury to the public could possibly have accrued.
1137. Who possesses the power of granting these concessions? I think it rests with the Lands Department and the Harbours and Rivers Department.
1138. Has the exercise of this power been governed by political influence? I could not say.
1139. Has the Minister ever overridden the recommendation of his officers and given the authority himself? I would not say that.
1140. The unequal character of the administration does not arise from that source? No; I think it arises from not having a hard and fast policy laid down on a sound basis. From Miller's Point to Dawes' Point there has been an arbitrary curved line laid down, which is called the limit of reclamation. I hold that any wharf might be extended to a straight line running between these points without encroaching on the fair way of the harbour. Farrelly's Wharf, which has been altered, and two or three other wharves, in that light, might be extended very much, providing the owners were agreeable to lose a certain portion of their frontage by coming to a point; and no injury to navigation could possibly ensue.
1141. Does that apply to other points in the harbour,—to Darling Harbour, or Farm Cove, or Woolloomooloo Bay? I am not very certain about the limit-line in Woolloomooloo Bay.
1142. Have you heard of any dissatisfaction expressed as to this authority being given to one and denied to another? Oh! Yes; but I cannot say anything of my own knowledge. I have seen permissions given where it appeared to me influence had been at work; but I could not say so of my own knowledge.
1143. You think on the whole the wharfage accommodation of Sydney is sufficient for the requirements at the present time? I do.
1144. Do you think the traffic of the port has been increasing in such a ratio as to require additional accommodation? I think the modern class of steamers and the facilities for discharging almost keep pace with the increased imports. They can put out 2,000 tons of cargo, and get everything removed from the wharf now in a fourth of the time it used to take to discharge one of the old fashioned 700-ton Aberdeen clippers. Ships are here to-day and gone to-morrow now.
1145. The appliances for discharging cargo are not stationary on the wharf, but floating? Every locality has a special system. I have often wondered why hydraulic cranes are not more used here, like they are in the Victoria and Albert Docks. The stevedores here have become used to a moveable sort of steam-engine. They are able to do the work with it, and as long as that is done in time it matters very little as to the means employed.
1146. It has been done effectually up to the present time? I think so.
1147. In that case you would not think it essential with regard to Government wharves to have hydraulic cranes? Most decidedly the Government should have them. I think I was the first to introduce them here. Some twenty-three years ago I made the first hydraulic machinery and lift ever made in the Colony.
1148. Still, the work has been tolerably effectually done by portable engines? Yes.

N. Selfe, Esq. 1149. *Mr. Copeland.*] In the matter of granting permission to extend a wharf do you imply that occasionally there has been favouritism shown, and political influence at work? I do not mean to imply it has arisen through the exercise of any improper or political influence, but because a proper policy has not been laid down for the guidance of a Minister.

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1150. Do you remember an instance where a Minister has granted to one person a concession which he has refused to another? I cannot call to mind a case at the present moment.

1151. Do you think the rents charged for water frontage concessions are higher than what would be charged if the water frontages were owned by private individuals? There is a want of uniform policy. In Wollongong the Government make the wharves and give the public the benefit of them; but here the public who provide the money and make the wharves are at a disadvantage. They are taxed here for improving the port.

1152. Do you consider it a tax to charge a man rent for the land he occupies? It is not land; it is water.

1153. It is land under the water? Yes; but a man can moor his punt and occupy the water. I take it that a man who has a water frontage and erects there a fine wharf at great expense is a benefactor to the country, and should rather have a premium than be taxed.

1154. Do you know any reason why the State should not derive revenue for land under water any more than for land on shore? I think the State should resume the water frontages and then there would be a distinct reason in it. But the public having possession of certain water frontages, it is rather hard that in some cases they should have to pay these rents.

1155. You are not prepared to say that as a rule the rents are excessive—that a larger amount is demanded than they ought to be called upon to pay? I know of a case where the proprietor said he would rather allow his wharf to tumble down as it was not worth the rent to him.

1156. Did he let it tumble down? I do not think he uses it.

1157. I understand you approve of the proposal to project a jetty 700 feet long right in the middle of Woolloomooloo Bay? I did not say that. If there is to be a jetty there I would make it taper; but looking at the thing on broad grounds, I think the Government should utilize a number of side wharves on shore before they extend the accommodation down the centre. The facilities for building walls under water are now so great that I think it would add far more to the dignity of the port, if I may use such an expression, to build a grand stone quay down one side of the bay. When that is not enough, build one down the other side, and as a very last resource build a jetty in the middle of the bay. The sewage, as long as it is discharged into the bay, would certainly fill up under the jetty, and it would be difficult to dredge it away. It would cost a great sum to build a jetty, and it would be far better, I think, on broad grounds to build a stone quay on the western side. There are several miles of walls in the new Tilbury Docks, which are 33 feet thick at the bottom. In Antwerp the walls are built right down into the mud. In New York there are many instances of their having made wharves by throwing in what they call rip rap, or what we call rubble. Where there is a very muddy bottom or no bottom, they throw in ballast until it consolidates, and after a time they erect a stone wall on it. I have no doubt the rock is within a reasonable depth in Woolloomooloo Bay, and if so there would be no trouble in building a retaining wall under water, and you could dredge close up alongside it.

1158. You are of opinion that it would be more judicious at present to build a wharf at the foreshore than project a jetty into the bay? Yes.

1159. Would the jetty be likely to interfere with the safe navigation of the bay? I do not think so: I think there is room there for handling vessels. In the London (Export) Docks there is a jetty of about the same size running out into the middle of the dock. I think Woolloomooloo Bay is well protected by Garden Island. From my knowledge generally of wharves I would say that there is no difficulty in the matter.

1160. You think there would be no difficulty in getting vessels to the wharves on the foreshore if the jetty were built there? I cannot say that as I am not a nautical man. I think if I were sitting in judgment on the plan I would like the engineer to give an estimate for building a strong wall from the present wharf to Potts' Point for a quay on the eastern side; and, if there must be a jetty, for one in the middle of the bay.

1161. Would there be any inconvenience in having two jetties together? I do not think so; I think it is pretty well protected there. It is simply a matter of warping the vessels.

1162. I suppose you know the eastern foreshore is private property? Yes.

1163. Supposing the Government were short of wharfage accommodation, would it not be more judicious for the Government to resume the water frontage and build wharves there rather than interfere with the bay by this long-projecting jetty? I think most certainly they should resume the land on the eastern side before they spend a penny in building a jetty. If the jetty is built it will certainly become a commercial centre; it will add immensely to the value of property down there.

1164. *Mr. Watson.*] Are you aware that the frontage marked red on the western side has been reserved for the use of the Imperial Government? Yes.

1165. Supposing you were the owner of the land fronting Woolloomooloo Bay, and had the right to resume this foreshore on the western side, would you build wharves in accordance with what you say, or run out a jetty? I would build a quay there first.

1166. In preference to running out a jetty? It would not be cheaper at once; but it would be a far better thing in the long run.

1167. Can you give any rough estimate of the cost? I only remember that the estimate for a continuous quay for Circular Quay, twelve or fourteen years ago, was about £65 per foot run; it was for a wall 45 feet high, giving 30 feet of water at low tide. You might safely say you could get a quay built all along there for £100 a foot, including the filling in of the space behind the wall.

1168. *Mr. Kethel.*] Do I understand you to say that before partially improving the bay, as proposed, it would be wise to get the details of a comprehensive scheme for improving the whole of the bay and allow whatever work is done now to form a part of the scheme? That is exactly what I said. I think this is simply nibbling, so to speak, at Woolloomooloo Bay, and we shall in course of time have (as we shall have all round the harbour) difficulties in making a grand work there, because there has been so much money already spent. I think the thing should be done on a broad principle, and a perfect scheme of wharfage accommodation for the locality should be prepared before any work is done at all.

1169. Have you noticed in going round the bay that the margin of space available for loading or unloading ships is exceedingly limited? The road is very narrow there.

1170.

1170. You are aware the Admiralty Wharf is intended to be removed 320 feet further north? I understand that from the proceedings of the Committee; but I do not see that it makes any difference in building a long quay and setting so many feet apart for the use of the Admiralty.

1171. Have you indicated to anyone the desirability of the Government constructing a wharf from the end of the present jetty to Mrs. Macquarie's Chair, excavating part of the hillside, and forming a part of a large quay? I have never made a proposal to anyone; but that is practically what I am suggesting now as part of a perfect scheme.

1172. *Mr. Garrard.*] Would you feel justified in making the improvements if you owned the property which is now in the hands of the Government and private individuals? I certainly think no more wharfage accommodation should be handed over to private individuals in the port.

1173. Supposing some of your clients had this property in their hands, do you think they would utilize it in somewhat the same way? I am sure they would, but they do not look for the good of the country; they look for an immediate return for their outlay.

1174. Your principal objection to running out a jetty is that the sewage matter would accumulate under it and become a nuisance? That is one; and another is that it is unworthy of a national work.

1175. You think the outer end of the jetty, if constructed, should not be so wide as the inner end? Yes. I can point out two or three jetties which are twice as broad at the root as they are at the point.

1176. How would you diminish the width of the outer end? I would take it off on the western side.

1177. And so give the jetty an easterly direction? Yes; but there may be special reasons for keeping the jetty as it is marked on the plan: there may be rocks or mudbanks.

1178. We have evidence to the effect that there is nothing in the bay to interfere with the erection of a jetty;—you think it would be better to go more into the centre of the bay, because the jetty would face the north-easterly winds more? Yes.

1179. Do you know the nature of the properties on the eastern side? I know there is no property there of any value, that is to say there is nothing to destroy.

1180. The cliffs are almost perpendicular near the water's edge, and the intervening space is occupied by small boats principally? Yes; but the stone would form material to fill up the space at the back of the retaining wall.

1181. *Mr. Suttor.*] By whom were the docks you observed in your travels provided? At Antwerp the works are national, I believe; the docks at Tilbury were carried out by a company. Almost every work of the kind in England is carried out by a company, except at Liverpool where there is a harbour board or trust, I understand.

1182. Is it done by private enterprise at Antwerp? No; it is built by the State, I believe.

1183. I suppose you consider that inasmuch as the Government have this large property it is desirable to make the most of it? I think Sydney is a city of lost opportunities, and if a wharf is built here, it will be another opportunity lost for making a great and permanent work.

1184. Will you point out on the plan where you think the wharfage accommodation should be constructed in the bay? My idea is that the Government should begin at the south-east corner of the bay, and gradually build a continuous wall 1,500 feet long towards Potts' Point, levelling the rocks and filling in the space behind the retaining wall with the material, and making a broad quay. On the other side I would build the wharf as part of the continuous whole, and then give the Admiral whatever might be arranged. The Admiralty have Garden Island, and in the course of a year or two, when it becomes inconvenient to have war ships here, it may be desirable to give them another spot, or they may desire to go elsewhere. A continuous quay might be made on this side, the same as on the eastern side. It is easy enough to enclose the Admiralty portion with strong walls which can be taken down if it is ever thrown into a general system at some future time.

1185. You are of opinion that a quay should be constructed round the whole of the bay? A complete plan should be made and estimates submitted before anything is done in piecemeal. I look upon that as absolutely essential.

1186. *Mr. Campbell.*] What would be the cost of a comprehensive plan? It would cost perhaps £100 a foot, or, say, £150,000 for the eastern side.

1187. *Mr. Suttor.*] It would be necessary to resume a quantity of land for that purpose? Yes; a great deal. The Government necessarily have to do the work on a very much more expensive scale than private individuals.

1188. Would the best use be made of the water by making a jetty, or would it be wiser to adopt your system? This bay can only be treated as a part of the harbour; and, looking at it from a national point of view—which I take it this Committee must do—this is not an improvement that would be any credit to Sydney.

1189. Is it desirable that the Government, owning this property, should come into competition with private wharfowners? I think that if a complete scheme such as I have shadowed forth were taken in hand it could be carried out gradually as the circumstances required. It could be built to accommodate one, two, or three ships at first, and the wharf to be extended in proportion as the traffic increased.

1190. *Mr. Copeland.*] Speaking roughly, how many years would it take to complete the whole scheme? It is simply a question of money available. It could easily be done in two years if it was necessary.

1191. Taking an estimate of the increase in imports and exports, and the growth of population, is there any reasonable expectation of such a wharf as you have suggested being utilized in the course of a few years? I think so. A very important point has occurred to me which I may mention to the Committee. There is bound to be, sooner or later, a high-level bridge to North Shore. So sailing-ships going to Darling Harbour will have to strike their top-gallant masts, and this will give an increased value to Woolloomooloo Bay. I think it is probable that a certain class of ships will make Woolloomooloo Bay the point of discharging. Possibly, the wool ships for a very long time will have to go up Darling Harbour, where so much provision has been made for them; but large sailing ships, with their lofty masts, perhaps 180 feet high, would like to go to Woolloomooloo Bay. Some masts are, perhaps, as high as St. James' steeple.

1192. You are aware that the work of striking the royal and top-gallant mast or even the top-mast is comparatively easy and could be done while the vessel is coming up the harbour? The royal and top-gallant mast could be struck; but it is a very serious thing to strike a top-mast.

1193. You are of opinion that by the time such a wharf was completed, in all probability we should have increased trade enough to utilize the accommodation? Yes. I may say, to prevent any misunderstanding, that

N. Selve, Esq. that a great many of my remarks have been made from my point of view as a citizen, having an interest in the improvement of the country, apart from my professional knowledge as an engineer. Of course, if I were engaged to improve the bay, I should simply try to carry out my instructions in the cheapest way; but I take it the Government should not be in the position of a private wharf-owner. This is a private wharf-owner's scheme.

Captain J. C. Rounding, Master Mariner, sworn and examined:—

- Captain J. C. Rounding, 29 Nov., 1888. 1193 $\frac{1}{2}$. *Chairman.*] Are you aware of the nature of the proposed improvements in Woolloomooloo Bay? Yes. I have paid several visits to the Bay in connection with the matter. I had vessels running there with coals when I was manager of a company here.
1194. You have written to the Committee, enclosing a statement of your views, together with a plan? Yes. I have based my plan on what I have seen in the old country, Calcutta, New York, and other places.
- 1194 $\frac{1}{2}$. We have not had time to examine your plan. I suppose it differs somewhat from the plan on the easel there? Considerably.
1195. Do you think the proposed improvements desirable? I certainly think improvements are desirable; but I do not approve of a jetty 700 feet long by 100 feet wide.
1196. Does your plan propose a jetty at all? Two jetties, 427 feet long by 100 feet broad, and 135 feet apart. I have got the soundings marked here, so as to give you an idea of what depth of water you will have alongside the wharf on the western side. At the northern wharf you have only 5 $\frac{1}{2}$, 7, 9, 10, 11, 12, and 13 feet. That will not accommodate any vessel with a decent draught of water.
1197. It could be deepened by dredging? Yes; but would cost a considerable amount of money. By extending the wharves out into the stream it would give greater frontage and more space for sheds, railway lines, cranes, &c. Two piers are better than one. It enables two ships to haul in there quite clear of one another, and it leaves any amount of room for taking in cargo over the side at the same time as you are working shore cargo. This question of jetties I have studied for some years. I sailed out of the Victoria Docks for fifteen years in steamers. I have gone into London with 10,000 bales of wool, put them out in eighteen hours, gone into dry dock, come out again, loaded 2,000 tons of cargo, and gone away with 600 passengers on board, in a week. We never could have done that unless we had a proper system of loading and discharging the ship. This jetty system in the Royal Albert and Victoria Docks was sound very convenient for the purpose. We had overside wool to put out as well as putting out wool on shore. The former had to be sent away to the Continent. That is the reason why I advocate two jetties in Woolloomooloo Bay. 135 feet is quite ample space between the jetties; and, in the event of business increasing, another jetty could be constructed on the eastern side, by making the two jetties only 427 feet long.
1198. Would you have two or three jetties of the same length? Two. Sailing ships will run about 230 or 240 feet each, and it will be a large steamer that is 427 feet long. I think the "Ormuz" is about the length.
1199. What is your idea as to the general wharfage accommodation of the port;—is it sufficient for the requirements? It is not. I was here twenty-one years ago, third officer of a sailing ship twice, and I must say that, bar private enterprise, there is no improvement at Circular Quay except the wood blocking, which has been done lately—no hydraulic cranes there yet. It is a waste of room. If we had that place in London it would have been devoted to this jetty system long ago—it would never have been allowed to lie waste like that. In London we have to dig out docks. I used to play cricket where the Tilbury Docks now are. But at Circular Quay there is a beautiful dock already made; the same in Woolloomooloo Bay.
1200. You think additional accommodation is required at the Bay? I do. I am interested in the Canadian and Pacific mail boats, which are very likely to be running here shortly. These ships, when they come from Vancouver Island, will most likely bring some timber. I have noticed that a considerable quantity of timber has been landed at Woolloomooloo Bay during the last few years. A slip lies end on to the wharf. They simply haul out the timber, and it lies all over the wharf—in fact, the wharf is blocked up with timber. We have virtually no wharf but this in Sydney which would accommodate this class of ships—say 450 feet long. They are 6,000 ton ships, 18 knot power, and about 450 feet long. I have sent a report on our wharfage accommodation to Sir George Stevens, President of the Canadian and Pacific Railway Company, and to Mr. W. C. Van Home, Vice-President of that company. Their ships could lie alongside this wharf and discharge their timber quickly. There are certain matters to attend to in the hold of a steamer, and when she is here for perhaps ten days it means a matter of push and go all the time. You do not want to work overtime more than you can help, as wages are too high. I look upon this wharf as a very good wharf for ships like these to go to—far better than Circular Quay. If you had 700,000 or 800,000 feet of timber to run out at Circular Quay I very much doubt whether the Government would allow it to be stored there. At Woolloomooloo Bay I have seen a ship discharge a general cargo on to the open wharf. It was simply lying about the wharf indiscriminately, and larrikins—men, women, and children—were running about among the cases, some of which contained raisins and preserved fruits, and, of course, some were pilfered.
1201. *Mr. Copeland.*] You are of opinion that whatever wharf accommodation is provided closed sheds should also be provided? Yes; good weather-proof covered-in sheds. The sides of the sheds should be arranged on rollers the same as they are at home, so that as a ship comes alongside the wharf any part of the shed will slide back telescope fashion. I think I recommended in my letter that if a railway should be run down the sides of the jetties the rails should be counter-sunk—made flush with the deck of the jetty—so as to cause no inconvenience to carts or horses.
1202. I am anxious to have your opinion as to whether the jetties should be carried out into the centre of the Bay, or whether the improvements should be confined to quays or wharves round the foreshores of the Bay? I propose to run two jetties out into the Bay 427 ft. x 100 ft., in lieu of one long jetty 700 ft. x 100 ft., as proposed in the Government plan. The former will accommodate eight average ocean-sailing vessels, or four large ocean steamers, and in the event of all the berths being full, and working cargo, they will not interfere with each other's working, &c. The latter long jetty will accommodate about six average ocean-going sailing vessels, or four large ocean steamers, and if all the berths are occupied at one time and working cargo, very great inconvenience and obstruction would arise. I have experienced this sort of thing myself. I certainly prefer the jetty improvements, but I consider the time has arrived

arrived that the whole of Woolloomooloo Bay should be in the hands of the Government or of a Harbour Trust, and that every possible new improvement—jetties and wharves—should be carried out as soon as possible for the better accommodation of our ever increasing tonnage, and because of the large revenue the Government would receive. A private company would have done this years ago; vessels, especially steamers, will always follow the best accommodation.

Captain J. C. Rounding,
29 Nov., 1888.

1203. Would it not be better to construct wharves on the eastern side in preference to projecting jetties into the middle of the Bay? No. Suppose you had a wharf all the way round the Bay, you could only accommodate about half the number of ships that I could get into the Bay by having jetties.

1204. Will not the jetties interfere considerably with the navigation of the Bay? Not at all. There is no wind, and, virtually, there is no tide in the harbour.

1205. It would not be so convenient to get to a foreshore as to a jetty? No. To put a ship alongside a jetty is a most simple thing. I have allowed more space, larger jetties, and greater width than we have in the Victoria and Albert docks in London. The firm I formerly belonged to has about 100 steamers. I have seen twenty-five of our ships lying in Calcutta and ten in London, at one time. We had 2,000 feet of space on the import side, and a similar space on the export side.

1206. You approve of the proposal to extend a jetty right out into the Bay? Yes; but not 700 feet long, because when the traffic increases you will have to construct jetties on the western side.

1207. I suppose you are aware the eastern foreshores are alienated? Yes.

1208. Do you think it would be in the interest of the public if the Government were to resume those frontages and extend round that side of the bay a system of quays or wharves somewhat similar to those you recommended for the western side? Oh, yes; but that is not contained in your plan. For the effective working of such a number of vessels as these improvements would accommodate, I should advise the reclamation of all land from Cowper Wharf to Blane-street; from the Domain, Bourke-street, to Brougham-street, and that it should be done before any alteration or construction of wharves. Such reclamations and improvements would pay handsome returns to the Government Treasury, and would be the finest wharfage accommodation in the southern hemisphere. The whole of these wharves should be railed off from the public.

1209. Would it not be more beneficial to carry out my idea than to project a jetty into the middle of the Bay? No. On that side, at low water, you run 14 feet, 12 feet, 10 feet, 9 feet. It would cost a tremendous amount of money to increase the depth to 24 feet.

1210. But you want something for filling up the space behind the retaining wall? I do not think so. I do not agree with that side; I believe in the western side. I should advise any line of mail steamers to berth at the western side.

1211. Don't you think it would be easy to make similar berths on the eastern side? Yes; but you would have to dredge a great deal to provide 22 feet at low water, and that means a very great expense. I would prefer to run the wharves further out and save dredging, and that would give larger space for sheds, railways, cranes, &c. There is only 14 feet of water here.

1212. You do not know of any impediment to dredging to that depth? Not as far as I have seen of the soundings. Whether they have made a correct survey of the Bay I cannot say.

1213. You think it would be well to resume that frontage and build a wharf? Yes. You would have the whole of the place, and it would be a handsome, well made, natural dock.

1214. *Mr. Watson.*] Have you been a resident of Sydney for long? Five years.

1215. Have you brought any ships into the port? No; I have not brought a ship in as commander.

1216. What is the name of the firm with which you were connected? It was the British India Steam Navigation Co. I was running down Torres Straits four years from London; I opened the line.

1217. How many steamers do they own? About 100, from 6,000 tons to 600 tons—all classes and all kinds. I have been in about half a dozen of them.

1218. Have you heard of any difficulty in getting accommodation in Darling Harbour? I cannot say that I have heard of any inconvenience being experienced; but I know the wharves in Sydney pretty well. I have taken an interest in this movement at Woolloomooloo Bay, and I have walked round nearly the whole of the wharves to see whether they would be thoroughly adapted to a ship of about 450 to 500 feet long, drawing 25 to 28 feet of water when she is going away.

Captain Francis Hixson, R.N., President of the Marine Board, sworn and examined:—

1219. *Chairman.*] You are President of the Marine Board, I believe? Yes; I have held that position for some considerable time.

Capt. Hixson,
R.N.

1220. We are taking evidence as to the propriety of giving increased wharfage accommodation at Woolloomooloo Bay? I understand so.

29 Nov., 1881.

1221. Have you given any attention to the proposed alterations or improvements? Yes.

1222. Referring to the plan on the easel there, do you think it would be desirable to construct a jetty on that principle out into the waters of the Bay? I see no objection to it.

1223. Do you feel justified in recommending it? Yes; I do not oppose it. There is no traffic in Woolloomooloo Bay which would interfere with the extension of a jetty there. The tendency of harbour steamer traffic is to recede from the Bay rather than to frequent it.

1224. Is it your impression that additional wharfage accommodation is required in Sydney Harbour? I have heard complaints that the Government are unable to berth ships at the present time.

1225. Have you heard or seen any evidence of the necessity for providing increased accommodation? I heard a day or two since that Captain Jackson, Wharfinger, was unable to give berths to ships which had applied to him for accommodation. I have nothing to do with making arrangements for the berthing of ships. My official position has nothing to do with the construction of wharves. I simply deal with the ships.

1226. You would have a general knowledge of the commercial requirements of the port? I think so.

1227. Do you think additional accommodation is desirable at the Bay? Yes.

1228. You think that if the wharf property had belonged to private individuals it would have been improved long ago? Yes.

1229. It is a very valuable asset in the national estate? Very much so.

1230. And a property which deserves improvement? I think so.

1231.

Capt. Hixson, R.N.
29 Nov., 1888. 1231. We have evidence given by experts that it would be desirable, instead of taking the jetty out into the Bay, to improve the water frontages on either side for some considerable distance and make a sort of Circular Quay—have you given any attention to that project? I have given no great attention to it; but for the shipping in the Bay, and for the nature of the traffic there, I think a long jetty run out in this way is a very good way of utilising the accommodation.

1232. You think that if a jetty is constructed its dimensions should be about 700 feet long by 150 feet wide? Yes.

1233. Witnesses have stated that the width is not sufficient—that it is not wide enough to admit of vehicular traffic down the centre of the jetty? I would be inclined to give more width, so as to give greater accommodation for the traffic. Ships will be placed on both sides of the jetty.

1234. You have not had under your observation the alterations on the naval portion of the Bay? No; they have not come under my official notice.

1235. Do you think one jetty would be better than two, or two better than one? I am rather inclined to favour a long jetty to afford berths on either side, as proposed. Ships have to be turned, and the waters being rather narrow, I favour one long jetty in preference to two shorter ones.

1236. *Mr. Humphery.*] Is it your opinion that if a jetty is constructed as proposed, the berths would be constantly occupied? I cannot say that, but I know that both Woolloomooloo Bay and Sydney Cove are favourite positions to which ships like to go.

1237. Do you think there would be a fair return for the expenditure? I am inclined to think there would be.

1238. *Mr. Watson.*] You said Captain Jackson was unable to give berths—on what grounds was he unable? Because he had no berths to give.

1239. Cannot they obtain berths anywhere else? I believe they could,

1240. What is the reason for applying for berths at Circular Quay? I could not tell you.

1241. Is it not for the convenience of getting wool from the stores? I am inclined to think so; but I am not certain.

1242. On what grounds is additional accommodation required? On the grounds that I have mentioned: that the wharfinger told me not long since, that he could not comply with applications for accommodation.

1243. Cannot they get accommodation elsewhere? I believe they could.

1244. Are you not aware that the wharves in Darling Harbour are half empty at the present time? I understand they are.

1245. *Mr. Kethel.*] Have you given much consideration to the planning out of wharfage accommodation since you have occupied your present position? I cannot say that I have given particular attention to it. That particular duty does not come under my cognizance.

1246. You have said that you would prefer a jetty being run out to improving the foreshores;—do I understand that you would prefer to leave the sides of the bay as they are, and run two jetties out to supply whatever accommodation may be required? What I am impressed with now is, that the present proposal would be less expensive, and probably less troublesome, than to construct a wharf round the whole of the foreshores.

1247. Supposing it were contemplated to have a comprehensive scheme of permanent wharfage improvements on the foreshores of Woolloomooloo Bay, are we to understand that you think that wooden jetties should form part of that scheme? I do not set up one scheme for another. I understood I was asked whether I was in favour of this particular proposal. I have not gone into the other matter sufficiently to give a reliable opinion.

PARLIAMENTARY STANDING COMMITTEE ON PUBLIC WORKS.
Wharfage Accommodation, Woolloomooloo Bay.

APPENDIX.

B.

[To Evidence of Captain John Jackson.]

STATEMENT of Revenue from and Number of Vessels berthed at Cowper Wharf from 1866 to date.

Year.	Coasters.	Over-sea Vessels.	Total.		
1866	.....	.....	.....	£	s. d.
1867	.....	.....	.....	128	15 9
1868	.....	.....	.....	21	15 9
1869	.....	.....	.....	58	16 9
1870	.....	.....	.....	74	13 2
1871	.....	.....	.....	93	19 4
1872	.....	.....	.....	205	15 3
1873	.....	.....	.....	308	5 2
1874	.....	.....	.....	.....	.....
1875	.....	.....	.....	.....	.....
1876	.....	.....	.....	327	13 10
1877	.....	.....	.....	322	12 0
1878	.....	.....	.....	208	9 9
1879	.....	.....	.....	265	15 9
1880	.....	.....	.....	314	13 1
1881	.....	.....	.....	514	19 10
1882	527	.....	.....	1,433	9 3
1883	433	1	437	1,904	16 2
1884	549	9	570	1,735	10 10
1885	597	20	606	2,449	4 5
1886	555	24	521	4,057	6 2
1887	621	14	610	5,181	4 10
1888	518	8	483	3,811	13 3
				2,807	6 11

Information cannot be obtained.

No books were kept prior to 1882.

To October 31st.

Circular Quay, November 23rd, 1888.

JOHN JACKSON.

C.

[To Evidence of William Robeson Benson, Esq.]

RETURN showing number of inward cargo ships and steamers berthed at the Associated Wharves from 1st January, 1887, to 31st October, 1888, and their respective register tonnage:—

ADELAIDE WHARF.

Ship.	Tons.	Ship.	Tons.	Ship.	Tons.
Alex. Laurence	1,205	Dee	1,115	Gayton	936
Ariadne	1,167	Dallam Towers	1,464	Inchgreen	1,091
Aristomene	1,750	Earl of Zetland	1,461	Inchkeith	1,237
Brussels	991	Firth of Stronza	1,251	John Gamble	1,027
Brambletye	1,513	Firth of Solway	1,245	Loch Trool	1,410
Ballumbie	1,131	Firth of Clyde	1,207	Moresby	1,217
Cochin	1,200	Firth of Dornoch	907	Maraval	1,257
Cape Breton	1,421	Firth of Clyde	1,207	Oakhurst	1,032
Cambrian Princess	1,350	Firth of Forth	930	Port Jackson	2,132
Dunolly	1,478	Gareloch	1,177	Serial Wyn	1,065
Dallam Towers	1,464	Glentyne	513	Thessalus	1,782

Total, 33 vessels.

GRAFTON WHARF.

Ship.	Tons.	Ship.	Tons.	Ship.	Tons.
Amoy	994	Dumfrieshire	1,221	Maxwell	1,800
Annie Stafford	1,297	Durham	1,997	Port Darwin (steamer)	1,628
Chindewara	1,487	Edinburgshire	1,277	Port Augusta (steamer)	1,856
Cairngorm	1,666	Grassendale	1,819	Port Pirie (steamer)	2,040
Cluny Castle	1,934	Grassendale	1,819	Roehampton (steamer)	1,391
Charlotte Croom	1,661	Leyland Bros.	2,238	Rising Star	835
Coldinghame	1,059	Lake Ontario	1,061	Siosa	1,691
Crumnock Waters	995	Mitredale	1,231	Samoa	1,109

Total, 24 vessels.

DALGETY'S WHARF.

Ship.	Tons.	Ship.	Tons.	Ship.	Tons.
Australasian (steamer)	2,343	Australasian (steamer)	2,343	Patriarch	1,399
Aberdeen (steamer)	2,371	Damascus (steamer)	3,790	Smyrna	1,305
Australasian (steamer)	2,343	Damascus (steamer)	3,790	Sophocles	1,120
Aberdeen (steamer)	2,371	Gulf of Venice (steamer)	1,964	Thermopylae	948
Australasian (steamer)	2,343	Orontes	1,318	Thermopylae	948
Aberdeen (steamer)	2,371	Pericles	1,598		

Total, 17 vessels.

CENTRAL

APPENDIX.

CENTRAL WHARF.

Ship.	Tons.	Ship.	Tons.	Ship.	Tons.
Achilles	1,521	Hubbuck (steamer)	1,834	Port Fairy (steamer)	1,447
British General	1,754	Hubbuck (steamer)	1,834	Rodney	2,833
Candida	1,221	Illawarra	1,887	Riverina (steamer)	2,833
Derwent	1,896	Illawarra	1,887	Riverina (steamer)	1,492
Foxglove	842	Kent	1,620	Sussex (steamer)	2,504
Gulf of Venice (steamer)	3,022	Melbourne	1,867	Windsor Castle	979
Gareloch	1,177	Murrumbidgee (steamer)	3,250	Wilcannia (steamer)	1841
Hubbuck (steamer)	1,834	Murrumbidgee (steamer)	3,250		
Hawkesbury	1,120	Parramatta	1,521		

Total, 26 vessels.

DIBBS' WHARF.

Ship.	Tons.	Ship.	Tons.	Ship.	Tons.
Amoyne	1,300	Duke of Argyle (steamer)	2,037	Muriel	535
Aruguda	998	Essex	629	Nerens	1,272
Ashleigh Brook (steamer)	1,925	Embleton	1,196	Nith	990
Adam W. Spies	1,171	Eugenie	699	Port Pirie (steamer)	3,190
Batavier	1,616	G. V. Jordan	662	Port Phillip (steamer)	2,671
Blackadder	917	H. G. Johnson	1,027	Richard Parsons	1,116
Blairstown	1,554	Hahnemann	1,937	Salamanca	1,202
Bay of Bengal	1,526	Ladakh	1,940	South American	1,762
City of Sparta	1,193	Lake Erie	938	Selembria (steamer)	1,992
City of Hankow (steamer)	1,195	Lismore	1,598	Worcester (steamer)	2,890
Cordillera	852	Mary M'Master	590		

Total, 32 vessels.

MOORE'S WHARF.

Ship.	Tons.	Ship.	Tons.	Ship.	Tons.
Atlantic	996	Eastern Monarch	1,706	M'Leod	1,556
Bankhall	1,312	Francis Thorpe	1,257	North	1,296
Balmoral Castle (steamer)	1,653	Francois	1,050	Poonah	1,199
Crofton Hall	2,075	Howden	1,163	Star of Germany	1,284
Colwyn	1,160	Hereward	1,513	South Esk	1,154
Dunolly	1,479	Albeura	1,502	Thunderbolt	1,193
Essex (steamer)	1,675	Cloncaird	1,300		
East Lothian	1,389	Imperial	1,288		

Total, 22 vessels.

SMITH'S WHARF.

Ship.	Tons.	Ship.	Tons.	Ship.	Tons.
Argus	1,543	Firth of Solway	1,245	Neptun	246
Confluentia	358	Glamis	1,150	Pericles	1,598
Cynisca	846	Harold	1,299	Ralston	815
Cynsure	764	Johanna	430	Volga	1,620
Earnock	1,193	King Malcolm	1,256	Venus	482
Firth of Tay	826	Luise	418		
Firth of Stronza	1,281	Largo Law	1,587		

Total, 19 vessels.

PARBURY'S WHARF.

Ship.	Tons.	Ship.	Tons.	Ship.	Tons.
Aviemore	1,592	Gulf of Venice (steamer)	1,964	Patriarch	1,339
Drummuir	1,798	Gulf of Venice (steamer)	1,964	Sophocles	1,120
Duke of Devonshire (steamer)	2,024	Hesperides	1,338	Samuel Plimsoll	1,061
Fifeshire (steamer)	2,425	Miltiades	1,452	Sophocles	1,120

Total, 12 vessels.

TOWN'S WHARF.

Ship.	Tons.	Ship.	Tons.	Ship.	Tons.
Ardenclotha	1,222	Ethiopian	839	Jerusalem	901
Chr. Knudson	569	Embla	385	Nomad	452
Coringa	1,343	Furness Abbey	1,044		

Total, 8 vessels.

DALTON'S WHARF.

Ship.	Tons.	Ship.	Tons.	Ship.	Tons.
Achilles	1,521	Carnarvon Castle	1,170	Hannover	558
Alex. Lawrence	1,205	Carleton	1,300	Howrah	1,098
Centurion	1,194	Hereward	1,513	Loch Trool	1,410
Candida	1,222	Haddon Hall	1,146	Nebo	1,383

Total, 12 vessels.

TIMBER LADEN VESSELS.

Ship.	Tons.	Ship.	Tons.	Ship.	Tons.
Angerona	1,215	Nebo	591	Royal Tar	598
Juletrae	730	Pakwan	819	Valdivia	877

Total, 6 vessels.

RECAPITULATION.

RECAPITULATION.

Wharf.	Number of Ships.	Number of Steamers.	Total.
Adelaide	33	.....	33
Grafton.....	20	4	24
Dalgety's	7	10	17
Central	15	11	26
Dibbs'	25	7	32
Moore's	20	2	22
Smith's	19	.....	19
Parbury's	8	4	12
Town's	8	.....	8
Dalton's	12	.....	12
			205
Timber laden vessels	6	.....	6
		Total	211

NOTE.—All steamers partly laden. Steamers consigned to the Eastern and Australian S.N. Co. and the China S.N. Co. are not included.

W. R. BENSON.

14, Change Alley, Pitt-street, November 28th, 1888.

D

THE PROPOSED NEW ADMIRALTY WHARF, WOOLLOOMOOLOO BAY.

REAR-Admiral Fairfax to His Excellency Lord Carrington, in reply to a letter from the Chairman of the Parliamentary Standing Committee on Public Works, on the subject of wharfage accommodation for the Royal Navy, proposed to be provided in Woolloomooloo Bay.

My Lord,

Orlando, at Sydney, 12th November, 1888.

In reply to letter, dated 26th September, 1888, from the Parliamentary Standing Committee on Public Works, forwarded by your Excellency, on the subject of wharfage accommodation for the Navy, to be provided in Woolloomooloo Bay, I beg to say that the arrangements between the New South Wales Government and the Admiralty have been completed some years ago, and without reference to their Lordships I could not concur in any extensive departure from the plans already approved.

If, however, as now appears, there is a difficulty in completing the wharf and buildings, as designed, in the assigned position, owing to want of foundation, I am satisfied that there will not be difficulty in obtaining authority to alter the position to the extent proposed, provided equal advantages in all respects are offered as were arranged in the former position, and as regards exclusive possession to the Navy of the wharf to the extent originally proposed, with the naval store buildings situated in the same relative position in the rear of the wharf.

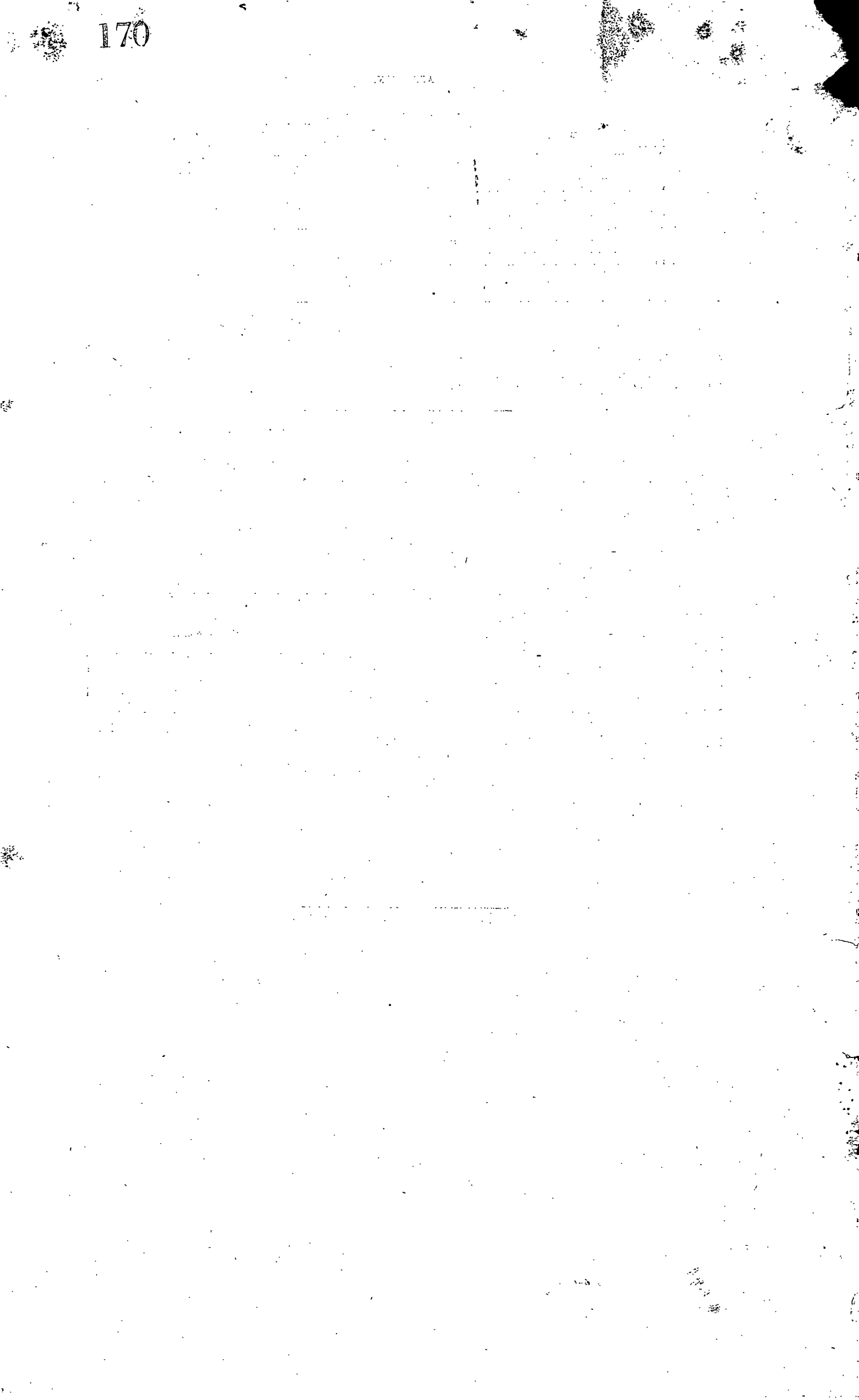
Owing to increasing requirements, the want of the new naval store and wharf is very much felt, and further increase of the squadron is anticipated. I should be prepared to submit for Admiralty approval any approved change of position from the original plan which would accelerate the building of the new naval depôt: And should your Excellency's Government think any such change advisable with that view, I will endeavour to fall in with the arrangement and recommend its adoption if I find the plan proposed to be suitable and feasible.

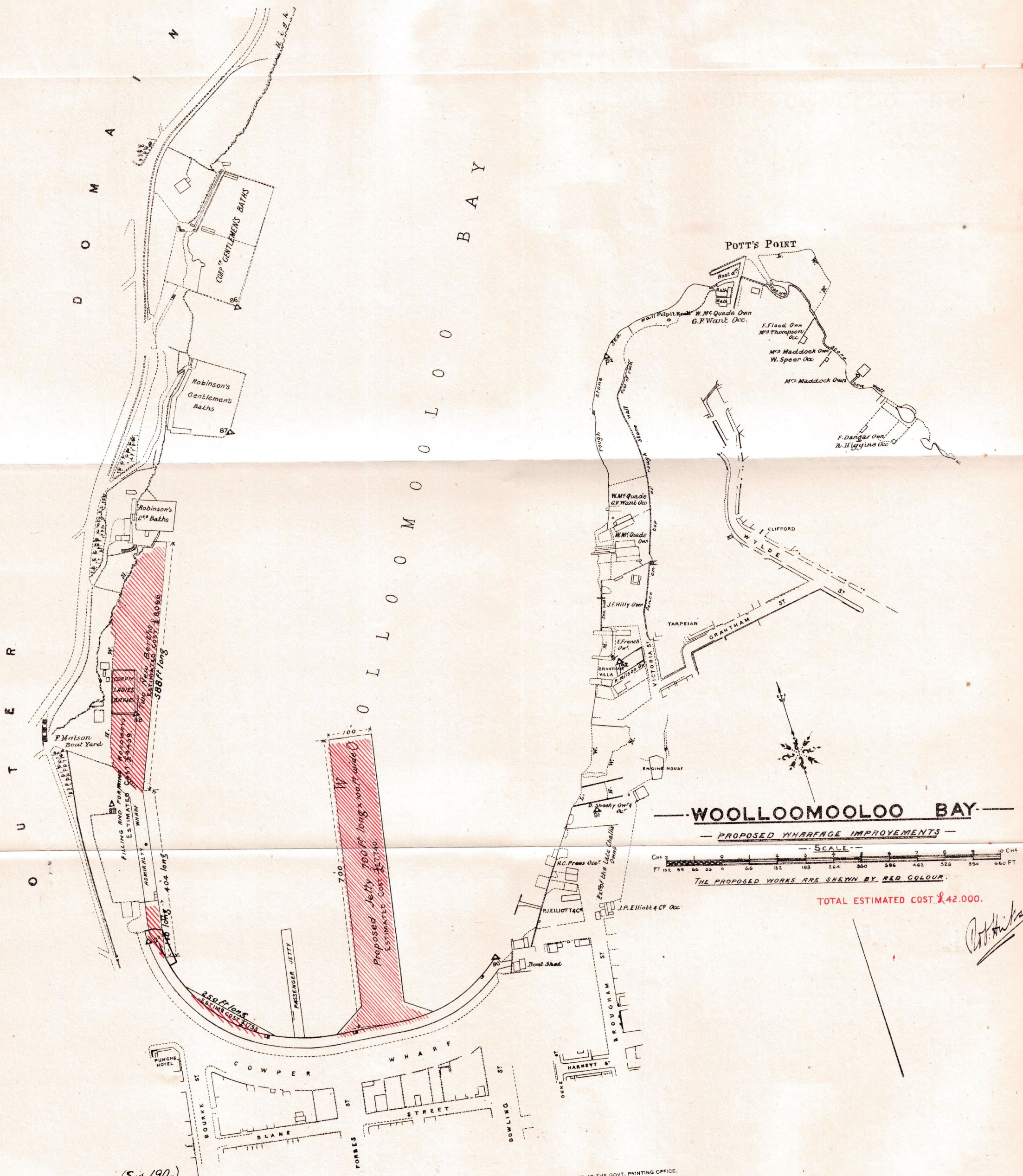
I have, &c.,

H. FAIRFAX,

Rear-Admiral and Commander-in-Chief.

His Excellency the Right Honorable Lord Carrington, G.C.M.G., &c., &c., &c.,
Governor and Commander-in-Chief, New South Wales.





O U T E R D O M A I N

(Sig 190-)

Ch. H. H. H.
5/10/88

PHOTO-LITHOGRAPHED AT THE GOVT. PRINTING OFFICE,
 SYDNEY, NEW SOUTH WALES.

1888.

LEGISLATIVE ASSEMBLY.

NEW SOUTH WALES.

PROPERTY ON OLD A.S.N. COMPANY'S WHARF.

(LEASING OF SHED TO MESSRS. FLOOD & CO.)

Ordered by the Legislative Assembly to be printed, 13 December, 1888.

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No. 1.

Messrs. Flood & Co. to The Colonial Treasurer.

Sir,

Blackwall Stores, Circular Quay, 3 May, 1888.

In view of the approaching wool season, we beg to offer to rent from you, for a short or long term, as you may elect, either the whole or portion of shed on northern jetty at old A.S.N. Co's. premises.

We shall require additional accommodation and greater facilities for getting away the wool during the coming season, and do not wish to seek for same outside the Circular Quay, where we have for so many years carried on the whole of our business.

We trust you will look favourably on our application, and let us know early on what terms you will be inclined to let above premises.

We remain, &c.,
FLOOD & CO.

Manager, Circular Quay.—G.E., B.C., 4/5/88.

No. 2.

Report by Captain J. Jackson, Manager of Public Wharves.

Circular Quay, 7 May, 1888.

DURING the wool season, from September to February, only about one-half of the extensive sheds on the late A.S.N. Company's property will be required for import goods, as nearly the whole of the wharf accommodation will be taken up by vessels loading outwards; and also, taking into consideration the large amount of revenue that would be lost to the Quay if this firm removed their business to another wharf, I would recommend that 264 feet of the northern end of these sheds be leased to Messrs. Flood & Co. for three years, but only for six months of each year, from the 1st of September to the 1st of March, at a yearly rental of £200, on condition that any alteration they may require to make the sheds suitable for carrying on their business be done at their own expense, and that they insure that portion of the shed used by them in the amount of £2,000.

The Under Secretary for Finance and Trade.

J.J.

Approved.—J.F.B., 11/5/88.

No. 3.

The Under Secretary for Finance and Trade to Messrs. Flood & Co.

Gentlemen,

The Treasury, New South Wales, Sydney, 19 May, 1888.

I have the honor, by direction of the Colonial Treasurer, to acknowledge receipt of your letter of 3rd instant, and to inform you, in reply, that he is willing to grant you a lease of 264 feet of the northern end of the shed upon the late A.S.N. property, upon the following terms, namely:—

- (1.) The lease to be for the period from 1st September to 1st March in each of the years 1888-9, 1889-90, 1890-1, *i.e.*, three years.
- (2.) The rent to be £200 for each half-yearly period.
- (3.) Any alterations required in the sheds, to fit them for your purposes, to be carried out at your own cost, and only after leave obtained from the Government.
- (4.) The portion leased to you to be insured by you in a sum of £2,000 (two thousand pounds).

Awaiting your reply.

I have, &c.,
G. EAGAR.

No. 4.

Messrs. Flood & Co. to The Under Secretary for Finance and Trade.

Sir,

Blackwall Stores, Circular Quay, Sydney, 23 May, 1888.

We are in receipt of your letter of the 19th instant, in answer to our application of 3rd instant, for lease of shed on late A.S.N. property.

Considering we shall be at great expense making the premises suitable to our business, and that you will have the benefit of same for half the year, we think that £100 for the half-year would be an adequate rent.

We are prepared to accept a lease for three years, and also to keep the premises insured during our term in a sum of £2,000.

Kindly give this matter your early attention, and oblige,—

Yours, &c.,
FLOOD & CO.

Approved.—J.F.B., 25/5/88.

No. 5.

The Under Secretary for Finance and Trade to Messrs. Flood & Co.

Gentlemen,

The Treasury, New South Wales, Sydney, 29 May, 1888.

I am directed by the Colonial Treasurer to acknowledge the receipt of your letter of the 23rd instant, in reply to Treasury communication to you of 19th idem, and to state that he is prepared to accept the rent named therein.

A lease will be forwarded to you for execution in due course.

I have, &c.,
F. KIRKPATRICK,
(For the Under Secretary).

No. 6.

Agreement to let and take.

WE hereby agree to let and take the following premises, namely:—264 (two hundred and sixty-four) feet of the northern end of the shed upon the Government property at the Circular Quay, formerly known as the A.S.N. Co. Wharf—upon the following terms and conditions, namely:—

- (1.) The occupancy to be for the period from 1st September to 28th February, both days inclusive, in each of the years 1888-9, 1889-90, and 1890-1, to commence from the 1st September now next ensuing. At the end of each half-yearly period the premises revert to the lessor, until the commencement of the next following half-yearly period.
- (2.) The rent to be one hundred (£100) for each six months' term, and to be paid in advance to the Manager of the Circular Quay.
- (3.) If rent remains unpaid for seven days after demand, the lessor may enter upon the property, and the lessee to remove without prejudice.
- (4.) The lessee shall not re-let the whole or any part of the property leased without permission from the lessor.
- (5.) The lessee to keep the property in repair, ordinary wear and tear excepted.
- (6.) Any alterations required by lessee shall be carried out at his own expense, and the character of them shall be subject to the approval of the lessor.
- (7.) The lessee shall insure the property for a sum of two thousand pounds (£2,000), and shall keep the same insured during the currency of this lease; premium receipts to be lodged with lessor.

As witness our hands, this 14th day of August, 1888,—

Witness: JOHN JACKSON.

FLOOD & CO.,
Tenant.

For the Government of New South Wales.

J. F. BURNS,
Colonial Treasurer,

Witness: G. EAGAR.

Landlord.

No. 7.

Memorandum from Messrs. Flood & Co. to Captain Jackson.

Dear Sir,

17 Loftus-street, Sydney, 28 November, 1888.

In answer to your inquiry *re* wool through our portion of the sheds leased from the Government at the old A.S.N. Co.'s wharf, we estimate that the number of bales shipped through the above sheds will be about 100,000 for the six months.

Yours truly,
FLOOD & CO.,
(Per H. J. KING).

No. 8.

Report from Captain Jackson, Manager of the Public Wharves.

Lease to Messrs. Flood & Co. of Stores at the Circular Quay. (Supplementary to the answers made to questions by Mr. Melville, M.P., on 20th November last.)

Sir,

Circular Quay Office, 29 November, 1888.

In answer to your verbal inquiry I have the honor to state for the information of the Honorable the Colonial Treasurer, that apart from the rent paid by Messrs. Flood & Co. for a portion of the shed on the late A.S.N. Company's wharf, that firm will ship through this shed about 100,000 bales of wool (*see* memorandum herewith); this, at 4d. per bale, will give wharfage amounting to £1,666 13s., and to this must be added about £900 tonnage dues on vessels loading this wool, giving a revenue through leasing this shed of about £2,666 for six months. I beg further to state for the information of the Colonial Treasurer that, prior to taking the above wharf over on the 1st July last, it was leased to Messrs. Burns, Philp, & Co., at an annual rental of £8,000 exclusive of the stores, the annual rental for these amounted to £5,450, making the gross income from the whole of this property prior to the wharf being worked by the Government £13,450.

As this property has only been in my charge from the 1st of July last, I can only give the income that will be derived for the six months ending December 31st, as follows:—Wharfage and tonnage dues, £6,200; rent of stores, £1,800—to this must be added the annual value of stores and offices occupied by Government Department, £3,600; making the gross income from this property for the six months ending December 31st, £9,800, or £19,600 per annum, about 7½ per cent. on the cost of the property. The gross revenue from the Quay for the current year (inclusive of the above wharf) will amount to over £42,000.

I have, &c.,
JOHN JACKSON,
Manager.

The Under Secretary for Finance and Trade.

1888.

NEW SOUTH WALES.

AUSTRALIAN MUSEUM.

(REPORT OF THE TRUSTEES FOR 1887.)

Presented to Parliament, pursuant to Act 17 Vic. No. 2, sec. 9.

TO HIS EXCELLENCY THE GOVERNOR AND EXECUTIVE COUNCIL,—

The Trustees of the Australian Museum, incorporated by the Act 17 Victoria No. 2, have the honor to submit to your Excellency in Council, in accordance with the 9th section of that Act, this their thirty-fourth Annual Report.

1. The hours during which the Museum is open to the public have continued to be, as in previous years, from 10 until 5 o'clock (or in summer till 6 o'clock) daily, except on Mondays, when it is closed for the necessary purposes of cleansing, and except on Sundays, when the hours are from 2 o'clock only to 5. The record of the number of visitors in 1887 shows a decrease, the total number being 122,799, as against 127,231 in 1886. The largest attendance on one day was 2,658, namely, on Monday, the 3rd October; and the largest Sunday attendance was 1,233, on the 17th July. The average daily number throughout the year was 330 on week-days and 709 on Sundays. The orderly conduct of the visitors on all these occasions, and the apparently intelligent interest taken by a large portion of them in the exhibits, afford gratifying evidence of their value, as affording not merely amusement but also useful instruction.

2. The collections are still being increased, mainly by purchases, exchanges, and donations, but also by our collecting and dredging expeditions. A list of these additions, under their separate heads, with a report by the Curator, will be found in Appendices IV, V, VI, VII. An expedition, under the charge of Messrs. Cairn and Grant, to the Bellenden Ker Ranges, in Northern Queensland, resulted in obtaining for the Museum about sixty-eight species (198 specimens) of birds, and eleven species (35 specimens) of mammals, seven of which are new to the Museum, and three are new to science; besides a number of insects and other invertebrates. A list of these will be found in Appendix IX. The Trustees were enabled also during the year to send an expedition to Lord Howe Island, in company with the Visiting Magistrate, Mr. H. T. Wilkinson. Advantage was taken of this official visit, and Messrs. Etheridge, Thorpe, and Whitelegge were instructed by the Trustees to proceed there. A report of the expedition forms Appendix X, and a fuller account of the natural history of this interesting island will shortly be issued as a separate publication.

3. The Ethnological Hall referred to in last year's report has been fitted up with cases, and the valuable Ethnological collections, mostly acquired during recent years, are arranged there. It is anticipated that this will prove to be not the least interesting portion of the Museum. The removal of this collection to the new hall has cleared the galleries in the old wing, which are now being used temporarily for the display of foreign mammals and other specimens not of local interest. It has been found necessary to use a portion of the old wing for books for which there is no room in the Library, and one end of it has accordingly been fitted up with book-cases. Ultimately this wing is intended to be for the reception of the Geological Collections, but as no money has been allowed by the Government for cases during the present year, the work of fitting it up for their exhibition is necessarily postponed. The officers of the Institution are still suffering much inconvenience, and their work is in no small degree retarded, by reason of the want of additional accommodation.

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APPENDIX III.

ATTENDANCE OF THE TRUSTEES DURING 1887.

Crown Trustee.

The Honorable Sir Alfred Stephen, G.C.M.G., C.B., M.L.C. ... 7

Official Trustees.

His Honor the Chief Justice ... 0
 The Honorable the Colonial Secretary ... 0
 The Honorable the Attorney-General ... 0
 The Honorable the Colonial Treasurer ... 0
 The Auditor-General ... 7
 The Collector of Customs ... 0
 The Surveyor-General ... 0
 The Colonial Architect ... 1
 The President of the Medical Board ... 9

Elective Trustees.

J. C. Cox, Esq., M.D., F.L.S. ... 11
 J. Belisario, Esq., D.D.S. ... 6
 A. Liversidge, Esq., F.R.S. ... 0
 The Honorable Jas. Norton, M.L.C. ... 11
 Sir Alfred Roberts, M.R.C.S., Knt. ... 6
 H. H. B. Bradley, Esq. ... 7
 Robert Hunt, Esq., F.G.S. ... 11
 Charles Moore, Esq., F.L.S. ... 5
 C. S. Wilkinson, Esq., F.G.S. ... 4
 The Honorable P. G. King, M.L.C. ... 8
 W. J. Stephens, Esq., M.A. ... 1
 Edmund Fosbery, Esq. ... 5
 W. D. Campbell Williams, L.R.C.P., London, &c. ... 2
 Number of Board Meetings during the year ... 14

APPENDIX IV.

ACQUISITIONS BY COLLECTION AND PURCHASE.

Mammals:—15 species; 40 specimens collected. 12 species; 16 specimens purchased.
 Birds:—126 species; 478 specimens collected. 109 species; 194 specimens purchased.
 Birds' Eggs:—4 species; 5 specimens collected. Collection of Australian eggs purchased.
 Birds' Nests:—3 species; 11 specimens collected. 4 species; 4 specimens purchased.
 Fishes:—55 species; 138 specimens collected. 99 species; 152 specimens purchased.
 Insecta:—1,737 specimens purchased.
 Crustacea:—1 species; 1 specimen purchased.
 Mollusca:—4 species; 4 specimens and two collections of shells purchased.
 Echinodermata:—Collection purchased.
 Minerals:—A large number of specimens purchased.
 Fossils:—32 species; 135 specimens purchased.

Ethnological specimens purchased:—

42 specimens from New South Wales.	4 specimens from Cean Island.
47 " " Harvey Group	331 " " Admiralty Islands.
88 " " New Guinea.	67 " " Mortlock Islands.
107 " " New Zealand.	24 " " New Britain.
221 " " Solomon Islands.	15 " " Louisiade Islands.
8 " " Fischer Islands.	6 " " Greenwich Island.
298 " " New Ireland.	2 " " Stewart Island.
8 " " Gardner's Island.	

APPENDIX V.

DONATIONS.

Specimen.	Donor.
<i>Mammals.</i>	
3 Dasyurus viverrinus	Mr. T. Brown.
1 Hydromys leucogaster	Mr. H. P. Dove.
1 Antechinus sp.	Mr. W. J. Foster.
2 Dasyurus maculatus	Mr. H. G. Greville.
1 " viverrinus	
1 Delphinus sp.	Messrs. Gibbs, Bright, & Co.
1 Small opossum from pouch	Mr. R. Greenwood.
1 Mouse (<i>Mus.</i> sp.)	Mr. J. R. Holding.
1 Dasyurus viverrinus	Mr. Jas. M'Donald.
1 Antechinus sp.	Mr. J. Mitchell.
1 Hydromys chrysogaster	Mr. A. M'Tarvish.
1 Herpestes griseus	Mrs. Miller.
1 Dasyurus viverrinus	Constable Ord.
1 Canis dingo	Mr. E. G. W. Palmer.
1 Echidna setosa	Mr. W. Porter.
1 Hapale jachus	Sir A. Stephen, G.C.M.G., C.B., &c.
1 Phascogale penicillata	
Fœtus, and the ovaries of a kangaroo	Mr. J. M. Stevens.
1 Hydromys leucogaster	Mr. S. Sinclair.
<i>Birds.</i>	
2 Euphema bourkii	Mr. K. H. Bennett.
2 Recurvirostra rubricollis	
4 Pomatostomus ruficeps	
2 " superciliosa	
1 Apteryx oweni	The Director, Botanical Gardens.
1 Pelecanus conspicillatus	Mr. H. Burns.
1 Gymnorhina tibicen	
1 Hieracidea orientalis	Mrs. Cadell.
1 Elanus axillaris	Mr. T. Cadell.
1 Biziura lobata	Dr. J. C. Cox.
1 Eudiptula minor	Mr. J. Connors.
1 Nycticorax caledonicus	Mr. L. R. Dyce.
1 Podargus strigoides	Mrs. Elwin.
1 Entomyza cyanotis	Dr. Fischer.
1 Ptilotis auricomis	
1 Collyriocincla harmonica	Mr. J. T. Fischer.
1 Eopsaltria australis	
1 Athene strenua	Dr. Fiaschi.
1 Biziura lobata	Mr. Richd. Grant.
1 Nycticorax caledonicus	
1 Fulica australis	
1 Falco frontatus	
1 Geocichla lunulata	
1 Turnix varius	
1 Turnix velox	
1 Tribonyx sp.	
2 Astur approximans	
1 Strepera anophonensis	
1 Coturnix pectoralis	
1 Synoicus australis	
1 Hieracidea orientalis	
1 Cacatua galerita (supposed to be 100 years old)	
1 Psephotus hæmatonotus	Mr. R. Hunt.
1 Podargus strigoides	Mr. S. Hosie.
1 Hæmatopus longirostris	Mons. L. Jaubert.
1 Tropicorhynchus corniculatus	Mr. H. G. Lodwidge.
1 Zosterops dorsalis	
1 Hirundo neoxena	Mr. H. J. M'Cooley.
1 Petroeca erythrogaster	Mr. J. A. Millington.
1 Gygis candida	
1 Platycercus pennantii	Mr. A. H. M'Culloch.
1 Menura superba	
1 Accipiter cirrhocephalus	Hon. Jas. Norton, M.L.C.
1 Eurystomus pacificus	
1 Merops ornatus	Mr. H. Newcombe.
1 Dromaius novæ-hollandiæ	Mr. Palmer.
1 Dicæum hirundinaceum	Mr. P. Schrader.
1 Cacomantis flabelliformis	
1 Geobasileus reguloides	

Specimen.	Donor.
<i>Birds—continued.</i>	
1 Pardalotus affinis ...	} Mr. P. Schrader.
2 " punctatus ...	
1 Biziura lobata ...	} Dr. Sinclair.
1 Casuarius australis ...	
1 Dromaius novæ-hollandiæ ...	} Mr. T. Saves.
2 Kaguus ...	
6 Trichoglossus pusillus ...	} Mr. J. A. Thorpe.
3 Amadina lathamii ...	
1 Acanthiza lineata ...	
2 Melithreptus lunulatus ...	
1 Myzomela sanguinolenta ...	
1 Meliornis novæ-hollandiæ ...	
6 Estrilda temporalis ...	
1 Pardalotus punctatus ...	
2 Rhipidura albiscapa ...	
1 Acanthorhynchus tenuirostris ...	
1 Ptilotis auricomis ...	
<i>Reptiles.</i>	
1 Phyllurus platurus ...	Mr. F. W. Attwood.
1 Pygopus lepidopus ...	Dr. Belisario.
1 Cyclodus gigas ...	Mrs. G. H. Barrow.
1 Morelia spilotes ...	Mr. H. Brown.
1 Typhlops rueppellii ...	Mr. A. Bingham.
1 Vermicella annulata ...	Mr. J. Boland.
1 Diemenia superciliosa, juv.	Mrs. Byrnes.
1 " reticulata ...	Mr. E. Byrnes.
2 Platurus scutatus ...	Com. C. H. Cross, R. N.
1 Cyclodus gigas ...	Dr. J. C. Cox.
3 Phrynosoma cornuta ...	Dr. Card.
1 Grammatophora barbata ...	Mr. F. Chilton.
1 Diemenia superciliosa ...	Mr. A. Craddock.
1 Lialis punctulata ...	Mr. J. T. Cockerill.
1 Phyllurus myliussii ...	Mr. C. J. Dyce.
1 Dendrophis punctulata ...	} Mr. H. G. Greville.
1 Lialis punctulata ...	
1 Phyllurus platurus, var.	Mr. S. Gray.
1 Hoplocephalus pallidiceps ...	Mr. D. C. Gordon.
1 " sp. juv.	} Mr. C. Hanson.
1 Lialis sp. ...	
1 Pygopus lepidopus ...	} Mr. G. W. Hampshire.
1 Crocodilus biporcatus ...	
1 Morelia spilotes ...	
1 Pseudechis porphyriacus ...	
1 Morelia spilotes ...	
1 Diemenia superciliosa ...	
2 Pygopus lepidopus ...	
1 Typhlops sp. ...	
1 Phyllurus platurus ...	
1 Elaphis quadrilineatus ...	
1 Callopeltis flavescens ...	
1 " lacertina ...	
1 Coronella lævis ...	
1 Pelias berus ...	
1 Lacerta vivipara ...	
1 Tropidonotus natrix ...	
2 " " juv.	
1 Zamenis viridiflavus ...	
1 Tropidonotus tessellatus ...	
3 Small snakes ...	
1 Lacerta stirpium ...	
1 Vermicella annulata ...	} Mr. E. H. Lucas.
1 Phyllurus platurus ...	
1 Morelia spilotes ...	} Mr. J. M'Lean.
1 Chelonia oblonga ...	
1 Egernia cunninghami ...	} Mr. Mitchell.
1 Lagostoma sp. ...	
1 Lygosoma teniolatum ...	} Mr. N. J. Mason.
1 Hoplocephalus variegatus ...	
1 Vermicella annulata ...	Mr. Wm. Moss.
1 Hydrosaurus varius ...	Mr. D. Moore.
1 Small snake ...	Mr. A. S. M'Gowan.
1 Naja tripudians ...	Mrs. Miller.

Specimen.	Donor.
<i>Reptiles—continued.</i>	
1 Acanthophis antarctica	Mr. E. M'Ewan.
1 Lizard	Mr. Newman.
1 Brachysoma diadema	Mr. J. N. Oxley.
1 Hoplocephalus curtus	Mr. E. G. W. Palmer.
1 " signatus	
1 Diemenia superciliosa	Mr. A. Powell.
1 Typhlops nigrescens	Mr. W. C. Renwick.
1 Phyllurus platurus, var.	Mr. James Ramsay.
1 Aspidiotes ramsayi	
1 Hoplocephalus sp. nov.	
1 Dendrophis sp. nov.	
1 Vermicella annulata	Mr. Wm. Ronans.
1 " "	
2 Pygopus lepidopus	Mr. A. Rose.
1 Diemenia reticulata	Mr. G. Reed.
1 Brachysoma diadema	Mr. E. G. Stevens.
1 Hoplocephalus curtus	Mr. T. J. Skrine.
1 Hyla peronii	
1 Vermicella annulata	Dr. Sturt.
1 Cyclodus gigas	Mrs. E. Schofield.
1 Acanthophis antarctica	Messrs. Post & Rohu.
1 Skin of African snake	Mr. T. J. Uldrich.
1 Morelia spilotes	Mr. R. H. D. White.
1 Diplodactylus vittatus	Mr. J. Wyatt.
<i>Fishes.</i>	
1 Chrysophrys hasta	Mr. Theodore Bevan.
1 Echeneis naucrates	
1 Neopempheris pectoralis. TYPE	
1 Eupetrichthys angustipes. TYPE	Proprietors of Bondi Aquarium.
1 Heterodontus phillipi	
2 Scyllium anale	
1 Tetrodon inermis	
1 Trigla kumu	Mr. Chas. Colette.
1 Antennarius striatus	Dr. Jas. C. Cox.
1 Caranx ciliaris	
9 Clupea sagax	
1 Prionurus microlepidotus	
1 Synaptura nigra	
1 Trichiurus coxii, TYPE	Mr. Chas. W. Cross.
1 Acanthurus triostegus	
1 Apogon fasciatus	Mr. J. C. Dunlop.
2 Glyphidodon unioellatus	Mr. G. Eastway.
1 Solenognathus spinosissimus	Mr. Geo. Fairbairn.
1 Dactylopterus orientalis	Dr. L. Foucart.
1 Therapon sp.	Mr. R. Jagoe.
1 Hippocampus abdominalis	
5 Apogon punctatus	
2 Cristiceps sp.	
1 Chthamolepteryx melbournensis	
2 Monacanthus granulatus	
1 " sp.	
1 Odax sp.	Mr. J. G. Lodwidge.
1 Ostracion sp.	
2 Rhinobatus bougainvillii	Mr. Jas. Longmore.
2 Monacanthus sp.	
1 Zygena malleus	Mr. J. A. Millington.
2 Apogon norfolcensis. TYPE	
2 Julis dorsalis	
2 Parma polylepis	
2 Coris trimaculata. TYPE	Mr. H. Prince.
2 Labrichthys dorsalis	
1 Fistularia serrata	Mr. H. Newcome.
1 Tetrodon inermis	Mr. K. J. O'Dea.
1 Ostracion diaphanus	Mr. Ponder.
1 Galaxias coxii	Mr. H. Prince.
1 Pristiophorus cirratus	
1 Haploactis milesii	Dr. Read.
1 Cossyphus unimaculatus	Mr. Rohu.
4 Fistularia serrata	Dr. E. Sinclair.
1 Chaetodon strigatus	Mr. H. Smithurst.
1 Exocoetus sp.	Mr. E. Soane.
2 Oligorus macquariensis	

Specimen.	Donor.
<i>Fishes—continued.</i>	
1 <i>Periophthalmus koelreuteri</i>	Mr. R. H. Taylor.
22 <i>Ambassis gymnocephalus</i>	}
3 <i>Clupea richmondia</i>	
4 <i>Gobioides purpurascens</i>	
11 <i>Anguilla</i> sp.	
1 <i>Gobius castelnaui</i>	
6 " <i>gobioides</i>	Mr. Thos. Temperly.
2 " sp.	}
1 <i>Zygæna malleus</i>	
1 <i>Centropogon robustus</i>	Mr. J. Thomas.
2 <i>Gadopsis marmoratus</i>	Mr. Thompson.
2 <i>Ostracion lenticularis</i>	Mr. Jas. Tupy.
1 " "	Mr. Vandervort.
3 <i>Ctenolates ambiguus</i>	Mr. A. S. Walsh.
5 <i>Oligorus macquariensis</i>	}
7 <i>Macquaria australasica</i>	
2 <i>Therapon ellipticus</i>	
<i>Insecta.</i>	
1 Orthopteron... ..	}
1 Mantis sp.	
1 <i>Belostoma indicum</i> , St. F. & S.	Mr. G. H. Barrow.
14 Coleoptera... ..	}
1 <i>Cybister</i> sp.	
1 Orthopteron... ..	Mr. J. Anstey.
1 <i>Mantispa australica</i> , W.	}
1 <i>Chelepteryx collesi</i> , Gray	
Collection, chiefly Lepidoptera, from New Guinea	Mr. A. Birkett.
1 <i>Reduvius</i> sp.	Right Rev. Bishop of Goulburn
1 <i>Belostoma indicum</i> , St. F. & S.	Mr. J. C. Betteridge.
1 <i>Thynnus</i> sp.	Mr. Theo. Bevan.
1 <i>Gryllotalpa</i> sp.	Mr. H. Chambers.
1 <i>Papilio sarpedon</i> , L.	Dr. J. C. Cox.
1 <i>Agarista agricola</i> , Don	Mr. Carter.
1 <i>Belostoma indicum</i> , St. F. & S.	Mr. C. Cressey.
1 <i>Amarygmus puncticollis</i> , Hope	}
4 <i>Rhynchophora</i>	
1 <i>Chelepteryx collesi</i> , Gray	Master C. Carter.
6 <i>Ethon affinis</i> , L. & G.	Mr. J. Fitzhardinge.
1 Cocoon of <i>Oiketicus</i> sp.	}
1 Larva of <i>Chærocampa celerio</i> , L.	
1 <i>Chelepteryx collesi</i> , Gray	Mr. A. G. Gambell.
1 <i>Belostoma indicum</i> , St. F. & S.	Mr. W. Henderson.
1 <i>Anoplognathus porosus</i> , Dalm.	Mr. J. R. Holding.
1 <i>Repsimus manicatus</i> , Sw.	}
1 <i>Gryllus</i> sp.	
1 Chrysalis of <i>Danais plexippus</i> , L.	Miss Hall
1 <i>Macrotoma</i> sp.	Master Haughton.
4 <i>Galerucella semipullata</i> , Ch.	Mr. A. Habbe.
1 <i>Chærocampa scrofa</i> , Bois	}
1 <i>Xylotrupes australicus</i> , Th.	
Small collection from Norfolk Island	Mr. James Henry.
1 <i>Belostoma indicum</i> , St. F. & S.	Mr. C. Hedges.
1 Larva of <i>Pielus</i> sp.	Mrs. Kidd.
1 Larva of <i>Sequosa triangularis</i> , Don	Mr. J. G. Lodwidge.
1 <i>Dasypodia selenophora</i> , Gn.	Mr. Chas. Moore.
1 Mantis sp.	Miss Manning.
1 <i>Carenum marginatum</i> , Bd.	Mr. E. J. B. M'Kenna.
Collection of Sydney Lepidoptera	Mr. J. A. Millington.
6 <i>Anobium paniceum</i> , F.	Mr. J. M'Creedy.
1 <i>Antheræa eucalypti</i> , Sc.	Mr. A. S. M'Gowan.
1 <i>Sequosa triangularis</i> , Don	Mr. W. A. Nicholas.
1 <i>Metamimas australasiæ</i> , Don	}
1 <i>Rhytiphora</i> sp. nov.	
Collection of Coleoptera	Mr. A. S. E. Peer.
1 <i>Chærocampa erotus</i> , Cr.	}
1 <i>Corydalis</i> sp.	
1 <i>Chærocampa celerio</i> , L.	Mr. P. R. Pedley.
1 <i>Chelepteryx collesii</i> , G. & cocoon... ..	}
1 <i>Perga</i> sp.	
1 <i>Danima banksiæ</i> , Don	Mr. T. Ranft.
1 <i>Percosoma</i> sp.	}
1 <i>Belostoma indicum</i> , St. F. & S.	
	Mr. J. H. Rose.
	Mr. A. W. Robey.
	Mr. S. W. Spain.
	Mr. J. M. Stevens.
	Mr. F. A. A. Skuse.
	Mrs. Schofield.
	Mr. H. Smithurst.
	Mr. Thos. Thorburn.

Specimen.	Donor.
<i>Minerals, &c.—continued.</i>	
Gem sand from diamond-fields at Mittagong	Mr. J. P. Fisher
Arsenical pyrites	Mr. J. J. Finn.
Auriferous and argentiferous ores, including gossan, cerussite, anglesite, pyromorphite, chloride of silver, gold, &c.	Mr. R. Hellyer.
6 Opals	Mr. F. F. Hoddinott.
Quartz crystals	Mr. M'Cooley.
Sandstone nodules	Mr. R. Male.
2 Specimens quartz, with gold	Messrs. Moss and party.
Various eruptive rocks and copper ore	
17 Specimens of eruptive and metalliferous rocks, including chlorite, copper pyrites, and arsenical pyrites	Mr. L. Nicholson.
Alluvial sand	
Magnetic iron	
Zircon (red), &c.	Mr. Pender.
Titanic iron	
Olivine (green)	
Axinite crystals	
Chabasite	
Molybdenite	
Tin-ore crystals	
Zircons	
Hyalite	
Diorite	Mr. D. A. Porter.
Mesotype in granite	
Stalactitic manganese ore	
Stibnite	
Titanic iron	
Analcite and chabasite	
Albite	
Hornblende crystals	
Specimens of copper ore	Mr. E. A. Rennie.
Agate pebble	Mr. E. M. Ryan
Auriferous quartz with mispickel	Mr. F. Ratte
Copper pyrites	
Galena	Mr. Steverlynck
Azurite	
A collection of rocks and minerals, illustrating the mode of occurrence of the diamond, with section of diamondiferous ground	Mr. J. W. Stone.
Cast of a large diamond	
Copper ore	
Iron ore	Mr. H. E. Stephenson.
Galena	
Collection of minerals	Mr. H. Smithurst.
Arragonite, in basalt	Mr. Scarr.
Alluvial gold, washdirt and decomposed granite	Mr. S. Sinclair.
Auriferous pyrites in quartz and burnt sand	
Dendritic gold in arsenical pyrites	Mr. Jack Smith.
Dendritic gold in serpentine	
2 Specimens of eruptive rocks	Mr. G. Troy.
2 Specimens of copper pyrites and gold	Mr. M. Walsh.
Crystal of tin-stone	
Quartz, with chlorite schist and pyrites	Mr. Woodford.
Pebbles of pink and white and pink limestone	
Graphite	Mr. Chas. Wooller.
Fluor spar	
Silicified wood	Mrs. E. Selkirk.
Calcareous deposit	
Myeline and other minerals	
Black sand, composed mostly of titanite iron with zircons	Mr. Richardson.
<i>Fossils.</i>	
Leaves (Daphnogene sp.)	Mr. W. Cumberland.
11 specimens fossil fish	Mr. A. Harber.
29 Permo-Carboniferous Brachiopoda, from Bowen River Coal-field, N. Q.	Mr. R. L. Jack.
34 Permo-Carboniferous Brachiopoda, from Mount Britton, N. Q.	
Fossil nut (concretion)	Mr. C. Kent.
Fern (Cycadopteris scolopendrina)	
Fish (Myriolépis sp.)	
Phacops caudatus	Mr. Kershaw.
Lower jaw of Nototherium	Mr. J. M'Master.
12 Specimens Permo-Carboniferous Brachiopoda	Mr. A. L. Morrissett.
1 Bivalve—Carboniferous	
1 Slab Brachiopoda	Mr. L. Nicholson.
Slab of stone showing fossils, viz., Gervillia, Trigonia, Ammonites, &c.	Hon. R. H. D. White.

Specimen.	Donor.	
<i>Ethnology.</i>		
Antiquities from Egypt	Egypt Exploration Fund.	
1 Tomahawk	Bundaburah Creek, N.S.W.	
1 Hammer		Mr. A. B. Ferrie.
1 Piece of tappa	British New Guinea	
2 Native dresses		Rev. W. Wyatt Gill.
1 Piece of native cord	Mauihiki, Harvey Group of Islands	
1 Girdle worn (anciently) by women after confinement to support and compress the abdomen.		Rev. W. Wyatt Gill.
3 Stone implements	New South Wales.	
6 Boomerangs		Mr. M'Cooley.
1 Shield		
9 Nulla nulla		
1 Food bowl from Solomon Islands	Lieut. Roche, R.N.	
1 Tomahawk	South Australia	
1 Stone for pounding grass seed		Mr. H. Shaw.
1 Stone axe	Viti or Fiji Islands	
1 Spear		Mr. H. E. Stephenson, J.P.
1 Etruscan armlet about 2,500 years old	Mr. Thomas Steel.	
1 Stone axe from June, N.S.W.	Mr. R. H. D. White.	
	Mr. Robt. Whitley.	
<i>Botanical.</i>		
1 Net fungus	Miss Agnes Copeland.	
1 Ball-nut fungus (<i>Ileodicyon gracile</i>)	Mr. Fry.	
1 Sample of gum	Mr. J. S. Skeet.	
2 Ball-nut fungus (<i>Ileodicyon gracile</i>)	Mr. G. Twemlow.	
<i>Medals.</i>		
1 Bronze medal—commemorative of the reception of H.R.H. Prince Albert Victor of Wales on the occasion of his receiving the Freedom of the City	Corporation, City of London.	
1 Bronze medal	Indian and Colonial Exhibition Commissioners.	
1 Diploma		
<i>Historical.</i>		
Historical relics	Mr. E. E. Lovett.	
Invitation Ticket, dated 12th July, 1814, to a dinner given by the officers of the late Royal British Volunteers to the non-commissioned officers and men	Mr. H. Small.	
Old newspaper—"London Packet," November, 1805	Mr. A. Stevens.	
4 Old French bank notes, 1792-93	Mr. W. H. Vosper.	
<i>Miscellaneous.</i>		
Hair-ball taken from sheep	Mr. B. B. Banes.	
Echidna eggs	Mr. C. Cropper.	
<i>Books for the Library.</i>		
1 Catalogue of the Library	Linnean Society of London.	
Catalogues of Books in the Departments of Zoology, Mineralogy, and General Library	Trustees of the British Museum.	
Catalogue of Fossil Mammalia. Part 4		
Various other Catalogues	N.Z. Institute and Colonial Museum.	
Official Record N.Z. Industrial Exhibition		
Transactions, vol. 19	Government Printer, Sydney.	
Brown: Manual of N.Z. Coleoptera. Parts 1-4		
Royal Commission—Conservation of Water, 1, 2, 3 Reports	Government Printer, Melbourne.	
Proceedings, Geographical Society of Australasia		
Census of Plants of N.S.W. Moore, 1884	Smithsonian Institute, Washington.	
Railway Guide, 1886		
Reports on Geological Surveys, 1851, &c.	Indian Museum, Calcutta.	
Reports on Lord Howe Island		
Spruson on Norfolk Island	Academy of Natural Sciences, Philadelphia.	
Curr's Australian Race		
Annual Report, 1884 (in 2 parts)	University of Sydney.	
Annual Report, 1885-6		
Lyddeker: Catalogue of Pre-historic Vertebrata	J. Brazier.	
Proceedings, 1871 to 1886		
Catalogue of Library	Free Public Library, Sydney.	
Calendar, 1887		
Trochidæ and other Genera of S.A. Part 1		
Sundry Exhibition Catalogues		
Supplement to Catalogue, 1888		
Reports, 1885-6-7		

Specimen.	Donor.
<i>Books for the Library—continued.</i>	
Proceedings, 1882	} Royal Society of N.S.W.
" 1886	
Report for 1886-7	The Auckland Institute.
Inaugural Dissertations, 1886	University of Bonn.
Official Catalogue of Exhibits from the Colony	} N.S.W. Commission, Colonial and Indian Exhibition.
Report of the Royal Commission	
Annual Report (new series, vol. 1)	} Geological and Natural History Survey of Canada.
Dawson: Fossil Plants of the Devonian and Upper Silurian	
" Report on Fossil Plants	} Museum of Comparative Zoo- logy, Harvard University.
Annual Report of the Curator, 1886-7	
Records, vols. 19 and 20	Geological Survey of India.
Murray: Geology and Physical Geography of Victoria	} Department of Mines, Mel- bourne.
Mueller: Vegetable Fossils of the Auriferous Drifts	
Gold-fields of Victoria: Reports of Mining Registrars; Reports of Mining Surveyors, &c.	
Annual Report, 1886	Department of Mines, Sydney.
Transactions, vol. 19	} Highland and Agricultural Society of Scotland.
Transactions and Proceedings, vol. 23	
Catalogues of Books	Royal Society of Victoria.
54th Annual Report	B. Quaritch, London.
O'Donovan: Catalogue of the Parliamentary Library	Royal Cornwall Polytechnic Society.
Proceedings, vol. 18	Queensland Government.
Bulletin, tome 4	Royal Colonial Institute, London.
Annales, tome 13	} Musee Royal d'Hist. Nat. de Belgique.
Festschrift zur Feier seines fünfzig jähren bestehens Mittheilungen, 1886	
Transactions, vol. 1	Vereins für Naturkunde, Cassel.
Proceedings, vol. 3	Ornithologsichen Vereines, Vienna.
Proceedings, 1884 and 1886	Wagner Free Institute, Philadelphia.
Register of Papers	Royal Society of Queensland.
Transactions and Proceedings, 1877-1887	} Royal Society of Tasmania.
Proceedings, vol. 2	
List of Contributors	Royal Society of S.A.
Fauna und Flora des Golfes von Neapel, Mon. 13 and 14	} Linnean Society of N.S.W.
Transactions, vol. 15	
Berichte, 1886-7	The Publishers.
Transactions, vol. 5	Asiatic Society of Japan.
Proceedings, vol. 3	} Senckenbergische Naturforschende Gesellschaft, Frankfurt A.M.
Annual Report, 1886	
Macgillivray: Marine Polyzoa of Victoria	New York Academy of Sciences.
Anniversary Address	Biological Society of Washington.
Three new Fig Insects; Sir S. S. Saunders	School of Mines, Ballarat.
Report, 1886	J. Bracebridge Wilson, Geelong.
Annual Report, 1886-7	} President, Wellington Philoso- phical Society.
Annual Report, 1886-7	
Reports, 1885-6	S. S. Saunders.
Report, 1886-7	} Museum of Science and Art, Edinburgh.
Notes on Geological Map of Gumeracha and Mount Crawford Gold-fields	
Report on Ulooloo Gold-field	Zoological Society, Philadelphia.
Geological Map	Public Museum, Milwaukee.
Report, 1886	} Public Library Museums and National Gallery of Victoria.
Reports, 1885-6 and 1886-7	
Plants reputed Poisonous and Injurious to Stock; by F. M. Bailey and P. R. Gordon	Museum of S.A.
List of his Scientific Writings; Rev. J. E. Tenison-Woods	} S.A. Government.
Notes on some Australian Polyzoa; T. Whitelegge	
Report of the Ornithologist, 1886; C. H. Merriam	} Queensland Museum.
The summit plates in Blastoids, &c.; C. Wachsmith and F. Springer	
Gold Ornaments from the U.S. of Columbia; G. F. Kunz	} Government Central Museum, Madras.
Six Pamphlets; W. Haacke	
Catalog der ausstellung de Westlichen Sudsee; Otto Finsche	} The Authors.
Lehrmittel für Volkerkunde—Gesichtsmasken von Volkertypen der Sudsee; Otto Finsche	
Canoes und Canoebau in den Marshall Inseln; Otto Finsche	
Hausbau, Hauser, und Siedelungen an der sudostkuste von der Neu Guinea; Otto Finsche	

APPENDIX VI.

EXCHANGES.

Received from—	Forwarded to—
The Geographical Society of Australia.	
Birds :—6 species—6 specimens.	Collecting material.
Mr. James Dall, New Zealand. (5, 37.)	
Mammals :—1 species—1 specimen.	Birds :—35 species—36 specimens.
Birds :—16 species—21 specimens.	Birds' Eggs :—14 species—27 specimens.
Birds' Eggs :—A few specimens.	Mollusca :—84 species—227 specimens.
Insecta :—A few specimens.	Minerals :—4 species—5 specimens.
Mollusca :—A small collection.	
Echinodermata :—5 species—5 specimens.	
Queensland Museum, Brisbane. (19.)	
Birds :—2 species—2 specimens.	Casts :—18 specimens.
Fishes :—1 species—2 specimens.	
Hospital for Insane, Gladesville. (30.)	
Birds :—1 species—2 specimens.	Sundries.
L. Taizanowstki, Warsaw. (36.)	
Birds :—87 species—102 specimens.	
Royal Museum, Florence (Italy). (28.)	
Fishes :—32 species—34 specimens.	Zoophytes :—2 species—56 specimens.
	Ethnology—106 specimens.
Tasmanian Museum, Hobart. (1, 10, 22, 34.)	
Fishes :—13 species—17 specimens.	Reptiles :—3 species—3 specimens.
Fossils :—40 species—115 specimens.	Fishes :—8 species—8 specimens.*
	Skeletons :—4 species—4 specimens.
	Casts :—20 specimens.
	Ethnology :—1 specimen.
	Bottles (stoppered) :—3 dozen.
	Tubes (glass) :—2 dozen.
Mr. R. H. Newman, Tumut. (8.)	
Minerals :—Specimens of ores and rocks.	Books :—8 catalogues.
Mr. B. Dunstan, Sydney. (7.)	
Fossils :—A collection.	Minerals :—30 specimens.
Mr. F. M'Knight, Melbourne. (14.)	
Fossils :—5 species—18 specimens.	Fossils :—10 specimens.
Mr. E. W. Thompson, Sydney. (26.)	
Fossils :—20 species.	Minerals :—Sent in 1888.
Mr. George Blackmore, Sydney. (25.)	
Minerals :—17 specimens.	Minerals :—24 specimens.
Mr. J. Waterhouse, West Maitland. (24.)	
Fossils :—57 species.	
Natural History Museum, Newcastle-on-Tyne. (11.)	
	Mollusca :—21 specimens.
Royal Museum, Brussels. (21.)	
	Casts :—18 species—20 specimens.
Linnaea Naturhistorisches Institut, Berlin.	
Return to be made in 1888.	Mammal :—1 species—1 specimen.
Zoological Station, Naples. (4.)	
	Mammals :—4 species—4 specimens.
	Fishes :—6 species—6 specimens.
Professor Parker, Dunedin. (18.)	
	Mammal :—1 species—1 specimen.
Public Library, Art Gallery, and Museum of South Australia, Adelaide. (9.)	
	Birds :—2 species—3 specimens.
	Fish :—1 species—1 specimen.

Received from—	Forwarded to—
British Museum, London. (21.)	Mollusca :—1 species—60 specimens. Echinodermata :—2 species—2 specimens. Zoophyta :—1 species—3 specimens. Actinozoa—7 species—7 specimens.
Stavenger Museum, Norway. (29.) Collection of Norwegian birds.	Birds :—23 species—27 specimens.
Zoological Society, London. (31.) Specimens formerly received.	Birds :—1 species—2 specimens (alive).
Academy of Natural Science, Philadelphia. (33.) Books—Proceedings.	Books—Various publications.
Mr. H. Seebohm, London. (40.) Large collection of birds received in 1883.	Birds :—19 species—36 specimens.
Professor H. A. Ward, New York. (41.) Returns promised.	Echinodermata :—9 species—57 specimens.
Educational Museum, Tokyo, Japan. (42.) Fishes, &c., promised.	Birds :—125 species—169 specimens.
The University, Sydney. (27.)	Mammals :—2 species—2 specimens. And sundries, for anatomical purposes.
The N.S.W. Commissioners of the Adelaide Jubilee Exhibition. (16, 17.)	7 mounted groups of birds, &c. 22 mounted specimens of marsupials. 27 mounted specimens of birds. 3 mounted specimens of reptiles.

APPENDIX VII.

ADDITIONS TO THE MUSEUM LIBRARY, 1887.

Reg. No.	Book.
CLASS A.	
2217-18	Hudson (C. T.) and Gosse (P. H.) The Rotifera; or, Wheel Animalcules. 1 vol. text. 1 vol. plates. London, 1886. 2 vols. 4to.
2219-23	Gwyn Jefferies (J.) British Conchology; or, an Account of the Mollusca which inhabit the British Isles and the Surrounding Seas:— Vol. 1—Land and Fresh-water Shells. London, 1862. Vol. 2—Marine Shells. London, 1863. Vol. 3 " " 1865. Vol. 4 " " 1867. Vol. 5 " " 1869. 5 vol. 8vo.
2234	Sowerby (J. de C.) and Lear (Ed.) Text by J. S. Gray. Tortoises, Terrapins, and Turtles, drawn from life. London, 1872. 4to.
2235-6	Sowerby (J.) and Sowerby (G. B.) The Genera of Recent and Fossil Shells, for the use of Students. London, 1820-25. 2 vol. 8vo.
2241	Leuckart (R.) Trans. by W. E. Hoyle. The Parasites of Man. Edinburgh, 1886. 8vo.
2246-52	Bertkau (Philipp). Bericht über die Wissenschaftlichen Leistungen im Gebiete der Entomologie. Berlin, 1846-84. 7 vols. 8vo.
2257	Bertkau (Philipp). Bericht über die Wissenschaftlichen Leistungen im Gebiete der Entomologie. 1838-45. Berlin, 1840-47. 1 vol. 8vo.
2258-9	Marshall (G. F. L.) and Niceville (L. de.) The Butterflies of India, Burmah, and Ceylon. Calcutta, 1882-6. 2 vols. 8vo.
2296	Tryon (G. W.) Manual of Conchology; Structural and Systematic, with Illustrations of the Species. Vol. 8. Naticidæ, &c. Philadelphia, 1886. 8vo.
2297	Tryon (G. W.) Manual of Conchology; Structural and Systematic, with Illustrations of the Species. Second series. Vol. 2, Zonitidæ. Philadelphia, 1886. 8vo.
2342	Bewick (T.) A General History of Quadrupeds. Newcastle-on-Tyne, 1790. 8vo.
2349	Gray (J. E.) Synopsis of the Species of Whales and Dolphins in the Collection of the British Museum. London, 1868. 4to.

Reg. No.	Book.
CLASS A.— <i>continued.</i>	
2351-3	Lischke (C. E.) <i>Japanische Meeres Conchylien. Ein Beitrag zur Kenntniss der Mollusken Japans mit Besonderer Rücksicht auf die Geographische Verbreitung derselben.</i> 1st, 2nd, 3rd Theil. Coloured plates. Cassel, 1869-1874. 3 vols, 4to.
2354	Corse (John). <i>Observations on the Different Species of Asiatic Elephants and their mode of dentition.</i> 1799. 4to.
2335	Tomes (John). <i>On the structure of the Dental Tissues of the order Rodentia.</i> 1850.
	Tomes (John). <i>On the Structure of the Dental Tissues of Marsupial Animals, and more especially of the Enamel.</i> 1849. In 1 vol. 4to.
2363	Miall (L. C.) and Denny (A.) <i>The Structure and Life History of the Cockroach (Periplaneta Orientalis), an introduction to the Study of Insects.</i> London and Leeds, 1886. 8vo.
2364	Pfeiffer (L.) and Clessin (S.) <i>Nomenclator Heliceorum Viventium.</i> Cassellis, 1878. 8vo.
2365	Blyth (E.) Enlarged by W. B. Tegetmeier. <i>The Natural History of the Cranes.</i> London, 1881.
	Coues (E.) U.S. Northern Boundary Commission. <i>Natural History. No. 1. On the Muridæ.</i> Philadelphia, 1874. In 1 vol. 8vo.
2367	Allen (H.) <i>Smithsonian Miscellaneous Collections. No. 165. Monograph of the Bats of North America.</i> Washington, 1864. 8vo.
2368	Wallace (A. R.) <i>Various papers (9).</i>
	Clarke (J. W.) <i>On the Eared Seals of the Auckland Islands.</i> 1873. In 1 vol. 8vo.
2369	Cuvier (Baron G.) <i>The Animal Kingdom, arranged according to its organisation. A new Edition, with Additions by W. B. Carpenter and J. O. Westwood.</i> Wood and steel engravings. London, 1849. 8vo.
2372	Gould (John). <i>Introduction to the Trochilidæ, or Family of Humming Birds.</i> London, 1861. 8vo.
2373	Gould (John). <i>A Century of Birds from the Himalaya Mountains.</i> London, 1832. Imp. fol.
2410	Gould (John.) <i>A Monograph of the Trochilidæ or Family of Humming Birds, completed after the author's death by R. B. Sharpe.</i> Supplement, coloured plates. London, 1887. Fol.
2377	Tugwell (Rev. Geo.) <i>A Manual of the Sea Anemones commonly found on the English Coast.</i> London, 1856. 8vo.
2378-9	The Gardens and Menagerie of the Zoological Society delineated:— Quadrupeds, vol. 1. 1830. Birds. 1831. 2 vols. London, 1830-1. 8vo.
2404	Bleeker (P.), <i>Works on Ichthyology by.</i> Vol. 1 contains 22 papers.
2405	Vol. 2 contains 9 papers.
2406	Vol. 3 contains— <i>Enumeratio speciemum piscium hucusque in Archipelago Indico observatarum petro Equite a Bleeker.</i> Batavia, 1859. <i>Ichthyologia Archipelagi Indici prodromus petro Equite a Bleeker.</i> Batavia, 1860. 4to.
2412	Römer (Eduard.) <i>Monographie der Molluskengattung Venus Linné.</i> Band II. Cassel, 1864. 4to.
2416-7	U.S. Commission of Fish and Fisheries.
	Goode (G. B.), Editor. <i>Fisheries and Fishery Industries of the United States. Section 1, Natural History of useful Aquatic Animals.</i> Text 1 vol. Atlas with 277 plates, 1 vol. Washington, 1884. 2 vols. 4to.
2429-33	Shaw (G.) <i>General Zoology:—</i> Vol. 1 part 2, vol. 2 part 1, vol. 3 part 1, vol. 4 parts 1 and 2. 5 vols. 8vo.
2434	Brown (Captain Thos.) <i>The Book of Butterflies and Moths.</i> London, 1843. 12mo.
2435	British Birds. <i>The Water Birds.</i> Religious Tract Society. London. 12mo.
2451-76	<i>Systematisches Conchylien Cabinet von Martini und Chemnitz.</i> 26 vols. 4to.
	Band I Abt. 12— <i>Helix</i> , by L. Pfeiffer; <i>Anostoma</i> , by Fischer; <i>Boyssia</i> , by L. Pfeiffer; <i>Tomigerus</i> , by Spix; <i>Proserpina</i> and <i>Streptaxis</i> , by Gray.
	,, 12— <i>Helix</i> , IV Theil, by L. Pfeiffer.
	,, 13— <i>Bulimus</i> , <i>Partula</i> , <i>Achatinella</i> , <i>Achatina</i> , and <i>Azeca</i> , by L. Pfeiffer.
	,, 14— <i>Clausilia</i> , by C. H. Kuster; 15— <i>Pupa</i> , <i>Vertigo</i> , <i>Megaspira</i> , <i>Balea</i> , and <i>Tornatellina</i> , by C. H. Kuster.
	,, 15A— <i>Cylindrella</i> , by L. Pfeiffer; 16— <i>Carychium</i> , <i>Scarabus</i> , <i>Auricula</i> , and <i>Jamina</i> , by C. H. Kuster.
	,, 17— <i>Physa</i> , and <i>Planorbis</i> , by S. Clessin; 17B— <i>Limnæus</i> , <i>Amphipeplea</i> , <i>Chilina</i> , <i>Isidora</i> , and <i>Physopsis</i> , by C. H. Kuster.
	,, 18— <i>Trochatella</i> , <i>Helicina</i> , and <i>Lucidella</i> , by L. Pfeiffer; 19— <i>Cyclostoma</i> , <i>Choanopoma</i> , <i>Cyclophorus</i> , <i>Leptopoma</i> , <i>Megalomastoma</i> , <i>Pupina</i> , <i>Callia</i> , <i>Pomatias</i> , <i>Aulopoma</i> , <i>Craspedopoma</i> , <i>Myxostoma</i> , <i>Pterocyclos</i> , <i>Acicula</i> , <i>Geomelania</i> , <i>Hydrocena</i> , <i>Cataulus</i> , <i>Diplommantina</i> , by L. Pfeiffer.
	,, 20— <i>Ampullaria</i> , by R. A. Philippi; 21— <i>Paludina</i> , <i>Hydrocena</i> , and <i>Valvata</i> , by C. H. Kuster; 22— <i>Rissoa</i> , and <i>Rissoina</i> , by H. C. Weinkauff.
	,, 23— <i>Paludinella</i> , by C. H. Kuster; 24— <i>Melania</i> and <i>Melanopsis</i> ; 25— <i>Paludomus</i> , by A. Brot.

Reg. No.

Book.

CLASS A—*continued.*

- 2451-76 Systematisches Conchylien Cabinet von Martini und Chemnitz—*continued.*
- Band II Abt. 1—Natica, and Amaura; 2—Turbo, by R. A. Philippi.
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2400	The Entomologist's Monthly Magazine. Vol. 23. 1886-87. 8vo.
2411	Annales des Sciences Naturelles. Zoologie and Palæontologie. Series VII. Tome I. Paris, 1886. 8vo.
2413-5	"Challenger," H.M.S. Reports of the Scientific Results of the Voyage:— Narrative. Vols. I (in 2 parts) and II. 3 vols. 4to. London, 1882-5. Vol. I contains Narrative of the Cruise, with a general account of the Scientific Results; by Staff-Commander T. H. Tizard, H. N. Moseley, J. Y. Buchanan, and John Murray. 1885. Vol. II contains Magnetical and Meteorological Observations.
2291	Botany. Vol. II, 1 vol. 4to. London, 1886. Contains Report on the Diatomaceæ; by Francesco Castracane degli Antelminelli.
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2722-3	Vol. XXI (in 2 parts). 8 vols. 4to. London, 1886-7. Vol. XVII contains—Report on the Isopoda (2nd part), F. E. Beddard; Report on the Brachyura, E. J. Miers; Report on the Polyzoa (2nd part), G. Busk. Vol. XVIII contains Report on the Radiolaria, Ernst Haeckel. Vol. XIX contains—Report on the Nemertea, A. A. W. Hubrecht; Report on the Cumacea, G. O. Sars; Report on the Phyllocardia, G. O. Sars; Report on the Pteropoda (1st part), Paul Pelsener. Vol. XX contains— 1. Report on the Monaxonida by Stuart O. Ridley and Arthur Dendy. 2. Report on the Myzostomida (Supplement) by Dr. L. von Graff. 3. Report on Cephalodiscus decalophus: A new type of the Polyzoa, by Wm. C. McIntosh. 4to. Vol. XXI contains—Report on the Hexactinellida, by Dr. F. E. Schultze.
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2450	Morphologisches Jahrbuch. Band 12. Leipzig, 1887. 8vo.
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2512-26	2nd Série. Tomes 1—23. Paris, 1849-72. In 5 vols. 8vo.
2527-30	3rd Série. Tomes 1—7. Paris, 1873-9. In 4 vols. 8vo.
2531	Nature. Vol. 35. Nov., 1886, to April, 1887. 4to.
2741	Nature. Vol. 33. May-October, 1887. London, 1887. 4to.
2532	Comptes Rendus. Tome CIV. Jan. to Juné, 1887. 4to.
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2743	Zoologischer Anzeiger. Jahr. X. 1887. 8vo.

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2744	Annals and Magazine of Natural History. Vol. 20. January to December, 1887. Svo.
2534	Royal Society of New South Wales. Vol. 16. 1882. Svo.
2535-6	Zeitschrift für Malakozoologie. 1844-53. Hanover and Cassell. 1845-53. 2 vols. Svo.
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2577	Vereins für Naturkunde zu Cassel. Festschrift zur Feier seines fünfzigjährigen Bestehens. Cassell, 1886
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- 2616 Colonial and Indian Exhibition. London, 1886. Illustrated Hand-book of Victoria. Editor, Jas. Thomson. Melbourne, 1886, contains—
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- 2686 Bowerbank (J. S.) Monograph of the British Spongida. Edited, with additions, by Rev. A. M. Norman. Vol. 4. Supplementary. London, 1882. 8vo.
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- 2735 Geological Magazine. 3 Decade. Vol. 4. 1887. 8vo.
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2770	La Nature: Revue des Sciences et de leurs applications aux Arts et à l'Industrie. 15 ^e Anne, June-December, 1887. Paris, 1887. 4to.
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2253	Voyage autour du Monde sur la Fregate la Venus, 1836-9, commandée par A du petit Thouars— Zoologie Text. Paris, 1885. 8vo.
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- 2547-8 Lesquereux (Leo). Second Geological Survey of Pennsylvania—Report of Progress. P. Description of the Coal Flora of the Carboniferous Formation of Pennsylvania and throughout the United States. Vols. 1 and 2 bound together; and Atlas. Harrisburg, 1879-80. 2 vols. 8vo.
- 2551-2 Polak (J. S.) Manners and Customs of the New Zealanders; with notes corroborative of their Habits, Usages, &c., and remarks to intending Emigrants. Woodcuts. (Map wanting.) London, 1840. 2 vols. 8vo.
- 2553 Jukes (J. Beete). A Sketch of the Physical Structure of Australia, so far as it is at present known. London, 1850. 8vo.
- 2559 Catalogue of the Natural and Industrial Products of New South Wales forwarded to the Paris Universal Exhibition of 1867. Sydney, 1867. Contains (amongst other Papers)—
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- 2560 Another copy.
- 2561 Peppercorn (Fred S.) Historical Sketch of Inland Discovery in Australia. Part 3. See Australian Almanac, 1863.
- 2570 Ridley (Rev. Wm.) Kamilaroi and other Australian Languages. Sydney, 1875. 4to.
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- 2672 Spruson (J. J.) Norfolk Island: Outline of its History from 1788 to 1884. Compiled by J. J. Spruson. Sydney, 1885. 8vo.
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- 2736-9 Curr (Ed. M.) The Australian Race: Its Origin, Languages, Customs, place of Landing in Australia, and route by which it spread itself over that Continent. Melbourne, 1886. 3 vols. 8vo. 1 vol. fol.

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1. Gray (P.) and Woodward (B. B.)—Sea-weeds, Shells, and Fossils.
2. Skuse (F. A. A.) British Stalk-eyed Crustacea and Spiders.
3. Bagnall (J. E.) Handbook of Mosses.
4. Holmes (E. M.) and Gray (P.) British Fungi, Lichens, and Mosses.
5. Kirby (W. F.) British Butterflies, Moths, and Beetles.
6. Butler (E. A.) Pond Life: Insects.
7. Jewitt (L.) English Coins and Tokens—with a Chapter on Greek and Roman Coins, by B. V. Head.

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2371	Holgate (C. W.) <i>An Account of the Chief Libraries of Australia and Tasmania.</i> London, 1886. 8vo.
2375	Brannt (W. T.) and Wall (W. H.) <i>Techno-chemical Receipt Book</i> , edited chiefly from the German. Philadelphia and London, 1886. 8vo.
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2656	Darwin (Charles). <i>The Origin of Species by means of Natural Selection.</i> 6th edition. London, 1886. 8vo.
2506	Inaugural Dissertations, University of Bonn. 1886.
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APPENDIX VIII.

REPORTS OF SCIENTIFIC ASSISTANTS.

ICHTHOLOGICAL DEPARTMENT.—J. Douglas Ogilby, Assistant.—During the year the Museum has become richer by 640 specimens of fishes. Of these, 146 have been received as donations; 53 obtained by exchange with different museums, in which class a most valuable collection received from the Florence Museum, through Professor Giglioli, deserves special mention; 174 received from the Museum collectors, the greater part of which were brought from Lord Howe Island by Messrs. R. Etheridge and party; 115 obtained from the harbour by means of the trawl-net; and the remaining 152 obtained from different sources by purchase. Among the fishes received during the year, 13 have been described as new species.

ENTOMOLOGICAL

ENTOMOLOGICAL DEPARTMENT.—A. Sidney Olliff, Assistant.—During the past year 1,760 insects have been added to the collection, the various orders being represented as follows :—Lepidoptera, 865 ; Coleoptera, 845 ; Orthoptera, 30 ; Neuroptera, 10 ; and Homoptera, 10. Of these no less than 1,200 were contained in a collection purchased from Mr G. Firth, Hamilton, New South Wales, which is by far the most important accession for the year. Besides many rarities, the collection comprised a fine series of lignivorous lepidoptera, mostly from the Hunter River District. Valuable donations were received from Messrs J. H. Rose, A. J. Gambell, C. Wensley, H. Smithurst, A. S. Peer, and others. Another important donation is the collection obtained by Mr. J. A. Millington in Norfolk Island, which formed the basis of a recent report on the insect fauna of that island ; the collection contained 35 species, and yielded no less than 11 new to science, of which the types have been added to the Museum collection. During the year about 350 species were collected for the Trustees, including a series of 20 species obtained by Mr. Etheridge and party in Lord Howe Island ; 40 species collected at Lithgow by Mr. Grant ; and 120 at Cassilis, New South Wales, by Mr. Olliff. Among these a considerable number are new to the Museum collection.

CONCHOLOGICAL DEPARTMENT.—John Brazier, Assistant.—During the year ending 31st December, 1887, a large number of specimens have been presented, the most interesting being by Miss Stephen, consisting of 1,500 specimens from all parts of the world, many of them quite new to the collection. The most important purchase was the collection of the late Hon. E. K. Cox, containing about 60 species and 2,000 specimens, a number of rare volutidæ being additions to the general collection in this department. Eighty-four species, numbering 226 specimens, have been sent away in exchange to New Zealand.

MINERAL DEPARTMENT.—F. Ratte, Assistant.—Forty donors, from various parts of the Colony, have contributed a number of specimens, estimated at about 250 ; and about 100 specimens, partly from New South Wales, have been acquired either by exchange or purchase, while about 150 specimens have been collected, mostly in the west. The Australian collection of minerals is intended to comprise from 10,000 to 15,000 specimens, and to be classified so that, by its means, information upon the geological constitution and mineral productions of any part of New South Wales, or even Australasia, could be easily obtained by visitors. There is, however, much to be done before this result can be attained. The general collection of minerals, which included already over 2,200 specimens, mostly from Europe and America, has been increased by 210 purchased specimens, some of which are of great rarity and value.

ETHNOLOGICAL DEPARTMENT.—J. Brazier, Assistant.—During the year a large number (1,157) of specimens have been purchased to fill up gaps in this department. Specimens have been secured from the Lachlan River, N.S.W. ; Harvey Group of Islands ; Rapanui, or Easter Island ; British New Guinea ; Solomon, Admiralty, New Ireland, New Britain, Gardner's, Sir Chas. Harvey's, and Fischer's Islands ; New Zealand. We are expecting other large consignments from our collectors in Western Polynesia. The number of specimens presented during the year is only 28 from New South Wales, South Australia, and Manihiki Harvey Group.

PALÆONTOLOGICAL DEPARTMENT.—R. Etheridge, jun., Assistant.—Mr. Etheridge commenced his duties at the Museum on June 1st, 1887, and since that date the palæontological stores placed in the basement and uppermost gallery of the Museum have been dealt with, sorted, and relegated to their proper places in the collection, or systematically packed away for future study. The fine collections of Lower Carboniferous Plants from the neighbourhood of Stroud have been named, so far as the Palæobotanical literature to hand will permit. A systematic overhauling of the Australian Fossils has been commenced, with the view of separating the collection into three sets, viz., an exhibition set for the cases ; a study set, for working purposes ; and duplicates, for exchange. So far, the Silurian and Devonian have been dealt with, but as they are the least known of our fossils, the number of duplicates separated must, of necessity, be at present very limited. With the view of keeping these in the most readily-accessible form, a room has been set apart and shelved for their reception in wooden trays of a uniform size, and all duplicates have been placed there so far.

E. P. RAMSAY,
Curator.

APPENDIX IX.

Collection of Birds, &c., by Messrs. Cairn and Grant, from Bellenden Ker Ranges.

	No. of Specimens.		No. of Specimens.
<i>Accipiter cirrhocephalus</i>	1	<i>Chalcites minutus</i>	2
<i>Astur novæ-hollandiæ</i>	1	<i>Cuculus flabelliformis</i>	2
<i>Strix tenebricosa</i>	1	<i>Centropus phasianus</i>	5
<i>Eurystomus pacificus</i>	7	<i>Platycercus pennantii</i>	4
<i>Chibia bracteata</i>	7	<i>Trichoglossus chlorolepidotus</i>	14
<i>Halcyon macleayi</i>	17	" <i>multicolor</i>	3
<i>Alcyon pulchra</i>	2	<i>Aprosmictus scapulatus</i>	13
<i>Scythrops novæ-hollandiæ</i>	1	<i>Tallegalla lathamii</i>	2
<i>Tauysiptera sylvia</i>	2	<i>Lopholaimus antarcticus</i>	6
<i>Carpophaga assimilis</i>	5	<i>Dicaeum hirundinaceum</i>	9
" <i>norfolciensis</i>	1	<i>Malurus cruentatus</i> ♂	12
" <i>spilorrhoea</i>	2	" " ♀	1
<i>Ptilopus superbus</i>	5	<i>Monarcha melanopsis</i>	8
<i>Macropygia phasianella</i>	5	" <i>albiventris</i>	6
<i>Chalcophaps chrysochlora</i>	3	<i>Myiagra plumbea</i>	4
<i>Synoicus australis</i>	3	<i>Rhipidura dryas</i>	2
<i>Turnix varius</i>	2	<i>Arses kaupii</i>	5
" <i>melanotus</i>	3	<i>Eopsaltria chryrorrhous</i>	6
<i>Chalcites ptilagopus</i>	2	" <i>nana</i>	5

No. of Specimens.			No. of Specimens.		
Heteromias cinereifrons	...	6	Grancalus hypoleiticus	...	2
Pachycephala melanura	...	4	Mimeta viridis...	...	1
" falcata	...	4	Calornis metalica	...	10
Sericornis citreogularis	...	5	Psephodes crepitans (2 ad. 1 ♂)	...	3
Zosterops cœrulesens	...	2	Chimacteris leucopœa	...	3
Campephaga jardinii	...	1	Sittella striata...	...	4
" swainsonii	...	2	Estrela temporalis	...	2
Pitta assimilis	...	13	Megapodius tumulus	...	2
Orthonyx spaldingi	...	22	Meliornis sericea	...	1
Collyriocinla boweri	...	14	Myzomela sanguineolenta	...	7
" parvissima	...	2	" obscura	...	1
Scenopœus dentirostris	...	33	Ptilotis frenata	...	8
Ailurædus maculosus	...	32	" notata	...	1
Sphecotheses flaviventris	...	2	" macleayana	...	1
" maxillaris	...	1	Casuarius Australis	...	3
Ptilorhis victoriæ ♂	...	18			
" " ♀	...	8			397

MAMMALS.

Dry Skins.

1 Hapalotis sp.
1 Dasyurus gracilis (<i>Ramsay</i>) <i>sp. nov.</i>
5 Phalangista archeri (<i>Collett</i>).
7 " johnstonei, (<i>Ramsay</i>) <i>sp. nov.</i>
1 " lemuroides (<i>Collett</i>).
1 " <i>sp. (nov. juv.)</i>
2 Halmaturus mastersii, (<i>Kreffft</i>).
6 " wileoxi, (<i>Kreffft</i>).

In Spirits.

1 Halmaturus mastersii (<i>juv.</i>)
2 " " (<i>adult</i>).
1 Macropus <i>sp. nov. (adult)</i> .
5 Phalangista archeri.
1 Hipsiprymmodon moschatus.
—
34 specimens. 10 species.
1 dried female aboriginal.

E. P. RAMSAY,
Curator.

APPENDIX X.

PROGRESS REPORT, Lord Howe Island Collecting Party, August–September, 1887.

Sir,

Australian Museum, 25 September, 1887.

In compliance with your letter, No. 198, of August 22nd, 1887, instructing me to proceed to Lord Howe Island, in company with Messrs. Thorpe and Whitelegge, I have the honor to inform you that we left Sydney at 4:30 p.m. on that date, in the s.s. "Maitland," for Newcastle, arriving there at midnight, when we at once transhipped to the s.s. "Taupo," of the Union Steamship Co.'s line, and early on the morning of August 23rd proceeded direct for the Island.

We arrived at daybreak on August 25th, and immediately landed our baggage, arrangements for our accommodation being very kindly made by Mr. H. T. Wilkinson, the Visiting Magistrate, who was proceeding to Norfolk Island. I am also much indebted to one of the residents, Mr. T. B. Wilson, for the use of his store as a receptacle for our baggage and collections.

We commenced systematic collecting on the same date (August 25th), and were fortunate enough to secure what may perhaps be a new species of *Gerygone*. From August 25th to August 30th the weather was all that could be desired, and a large amount of work was accomplished by all members of the party. During this interval the northern portion of the island was thoroughly explored in relation to its avifauna and mollusca, both land and marine, Mr. Whitelegge also being fortunate in obtaining numerous specimens of land Planarians, probably five species in all. We devoted August 27th to an examination of the shore at the western foot of Mount Lidgbird and the south end of the Coral Reef, which commences at this point, passing in a north-westerly direction to join Phillip Point, at the northern extremity of the island. On this part of the reef we were highly successful in obtaining a number of Mollusca, Crustacea, Echinodermata, Corals, and a few Fish. We further devoted time to an examination of the Coral-rock Deposit, from which the remains of Sir Richard Owen's genus of extinct "horned lizard" (*Moiolania*) are derived, a subject which will be referred to later on.

On August 30th, we left our hut soon after daybreak, to ascend Mount Gower, 2,840 feet. The day was spent in examining the gullies and eastern slopes of Mount Lidgbird, and we were fortunate to meet with a new *Helix* and two new species of *Bythinella*. The whole of this part of Lord Howe Island is of a very inaccessible nature, composed of basaltic rocks, the surface much broken up, and covered with a dense palm and vine scrub, with here and there patches of tree-fern, the whole interspersed amongst a heavy growth of forest trees, and rendering examination and travelling very slow and tedious. Towards evening we arrived at the saddle uniting Mounts Lidgbird and Gower, and camped in Erskine Valley, on the west side of this divide. The remainder of the evening was spent by Mr. Thorpe and the guide in endeavouring to obtain specimens of the wood-hen (*Ocydromus sylvestris*); but during the entire day only one example was seen and shot, although we were now said to be in one of the chief haunts of this interesting and fast-decreasing bird. During the night the weather completely broke up, and the genial temperature of the previous days gave place to tempestuous squalls, heavy gales, and mist, which continued, with short intermissions, to within a day or two of our departure from the island. The next morning, August 31st, the whole of Mount Gower summit was enveloped in a thick mist, and taking into consideration the risky nature of the climb, it was deemed advisable, although with great regret, to abandon any further attempt at an ascent, especially as our time was limited.

On 1st September the party proceeded to the examination of Rabbit or Goat Island, a small eminence in the centre of the lagoon. The fauna was found to correspond with that of the main island, but

but we discovered a well-marked variety of the common *Helix* (*H. Sophiae*), and also a variety of *Helix Catletti*, Brazier. It was further observed that, even at this early date, the "Mutton Birds" (*Puffinus sphenurus*) were coming in to scrape out their burrows, an example being captured.

On 5th September a trip was made by Mr. Thorpe and myself to Mutton Bird Point, on the south-east coast of the island, but the birds (*Puffinus*) had not taken up their residence there to any great extent at this time of the year, although specimens were captured. On the return journey we explored Blenkinthorpe Beach, and obtained examples of the burrowing crab (*Ocypoda ceratophthalma*, Pallas).

During the remainder of our stay, and on the dates alternating with those mentioned, the members of the party, either collectively or singly, pursued various branches of investigation. In this manner a number of interesting insects, two species of lizard, a quantity of land and fresh-water shells, and, as before stated, land planarians were obtained. In the two last-named groups Mr. Whitelegge's efforts were highly successful. He was likewise fortunate in determining the presence of a *Hymenosoma*, a marine genus of Decapoda, in the watercourse of a gully running from the north peak of the island, at a height of 150 feet above sea-level. On 28th August two shallow but interesting caves were explored by us in the Coral-rock of North Bay. We anticipated meeting with bats here, but in their place we encountered thousands of moths (*Dasyppocia ymatodes*) clinging to the roofs, which were said to be blind, but are not so. We also procured an example or two of some poor stalactites.

The Coral Reef enclosing the lagoon on the west side, and some coral ledges at Ned's Beach on the east, were examined so far as the weather would permit. In fact the northern end of the former at North Bay, and its southern extremity under Mount Lidgbird, were thoroughly examined, but I regret to say the central, and probably most interesting portion, was for the reason stated left untouched. Mr. Whitelegge, I am exceedingly glad to state, found a specimen of the zoophyte, *Ceratella fusca*, Gray, of which the polyps have hitherto remained unknown, with these organs *in situ*, and protruded, and was able to kill them in that condition. On the ledges at Ned's Beach Mr. Thorpe met with a specimen of an *Echinoneus*, probably new, and Mr. Whitelegge afterwards found others. In his "Catalogue," Dr. Haswell does not assign a locality to the Decapod *Xanthodes atromanus*, Has., but it is more than probable that we have secured this species.

Dredging was attempted in the lagoon by Messrs. Unwin, Whitelegge, and myself, but this enclosed water appeared at this period of the year to be singularly unproductive of life. No attempt was made to dredge outside the reef. This would require much heavier gear than we were provided with, and the services of a steam launch would be indispensable.

On the 13th September Mr. Thorpe and myself visited the Admiralty Islets, having waited for some days for sufficiently calm weather to enable us to land. These rocks are veritable rookeries, and we were enabled to obtain a fine series of birds, including a large *Sula*. Eggs of *Sula*, *Onychoprion fuliginosa* and *Anous cinereus* were also secured.

The search for the remains of the Horned Lizard (*Meiolania*), one of the chief objects of the expedition, was vigorously carried out by the whole party. Numerous fragments of bones were found, and others obtained by purchase from the Islanders. The conditions under which these remains occur, however, convinced me very shortly after our arrival that their discovery is a pure matter of chance. The large superficial area of the Coral-rock in which the fossils are found, and the scrubby nature of the ground, preclude any well-regulated method of search at present. The majority of the specimens hitherto found, including the best and largest, have been met with quite accidentally during agricultural operations in the dark loamy soil which usually overlies the Coral-rock, and results from its decomposition and the surrounding basalt. Amongst the specimens obtained is the greater part of a pelvis, probably Lacertilian; two good tail-sheaths of *Meiolania platyceps*, Owen; portion of a Chelonian carapace; and a series of bones and fragments not yet determined. There are also some blocks of rock still to be developed which may yield good results.

I paid especial attention to the geology of the island, and have taken copious notes thereon, more especially as bearing on this interesting deposit of Coral-rock. I also visited the outcrop of basaltic rock on the beach, below Mr. Robins' house, containing veins and cubes of iron pyrites, which are said to contain 3 dwt. 14 gr. of gold, and silver 3 dwt., to the ton, and obtained specimens. Under the guidance of Captain T. Nichols, I also visited the beach on the west side of the island, between the Clear Place and Observatory Point, to inspect the stanniferous deposit said to exist there. The material pointed out to me I believe to be a basalt amygdaloid. It is stated that between 40 and 50 tons were shipped to Auckland, and found to contain 40 per cent. of tin. Examples of both the pyrites and amygdaloid have been assayed by Mr. Mengay, at the Department of Mines (Geological Survey Branch), and have been found destitute of both metals. I found the physical topography of the charts so utterly unreliable and faulty (excepting, of course, the outline), that it was impossible to insert geological lines correctly without an actual survey, and I am greatly surprised to find that Mr. Wilkinson has succeeded in producing so accurate a geological map as he has, and I most cordially congratulate him on it.

I omitted to mention that attention was paid to line-fishing, especially by Mr. Thorpe, and a number of fish procured. I have also to record the success of Mr. Unwin in this branch, especially around the Admiralty Islets.

Careful and copious notes were taken of the zoology, especially as bearing on the locality, numerical condition, habits, &c., of the fauna, and information collected in respect to the introduced animals. It will give me much pleasure to embody this in a separate report, should the Trustees desire it.

In conclusion, I have to acknowledge the cordial assistance rendered to the party by the following residents:—Captain T. Nichols, Messrs. Langley, Robins, T. B. Wilson, W. Nichols, — Johnston, C. Stevens, and H. Wilson. Great acknowledgments are also due to Mr. C. H. Unwin, of the Chief Secretary's Office, who, although on a pleasure trip, volunteered to remain at Lord Howe Island, and render us assistance.

We again arrived in Sydney on the evening of 17th September. The accounts have already been handed to you.

I have, &c.,

R. ETHERIDGE, JUNR.

(In charge of Lord Howe Island Collecting Party).

The Curator, Australian Museum, Sydney.

Schedule of Specimens obtained by the Lord Howe Island Collecting Party, July-August, 1887.

Mammalia—

Mus musculus, var.
Scotophilus morio, Gray.

Aves—

Ninox boobook, Latham.
Halcyon vagans, Lees.
Zosterops strenuus, Gould.
" *tephroleurus*, Gould.
Gerygone insularis, Ramsay.
" *Thorpei*, Ramsay (sp. nov.)
Merula vinitincta, Gould.
Rhipidura cervina, Ramsay.
Pachycephala gutturalis, Latham.
Aplonis fuscus, Gould.
Strepera crissalis, Sharpe.
Cuculus inornatus.
Chalcophaps chrysochora, Wagl.
Charadrius xanthocheilus, Gould.
Numenius uropygialis, Gould.
Limosa " Gould.
Ocydromus sylvestris, Sclater.
Prion turtur, Smith.
Puffinus brevicaudus, Brandt.
" *sphenurns*, Gould.
Procellaria, sp.
Anous cinereus, Gould.
" *stolidus*, Latham.
Onychoprion fuliginosus, Gmel.
Sula Australis, Gould.

Reptilia—

Phyllodactylus Güntheri, Boul.
Lygosoma lichenigerum, O'Shaun.

Pisces—

Serranus Dæmeli, Günther.
Plectropoma cinctum, Günther.
Trachypoma macracanthus, Günther.
Arripis salar, Rich.
Apogon, sp.
Atypus strigatus, C. and V.
Scorpius æquipinnis, Rich.
Plesiops nigricans, Rüpp.
Girella cyanea, Macleay.
Chironemus marmoratus, Günther.
Scorpena, sp.
Pterois zebra, C. and V.
Pempheris, sp.
Caranx, sp.
Seriola Lalandi, C. and V.
Antennarius Commersoni, Lacép.
Gobius, sp.
Salarias, sp.
Tetragonurus Wilkinsoni, Macleay.
Myxus elongatus, Günther.
Diplocrepis, sp.
Pomacentrus, sp.
Pseudoscarus, sp.
Labrichthys luculentus, Rich.
" *inscriptus*, Rich.
PlatyGLOSSUS, sp.
Hemirhamphus, sp.
Scombrosox Forsteri, C. and V.
Gonorhynchus Greyi, Rich.
Clupea, sp.
Anguilla Australis, Rich.
Muraena nebulosa, Ahl.
" *afra*, Bl.
Ostracion diaphanus, Bl.
" sp.
Tetrodon, sp.
Solenognathus, sp.

Mollusca—

Spirula Péroni, Lamk.
Onychoteuthis Banksi, Leach.
Sepia, sp.
Fusus Hanleyi, Angas.
Ranella leucostoma, Lamk.
Nassa mucronata, A. Ad.

Nassa elegans, Kiener.
" *paupera*, Gould.
Purpura succincta, Martyn.
" " var. *striata*.
" " var. *textilosa*.
" *amygdala*, Kiener.
" *Smithi*, Braz (sp. nov.)
Cominella Tritoniformis, Blainv.
Ricinula morus, Lamk.
Sistrum chaidius, Duclos.
" *marginalba*, Blav.
Voluta nucleus, Lamk.
Columbella versicolor, Sby.
" *Tyleri*, Gray.
" *varians*, Sby.
" *Cumingi*, Reeve.
" sp.
Engina armillata, Reeve.
" *lineata*, Reeve.
Mitra scutulata, Chem.
" sp.
Vermetus, sp.
Cypræa erronea, Linn.
" *moneta*, Linn.
" *annulus*.
" *caput serpentis*, Linn.
" *staphylæa*, Linn.
" *felina*, Gray.
" *vitellus*, Linn.
Natica picta, Recluz, var.
Dolium variegatum, Lamk.
Scalaria perplexa, Pease.
Conus anemone, Lamk.
" *Hebreus*, Hwass.
" *coronatus*, Dillw.
" *capitaneus*, Linn.
" *vermiculatus*, Hwass.
Strombus floridus, Lamk.
" *luhuanus*, Linn.
Vertagus obeliscus, Brug.
Cerethium, sp.
Lampania Australis, Quoy.
Potamides ebeninus, Brug.
Littorina Diemensis, var. *Mauritiana*, Lamk.
" *nodulosa*, Gmelin.
" *plicata*, Linn.
" *undulata*, Gray.
Planaxis mollis, Sby.
Hipponyx antiquata, Linn.
Nerita melanotragus, E. A. Smith.
Nerita antiquata, Recluz.
" *albicella*, Linn.
Turbo imperialis, Linn.
Trochus? sp.
Clanculus, sp.
Risella plicatula, Phil.
Thalotia, sp.
Haliotis, sp.
Patella tramsoserica, Martyn.
Scutus anatinus, Don.
Siphonaria denticulata, Q. & G.
Chiton, sp.
Acanthochites, sp.
Bulla ampulla, Linn.
Aplysia tigrina, Rang.
Pleurobranchus, sp.
Onchidium, sp.
Dolabrifera Brazieri, Sby.
Ianthina exigua, Lamk.
" *casta*, Reeve.
Helix Sophiæ, Gask.
" var. *conica*, Brazier (var. nov.)
" *Howinsulæ*, Cox.
" *Catletti*, Brazier.
" *Whiteleggei*, Brazier (sp. nov.)
" *textrix*, Pfr.
" *Lidgbirdi*, Brazier (sp. nov.)

- Helix Balli*, *Brazier* (sp. nov.)
 „ *Unwini*, *Brazier* (sp. nov.)
 „ *Wilkinsoni*, *Brazier* (sp. nov.)
Bulimus bivariocosus, *Gask.*
 var cuniculoides, *Cox.*
Helicarion Hilli, *Cox.*
Vitrina Etheridgei, *Brazier* (sp. nov.)
Tornatellina inconspicua, *Brazier.*
Simpulopsis Mastersi, *Brazier.*
Omphalotropis exquisita, *Pfr.*
 „ *Pfeifferi*, *Crosse.*
Realia, sp.
Diplommatina Macgillivravi, *Pfr.*
 „ *capillacea*, *Pfr.*
 „ *Cantori*, *Pfr.*
Bythinella Whiteleggei, *Brazier* (sp. nov.)
 „ *Ramsayi*, *Brazier* (sp. nov.)
Ostrea, sp. *a.*
 „ sp. *b.*
Avicula fimbriata, *Reeve.*
 „ *malleoides*, *Reeve.*
Pinna.
Lima multicostata, *Sby.*
Modiola, sp.
Arca decussata, *Sby.*
 „ *divaricata*, *Sby.*
Pectunculus tenuicostatus, *Reeve.*
Chama, sp.
Tridacna elongata, *Lamk.*
Cardium unedo, *Linn.*
Lucina interrupta, *Lamk.*
Crassatella pulchra, *var Cumingi*, *A. Ad.*
Tapes literata, *Linn.*
Mesodesma glabrata, *Lamk.*
Mytilocardia variegata, *Brug.*
Polyzoa (Numerous specimens unnamed).
Tunicata (Numerous specimens unnamed).
Insecta—
Macrotoma gemella, *Pasc.*
Leptops, n. sp.?
Blax Wollastoni, *White*
Lamprima insularis, *Macleay.*
Scaraphites Macleayi, *Westw.*
Chlænium peregrinus, *Cast.*
Lestignathus fugax, *Oll.*
Platynus, sp.
Harpalus, sp.
Promethis, n. sp.?
Telephorus, n. sp.?
Saragus exulans, *Pasc.*
 „ n. sp.?
Dasyppodia cymatodes, *Gn.*
Blatta, sp.
Eurycantha Australis, *Montr.*
Phaneroptera, sp.
Gryllotalpa Australis, *Er.*
Julus, sp.
Heterostoma, sp.
Crustacea—
Menæthius monoceras, *Lath.*
Lophactæa granulosa, *Rüp.*
Achæa tomentosa, *M. Edw.*
 „ *rugata*
 „ sp.
Xanthodes atronianus, *Hasw.*
Medæus, sp.
Etisus lævimanus, *Randall.*

Phymodius ungulatus, *M. Edw.*
Leptodius, sp.
Chlorodius niger, *Forsk.*
Ozius rugulosus, *Stimp.*
 „ sp.
Pilumnus, sp.
Actumnus tomentosus, *Dana.*
Trapezia cymodon, *Herbst.*
Neptunus pelagicus, *Linn.*
Thalamita prymna, *Herbst.*
 „ sp.
Ocypoda ceratophthalma, *Pallas.*
Grapsus variegatus, *Fabr.*
Planes minutus, *Linn.*
Paragrapsus quadridentatus, *M. Edw.?*
Plagusia chabrus, *Linn.*
Leiolophus planissimus, *Herbst.*
Ranina dentata, *Latr.*
Petrolisthes, sp.
Alphæus Edwardsi, *Aud.*
Goniodactylus chiragra, *Fabr.*
Palinurus ornatus, *Fabr.?*
 „ *Hugellii*, *Heller?*
Ourozeuktes, sp.
Lepas anserifera, *Linn.*
 „ *pectinata*, *Spengler.*
Tetracrita rosea, *Krauss.*
Annelida—
Rhynchodemus? (5 or 6 species.)
Sipunculus, sp.
Earth-worms (numerous specimens.)
Echinodermata—
Echinometra lucunter, *Leske.*
Strongylocentrotus tuberculatus, *Lamk.*
Centrostephanus rogersi, *A. Agass.*
Tripneustes angulosus, *Leske.*
Breynia australasiae, *Leach.*
Echinoneus, sp.
Asterias calamaria, *Gray.*
Asterina calcar.
Linckia, sp.
Holothuria, sp.
 „ *vagabunda*, *Sel.*
Stichopus chlorosus, *Brandt.*
Cucumaria, sp.
Actinozoa—
Turbinaria, sp.
Cælaria dadælia, *E. and S.?*
Styeophoria, sp.
Cyphastræa Bruggemanii, *Quelch.*
Turbinaria, sp.
Tubipora, sp.
Madrepora, sp.
Zoanthus, sp.
Polythoa, sp.
Spongodes, sp.
Alcyonium.
Anicella Australis, *Gray?*
Hydrozoa—
Physalia utriculus, *Huxley.*
Velella, sp.
Protozoa—
Ianthella flabelliformis, *Gray.*
Cacospongia, sp.
Spongia officianalis, *var.*
Orbitulites complanatus.

H.—FOSSILS.

Reptilia—

- Meiolania platyceps*, *Owen.*
 Tail-sheaths, vertebræ, and numerous other fragments, not determined.

Chelonia—

- Portions of a carapace, and other bones probably Chelonian.

1—E

Mollusca—

- Bulimus bivariocosus var solidus*, *Eth jnr.* (var. nov.)
Helix Sophiæ, from the Post Tertiary Coral-rock.

Aves—

- Numerous fragments of bird bones, a skull, &c., representing at least two distinct birds.

K.

K.—ROCKS.

- a.* Examples of basalt Amygdaloid, supposed to contain tin. (*See Appendix M.*)
- b.* Basaltic rock, containing iron pyrites, supposed to be both auriferous and argentiferous. (*See Appendix M.*)
- c.* Stalactites from North Bay Caves.

L.—SOILS.

- a.* Soil derived from the decomposition of basaltic rocks.
- b.* Soil derived from the same and the Coral-rock.
- c.* Soil derived from the decomposition of the latter only.
- d.* So-called "Guano."

The collections obtained by the expedition have been carefully examined, and named by the Museum staff in charge of the various departments.

E. P. RAMSAY,
Curator.

[*Supplement to the Australian Museum Report for 1887.*]

1888.

NEW SOUTH WALES.

TECHNOLOGICAL, INDUSTRIAL, AND SANITARY MUSEUM.

(REPORT OF THE COMMITTEE OF MANAGEMENT FOR 1887.)

Presented to Parliament pursuant to Act 17 Vic. No. 2, sec. 9.

TO HIS EXCELLENCY THE GOVERNOR AND EXECUTIVE COUNCIL,—

The Trustees of the Australian Museum, incorporated by the Act 17 Victoria No. 2, have the honor to submit to your Excellency in Council, in accordance with the 9th section of that Act, this the Eighth Annual Report of the Committee of Management of the Technological, Industrial, and Sanitary Museum.

1. The business of the Museum has been conducted by the same Committee as in the previous year, namely,—Sir Alfred Roberts, M.R.C.S.E., Professor Liversidge, M.A., F.R.S., and Mr. Robert Hunt, C.M.G., F.G.S. Although Professor Liversidge has been absent from the Colony the whole of the year, he has been actively attending to the interests of the Museum in the countries he has visited.

2. The Museum has continued open every afternoon (Good Friday and Christmas Day alone excepted) during the whole of the year 1887. A statement of the number of visitors for the year will be found in Appendix II of this Report. An important falling off in the attendance is noticeable during the past year. This is doubtless due to the seriously overcrowded state of the building, a state of affairs which has been brought under notice by the Committee in past Reports; but the matter has now become of the utmost urgency in the interest of the usefulness of the Museum and the safety of the collections. The Committee is gratified, however, to learn that the somewhat difficult task of providing suitable accommodation for the large and rapidly increasing collections is engaging the earnest attention of the Honorable the Minister for Public Instruction.

3. The total number of specimens acquired during the year is 3,411. Besides the specimens, 325 books and pamphlets were acquired, and also 233 maps, drawings, diagrams, &c. These will be found alluded to in detail in the Appendices. Much care has been exercised in the selection of specimens acquired by purchase, and it will be observed that large numbers of specimens, many of them of considerable educational and money value, continue to be presented to the Museum. Attention may be invited to the following as the most noteworthy donations received during the year:—A collection of Indian economic products (chiefly vegetable), comprising no less than 1,296 specimens, in 108 frames, from the Government of India; splendid collections of copper ores and associated rocks, from Captain R. N. Williams and the Rev. J. Milne Curran, F.G.S., both of Cobar, New South Wales; three frames of the chief varieties of leather, from Messrs. Bevington & Sons, of London; and further selections from the educational publications of Messrs. W. & A. K. Johnston, of Edinburgh, and Messrs. George Philip & Son, of London and Liverpool, should be noted.

4. The thanks of the Committee are due to the gentlemen who have kindly lent specimens. The Committee has reason to believe that when the matter of lack of accommodation shall have been got over there will be no difficulty in acquiring loans of valuable objects for fixed periods.

5. Mr. Alfred Hawkesworth, the honorary wool-classer to the Museum, has not only been instrumental in securing a very large number of additional wool specimens, but he has been kind enough to devote several weeks to the systematic arrangement of the whole of the wool collection, which now amounts to over 1,000 Australian samples alone.

A descriptive catalogue of the wool section is now well advanced, and will shortly be printed. Many growers and wool-brokers have furnished valuable information.

The Committee of Management exhibited collections of Australian Economic Products at the late Adelaide Jubilee International Exhibition, and were awarded First Order of Merit for the following exhibits:—

1. Drugs and medicinal plants, and plants yielding volatile oil.
2. Carded wools, yarns, tweeds, and scarlet cloth.
3. Timber.
4. Barks.
5. Forty specimens of tanning materials.
6. Twenty-eight water-colour drawings of economic plants.
7. Twelve vegetable products used as food by the aboriginals.
8. Eighteen specimens of vegetable fibres.
9. Gums and resins taken from indigenous trees.
10. Collection of type samples of wool, from the several Australian Colonies, in the grease, washed, and scoured. Samples of the manufactured article in its various stages.

The Committee begs to add to this, its Report, the following Appendices:—

- I. Balance-sheet for the year ending 31st December, 1887.
- II. Attendance of visitors.
- III. List of specimens purchased.
- IV. List of specimens presented.
- V. List of specimens lent.
- VI. List of books purchased.
- VII. List of books, periodicals, &c., presented.
- VIII. List of diagrams, maps, photographs, &c., purchased.
- IX. List of diagrams, maps, photographs, &c., presented.
- X. List of articles received in exchange.
- XI. List of articles sent away in exchange.

The Common Seal of the Museum is affixed by order of the Board, this third day of July, 1888.

J. H. MAIDEN, Curator and Secretary. (L.S.) ALFRED ROBERTS, }
(L.S.) ROBT. HUNT, } Members of
(L.S.) A. LIVERSIDGE. } Committee.
(L.S.) ALFRED STEPHEN, Crown Trustee.

APPENDIX I.

BALANCE-SHEET of the Technological Museum of New South Wales for the year ending 31st December, 1887.

RECEIPTS.	£ s. d.	EXPENDITURE.	£ s. d.
The Honorable the Treasurer—Vote for 1887.	3,700 0 0	Salaries.....	944 12 7
Amount expended in London on behalf of this Museum by the Agent-General of New South Wales.....	0 7 0	Models, apparatus, and chemicals	76 4 3
		Show and other cases	439 8 2
4 November—Sale of duplicates of specimens of Japanese pottery	3,699 13 0	Bottles	1 15 0
		Furniture	24 19 10
		Stationery	83 16 3
		Freights	59 0 2
		Sundries	32 2 7
		Ironmongery	14 1 10
		Painters' materials.....	71 4 7
		Timber	156 0 0
		Labels	7 19 0
		Advertising	472 13 2
		Books, maps, and diagrams	67 12 0
		Collecting specimens	17 6 2
		Uniforms	8 0 7
		Exchanges, postages, &c.	63 15 0
		Insurance	100 0 0
		Night watchman.....	138 18 5
		Purchase of specimens	32 8 8
		Additions to premises	506 11 6
		Mounting specimens	50 13 6
		Adelaide Jubilee International Exhibition..	
Total receipts.....	3,709 1 1	Total expenditure.....	3,369 3 3
Balance from 1886—		Balance to 1888—	
Union Bank	£742 17 7	Union Bank.....	£1,079 14 2
Cash in hand.....	1 18 5	Cash in hand	4 19 8
	744 16 0		1,084 13 10
	£ 4,453 17 1		£ 4,453 17 1

APPENDIX II.

ATTENDANCE (AFTERNOONS ONLY) OF VISITORS DURING 1887.

	Sundays.	Week-days.
January	1,396	2,663
February	804	2,309
March	661	1,923
April	762	2,332
May	1,261	2,165
June	1,161	3,302
July	1,551	2,474
August	753	2,328
September	938	2,186
October	1,076	2,169
November	857	1,893
December	691	2,564
	<u>11,911</u>	<u>28,308</u>

Total 40,219

Largest Sunday attendance, June 12th 554
 Largest week-day attendance, October 3rd 582

APPENDIX III.

PURCHASES (SPECIMENS).

Museum No.	Date and Description.
	February 2.
14,573	Japanese hand-pump, constructed of wood, with hinged jet, 17 inches long. Height of pump, 3 feet.
	<i>Plaster Casts.</i>
	June 30.
	Collection of Casts in Fictile Ivory:—
16,381	Book Cover; Italian, 5th, 6th, or 7th century. The Virgin and Child, and illustrations of events connected with the life of our Saviour. Original of ivory, in the Bibliothèque Nationale, Paris. 54-56.
16,381a	Diptych, one leaf; Roman, about A.D. 250. The Roman secular games. Original of ivory, in the Fejérváry Collection, Mayer Museum, Liverpool, England. 54-49.
16,382	Book Cover; Italian, 5th, 6th, or 7th century. Christ enthroned, and illustrations of various miracles performed by Him. Original of ivory, in the Bibliothèque Nationale, Paris. 54-57.
16,383	Panel of a Book Cover; German (?), 11th century. The Crucifixion and the four Evangelistic symbols. Original of ivory, in the British Museum, London. 54-59.
16,386	Box; Roman, 3rd or 4th century. The sliding back of a money-box. A female figure with a rudder and a cornucopia. Original of ivory, in the collection of Mr. Attenborough. 55-61.
16,386a	Diptych, one leaf; Roman, 4th or 5th century. A poet (?). Original of ivory, in the Treasury of the Cathedral of Monza, Italy. 58-2.
16,387	Panel of a Book Cover; Byzantine, 9th or 10th century. Saint Mark giving his blessing. Original of ivory, in the Brera, Milan, Italy. 58-57.
16,388	Panel of a Book Cover; Byzantine, 9th or 10th century. Saint Mark, with other figures. Original of ivory, in the Brera, Milan, Italy. 58-58.
16,389	Diptych, one leaf; Classic, 3rd or 4th century. Diana and Virbius. Original of ivory, in the Biblioteca Quiriniana, Brescia, Italy. 58-62.
16,390	Panels of a Book Cover; German, 9th or 10th century. The Saviour in Majesty, and St. Stephen. Original of ivory, in the Royal Museum, Darmstadt, Germany. 58-87.
16,391	Diptych; Roman, date A.D. 517. The Consul Anastasius Savinianus, presentation of captives, and games of the circus. Original of ivory, in the Bibliothèque Nationale, Paris. 58-88.
16,392	Diptych, one leaf; Roman, 6th century. The Consul Anastasius Moschianus. Original of ivory, in the Cabinet des Antiques, Bibliothèque Nationale, Paris. 58-89.
16,393	Diptych, one leaf; Roman, 3rd or 4th century. An Emperor presiding at a circus. Original of ivory, in the Biblioteca Quiriniana, Brescia, Italy. 58-90.
16,394	Panel of a Book Cover; French, 10th or 11th century. The Saviour in glory with the Evangelical emblems. Original of ivory, in the British Museum, London. 58-91.
16,395	Panel; Italian, 9th or 10th century. The Saviour in Majesty. Original of ivory, in the Christian Museum of the Vatican, Rome. 58-92.
16,396	Panel of a Book Cover; Roman, 4th or 5th century. The Saviour and Evangelists. Original of ivory, in the Royal Museum, Darmstadt, Germany. 58-93.
16,397	Panel of a Book Cover; Byzantine, 10th to 12th century. Carved in camel bone. The Saviour in glory. Original in the Fejérváry Collection, Mayer Museum, Liverpool, England. 58-94.

APPENDIX III—*continued.*
PURCHASES (SPECIMENS).

Museum No.	Date and Description.
16,398	Diptych, one leaf; German, 9th or 10th century. The incredulity of Saint Thomas; the Saviour and Apostles. Original of ivory, in the Cathedral Treasury, Aix-la-Chapelle, Germany. 58-95.
16,399	Diptych, one leaf; German, 9th or 10th century. The disciples at Emmaus, and other subjects. Original of ivory, in the Cathedral Treasury, Aix-la-Chapelle, Germany. 58-96.
16,400	Panel; German, 11th or 12th century. The Crucifixion, with the Evangelical emblems. Original of ivory, in the Royal Museum, Darmstadt, Germany. 58-97.
16,401	Panel; Byzantine or Italian (?), 10th or 11th century. Saint Nazarius. Original of ivory. 58-98.
16,402	Panel, in two compartments; German, 10th century. The raising of Lazarus, and Christ giving sight to the Blind. Original of ivory, in the British Museum, London. 58-99.
16,403	Arm of a Chair (?); Rhenish Byzantine (?), 12th century. Interlaced foliage and figures. Original of ivory, in the Meyrick Collection, South Kensington Museum, London. 58-100.
16,404	Arm of a Chair (?); Rhenish Byzantine (?), 12th century. Original of ivory, in the Meyrick Collection, South Kensington Museum, London. 58-101.
16,405	Border; Italian, 10th to 12th century. Frieze, with birds. Original of ivory, in the Treasury of the Cathedral of Salerno, Italy. 58-102.
16,406	Border; Italian (?), 10th to 12th century. Original of ivory, in the Treasury of the Cathedral of Salerno, Italy. 58-103.
16,407	Panel of a Shrine (?); Byzantine, 11th or 12th century. The Crucifixion. Original of ivory, in the Treasury of the Cathedral of Salerno, Italy. 58-104.
16,408	Panel of a Book Cover; German (?), 12th century. The Crucifixion. Original of ivory, in the Royal Museum, Darmstadt, Germany. 58-105.
16,409	Panel of a Book Cover; Frankish, 9th or 10th century. The Crucifixion. Original of ivory, in the South Kensington Museum, London. 58-106.
16,410	Panel, in three compartments; late Carolingian, 10th century. Legendary subjects. Original of ivory, in the Rigollot Collection, Museum of Amiens, France. 58-107.
16,411	Diptych, the reverse of one leaf; Carolingian, 10th century. The Ascension. Original of ivory, in the South Kensington Museum, London. 58-108.
16,412	Panel of a Book Cover; German, 10th century. Christ casting out devils. Original of ivory, in the Royal Museum, Darmstadt, Germany. 58-109.
16,413	Panel of a Book Cover; German, 10th century. Christ raising the Widow's Son. Original of ivory, in the British Museum, London. 58-109a.
16,414	Panel; Byzantine, 9th or 10th century. Saint Menas. Original of ivory, in the Brera, Milan, Italy. 58-110.
16,415	Panel; Russo-Greek, 14th century. Heads of saints. Original of metal. 58-111.
16,416	Diptych, one leaf; Carolingian, 9th or 10th century. The last Judgment. Original of ivory, in the South Kensington Museum, London. 58-112.
16,417	Diptych, one leaf; Carolingian, 9th or 10th century. Arabesque ornament. Original of ivory, in the South Kensington Museum, London. 58-113.
16,418	Diptych, one leaf (?); German (?), 9th or 10th century. Men bearing offerings; probably a Nativity group. Original of ivory, in the British Museum, London. 58-114.
16,419	Panel of a Casket (?); Byzantine, 9th or 10th century. Saint Mark baptising. Original of ivory, in the Brera, Milan, Italy. 58-115.
16,420	Panel of a Casket (?); Byzantine, 9th or 10th century. A legendary subject. Original of ivory, in the Brera, Milan, Italy. 58-116.
16,421	Casket; Byzantine, 11th or 12th century. The Saviour; the Virgin, the Apostles, and other saints. Original of ivory, in the Meyrick Collection, South Kensington Museum, London. 58-116a.
16,422	Panel; Byzantine, 11th century. Our Lord in glory; angels and saints. Original of ivory, in the Meyrick Collection, South Kensington Museum, London. 58-117.
16,423	Panel of a Book Cover; Byzantine, beginning of the 12th century. Works of Charity and Mercy. Original of ivory, in the British Museum, London. 58-118.
16,424	Panel of a Book Cover; Byzantine, beginning of the 12th century. Scenes from the Old Testament. Original of ivory, in the British Museum, London. 58-119.
16,425	Panel; French (?), 10th century. The Virgin and Child enthroned. Original of ivory. 58-120.
16,426	Crucifix, front; Russo-Greek, uncertain date. The History of our Lord. Original of cedar wood in the collection of — Windus, Esq. 58-122.
16,427	Panel; German (?), 12th century. The Crucifixion. Original of ivory, in the British Museum, London. 58-123.
16,428	Panel of a Palimpsest; Carolingian, 10th century. The Crucifixion and the Resurrection. Original of ivory, in the South Kensington Museum, London. 58-124.
16,429	Panel; Italian, 12th century. The Annunciation, the Nativity, and the Adoration of the Magi. Original of ivory, in the British Museum, London. 58-125.
16,430	Panel; affixed to the Psalter of Charles Le Chauve; Carolingian, 9th century. A subject from the Psalms of David. Original of ivory, in the Bibliothèque Nationale, Paris. 58-126.
16,431	Panels of a Casket; four, Italian, 7th century. The sick women touching Christ's garment; Christ healing the sick; the raising of Lazarus; Christ giving sight to the Blind. Original of ivory, in the collection of M. Micheli, Paris. 58-127.
16,432	Handle of a Flabellum, or Fly Flapper; South of France, 8th to 10th century. A seated figure, and two pastoral subjects. Original of ivory, in the collection of M. Carrand, Lyons, France. 58-128.

APPENDIX III—*continued*.
PURCHASES (SPECIMENS).

Museum No.	Date and Description.
16,433	Handle of a Flabellum, or Fly Flapper; South of France, 8th to 10th century. Pastoral and agricultural subjects. Original of ivory, in the collection of M. Carrand, Lyons, France. 58-129.
16,434	Panel; German (?), 10th to 12th century. The Saviour in Majesty. Original of ivory, in the British Museum, London. 58-130.
16,435	Panel; Byzantine, 12th century. The Saviour in Majesty. Original of ivory, in the South Kensington Museum, London. 58-131.
16,436	Top of a Casket; Byzantine, 10th to 12th century. The Saviour blessing two (royal) figures. Original of ivory, in the Collegio Romano, Rome. 58-133.
16,437	Panel; Italian, 10th century. Bust of a man in the act of worship. Original of ivory, in the Treasury of the Cathedral of Salerno, Italy. 58-134.
16,438	Head of a Pastoral Staff; Irish, 10th to 12th century. Interlaced scrolls and rectangular open-work. Original of ivory, in the Meyrick Collection, South Kensington Museum, London. 58-136.
16,439	Head of a Pastoral Staff; German (?), 8th or 9th century. Original of ivory, in the Christian Museum of the Vatican, Rome. 58-137.
16,440	Head of a Pastoral Staff; Italian (?), 12th century. The whorl terminating in a ram's head and horn. Original of ivory, in the Christian Museum of the Vatican, Rome. 58-137a.
16,441	Panel of a Shrine; Byzantine, 11th or 12th century. The Creation. Original of ivory, in the Treasury of the Cathedral of Salerno, Italy. 58-138.
16,442	Panel of a Shrine; Byzantine, 11th or 12th century. Noah building the Ark. Original of ivory, in the Treasury of the Cathedral of Salerno, Italy. 58-139.
16,443	Panel of a Shrine; Byzantine, 11th or 12th century. The Creation of Eve. Original of ivory, in the Treasury of the Cathedral of Salerno, Italy. 58-140.
16,444	Panel of a Casket; Byzantine, 10th century. Wild beasts combating. Original of ivory, in the Museum at Arezzo, Italy. 58-142.
16,445	Box "Panagia," for holding fragments of consecrated bread; Russo-Greek, 17th century (?). The Three Angels who visited Abraham, surrounded by ten scriptural subjects in medallions. Original of ivory, in the Christian Museum of the Vatican, Rome. 58-143.
16,446	Box "Panagia," the cover; Russo-Greek, 17th century (?). In the centre SS. Gregory, Basil, and Ivan, surrounded by busts of saints in twelve medallions. Original of ivory, in the Christian Museum of the Vatican, Rome. 58-144.
16,447	Box "Panagia," the cover; Russo-Greek, 17th century (?). The Crucifixion, surrounded by medallions of saints. Original of ivory, in the Christian Museum of the Vatican, Rome. 58-145.
16,448	Box "Panagia"; Russo-Greek, 17th century (?). The Virgin and Child surrounded by saints. Original of ivory, in the Christian Museum of the Vatican, Rome. 58-146.
16,449	Panel of a Shrine; Byzantine, 11th or 12th century. The Nativity, and the Flight into Egypt. Original of ivory, in the Treasury of the Cathedral of Salerno, Italy. 58-147.
16,451	Dipytych, one leaf; German, 12th century. Scenes from the life of Christ. Original of ivory, in the South Kensington Museum, London. 58-149.
16,452	Dipytych, one leaf; German, 12th century. Scenes from the life of Christ. Original of ivory, in the South Kensington Museum, London. 58-150.
16,453	Panel of a Casket; Italian, 14th century. The story of Susanna and the Elders. Original of bone, in the Meyrick Collection, South Kensington Museum, London. 58-151.
16,454	Panel of a Casket; Italian, 14th century. The story of Susanna and the Elders. Original of bone, in the Meyrick Collection, South Kensington Museum, London. 58-152.
16,455	Panel of a Casket; Italian, 14th century. The story of Susanna and the Elders. Original of bone, in the Meyrick Collection, South Kensington Museum, London. 58-153.
16,456	Panel of a Casket; Italian, 14th century. The story of Susanna and the Elders. Original of bone, in the Meyrick Collection, South Kensington Museum, London. 58-154.
16,457	Panel; South German (?), 11th century. A saint or prophet. Original of ivory, in the Brera, Milan, Italy. 58-155.
16,458	Portion of a Situla; Byzantine, 10th to 12th century. Figures of an emperor and bishops. Original of ivory, in the Cathedral Treasury, Aix-la-Chapelle, Germany. 58-156.
16,459	Panel of a Casket; Byzantine, 10th to 12th century. David crowned. Original of ivory, in the Collegio Romano, Rome. 58-157.
16,460	Panel of a Casket; Byzantine, 10th to 12th century. David slaying Goliath. Original of ivory, in the Collegio Romano, Rome. 58-157a.
16,461	Dipytych, portion of a leaf much injured; Roman, 6th century. A consul seated. Original of ivory, in the South Kensington Museum, London. 58-158.
16,462	Panel of a Shrine; Byzantine, 11th or 12th century. The Shepherds at the Nativity; the Massacre of the Innocents. Original of ivory, in the Treasury of the Cathedral of Salerno, Italy. 58-159.
16,463	Panel of a Shrine; Byzantine, 11th or 12th century. Christ giving sight to the Blind, and the Resurrection. Original of ivory, in the Treasury of the Cathedral of Salerno, Italy. 58-160.
16,464	Panel of a Shrine; Byzantine, 11th or 12th century. The Presentation, and the Marriage at Cana. Original of ivory, in the Treasury of the Cathedral of Salerno, Italy. 58-161.
16,465	Panel of a Casket (?); Byzantine, 9th century. SS. Peter and Paul, seated. Original of ivory, in the South Kensington Museum, London. 58-162.
16,466	Panel of a Shrine; Byzantine, 11th or 12th century. Jacob's Dream, and Moses at the Burning Bush. Original of ivory, in the Treasury of the Cathedral of Salerno, Italy. 58-163.

APPENDIX III—*continued*.
PURCHASES (SPECIMENS).

Museum No.	Date and Description.
16,467	Panel of a Shrine; Byzantine, 11th or 12th century. Abraham offering up Isaac. Original of ivory, in the Treasury of the Cathedral of Salerno, Italy. 58-164.
16,468	Panel of a Casket (?); Byzantine, 6th to 10th century. The creation of Adam and Eve, and the death of Abel. Original of ivory, in the Meyrick Collection, South Kensington Museum, London. 58-165.
16,469	Panel of a Casket; Byzantine, 12th century. An armed king and soldiers. Original of ivory, in the South Kensington Museum, London. 58-166.
16,470	Handle of the Flabellum of Tournus (?); French (?), 12th century. Original of ivory, in the collection of M. Carrand, Lyons, France. 58-167 <i>a, b, c</i> .
16,471	Handle of the Flabellum of Tournus (?), a portion; Italian (?), 8th to 10th century. Figures, with interlaced foliage. Original of ivory, in the Museum of the Hôtel de Cluny, Paris. 58-168.
16,472	Handle of the Flabellum of Tournus (?), a portion; Italian (?), 8th to 10th century. Figures, with interlaced foliage. Original of ivory, in the Museum of the Hôtel de Cluny, Paris. 58-169.
16,473	Box; Carolingian, 11th century. Events from the life of a saint. Original of ivory. 58-169 <i>a</i> .
16,474	Chessman; Northern, 11th or 12th century. A rook, or warrior, with a large shield. Found in the Isle of Lewis, 1831. Original of ivory, in the British Museum, London. 58-170.
16,475	Chessman; Northern, 11th or 12th century. A knight on horseback, with a large shield. Found in the Isle of Lewis, 1831. Original of ivory, in the British Museum, London. 58-171.
16,476	Chessman; Northern, 11th or 12th century. A rook, or warrior, with a large shield. Found in the Isle of Lewis, 1831. Original of ivory, in the British Museum, London. 58-172.
16,477	Chessman; Irish (?), 12th or 13th century. A queen crowned and seated. Found in the Isle of Lewis, 1831. Original of ivory, in the British Museum, London. 58-172 <i>a</i> .
16,479	Draughtsman; French, 12th century. Delila and Samson. Original of ivory, in the collection of M. Carrand, Lyons, France. 58-174.
16,480	Draughtsman. Two females. Original of ivory. 58-175.
16,481	Draughtsman; English, 11th or 12th century. A man carrying a faggot of sticks. Original of ivory, in the British Museum, London. 58-176.
16,482	Draughtsman; French, 12th century. A huntsman riding on a hare, and holding two dogs. Original of ivory, in the collection of M. Carrand, Lyons, France. 58-177.
16,483	Draughtsman; English (?), 12th century. A man riding on a dragon, a dragon behind him. Original of ivory, in the British Museum, London. 58-177 <i>a</i> .
16,484	Pyx; cylindrical, Italian, 6th to 8th century. The Saviour and the Demoniac. Original of ivory, in the collection of the Rev. Walter Sneyd. 58-181.
16,485	Pyx; cylindrical, Italian, 5th or 6th century. Miracles of our Saviour. Original of ivory, in the Christian Museum of the Vatican, Rome. 58-182.
16,486	Tablet; German, 11th or 12th century. The Apostles witnessing the Ascension. Original of ivory, in the Royal Museum, Darmstadt, Germany. 58-183.
16,487	Panels of a Casket (24); Northern Europe, 12th century (?). The Saviour in glory; the death of Judas, and other subjects. Original of ivory, in the Museum of the Hôtel de Cluny, Paris. 58-188.
16,488	Casket; Carolingian, 10th century. The early history of Christ. Original of ivory, in the Museum of the Louvre, Paris. 58-191.
16,489	Statuette of the Saviour; French, 13th century. Original of ivory, in the Meyrick Collection, South Kensington Museum, London. 58-194.
16,490	Statuette; French, 13th century. The Virgin and Child. Original of ivory, in the Meyrick Collection, South Kensington Museum, London. 58-195.
16,491	Panel of a Book Cover; English (?), 14th century. The Crucifixion. Original of ivory, in the MSS. Department, British Museum, London. 58-196.
16,492	Diptych, one leaf; Italian, 13th century. The offering of the Magi. Original of ivory, in the collection of the Rev. Walter Sneyd. 58-197.
16,493	Mirror Case, the cover; German (?), 16th or 17th century. The Massacre of the Innocents. Original of ivory, in the Christian Museum of the Vatican, Rome. 58-198.
16,494	Mirror Case, the top; French, 14th century. A domestic group. Original of ivory. 58-199.
16,495	Mirror Case, the top; French, 14th century. Siege of the Castle of Love. Original of ivory. 58-200.
16,496	Mirror Case, the top; French, 14th century. The ascent to the Castle of Love. Original of ivory, in the Royal Museum, Darmstadt, Germany. 58-202.
16,497	Mirror Case, the top; French, early 14th century. The Battle of Roses. Original of ivory, in the Meyrick Collection, South Kensington Museum, London. 58-203.
16,498	Mirror Case, the cover; French or Italian, late 14th century. A tournament. Original of ivory, in the collection of M. Carrand, Lyons, France. 58-204.
16,499	Mirror Case; French, 14th century. A tournament. Original of ivory, in the collection of M. Carrand, Lyons, France. 58-206.
16,500	Mirror Case, the top; French, 14th century. The Court of Love. Original of ivory, in the Museum of the Hôtel de Cluny, Paris. 58-207.
16,501	Mirror Case, the top; English, 14th century. Two pairs of lovers. Original of ivory, in the Museum of the Louvre, Paris (?). 58-210.
16,502	Mirror Case, the top; English (?), 14th century. A knight and a lady. Original of ivory, in the British Museum, London. 58-211.

APPENDIX III—*continued*.
PURCHASES (SPECIMENS).

Museum No.	Date and Description.
16,503	Mirror Case, the top; French, 14th century. Two lovers and a monk. Original of ivory, in the Museum of the Hôtel de Cluny, Paris. 58-212.
16,504	Mirror Case, the top; French, 14th century. A lady and her lover. Original of ivory, in the Museum of the Hôtel de Cluny, Paris. 58-213.
16,505	Mirror Case, the top; English, about 1375. A knight offering a heart to a lady. Original of ivory, in the British Museum, London. 58-214.
16,506	Mirror Case, the top; French (?), 14th century. A lady and a knight. Original of ivory. 58-215.
16,507	Mirror Case, square, the top; French, end of 13th century. A gentleman offering a heart to a lady. Original of ivory, in the Museum of the Louvre, Paris. 58-216.
16,508	Diptych; French, 15th century. The Trinity, and the Saviour in glory. Original of ivory. 58-217.
16,509	Diptych; French, 14th century. The history of Christ. Original of ivory, in the collection of M. Micheli, Paris. 58-218.
16,510	Panel; French (?), 14th century. The Conversion of St. Paul, and Eutychus. Original of ivory, in the Museum of the Hôtel de Cluny, Paris. 58-219.
16,511	Panel; French (?), 14th century. Daniel in the lions' den; Shadrach (?) in the furnace; the martyrdom of St. Denis. Original of ivory, in the Museum of the Hôtel de Cluny, Paris. 58-220.
16,512	Panel; French (?), 14th century. St. Peter preaching, and the martyrdom of St. Peter. Original of ivory, in the Museum of the Hôtel de Cluny, Paris. 58-221.
16,513	Panel; French (?), 14th century. Destruction of idols, and scourging of a martyr. Original of ivory, in the Museum of the Hôtel de Cluny, Paris. 58-222.
16,514	Panel of a Book Cover (?); Byzantine, 10th or 11th century. The Nativity. Original of ivory, in the collection of Rohde Hawkins, Esq. 58-225.
16,515	Diptych, one leaf; French, 14th century. The Salutation, and the Nativity. Original of ivory. 58-226.
16,516	Diptych, one leaf; French, 14th century. The Coronation of the Virgin, and the death of Thomas à Becket. Original of ivory, in the Meyrick Collection, South Kensington Museum, London. 58-228.
16,517	Diptych, one leaf; German, 14th century. The death of the Virgin. Original of ivory. 58-229.
16,518	Diptych, one leaf; French, late 15th century. The Nativity. Original of ivory, in the Meyrick Collection, South Kensington Museum, London. 58-230.
16,519	Triptych; Italian, 16th century. The Resurrection, the Crucifixion, and the Virgin enthroned. Original of ivory, in the Christian Museum of the Vatican, Rome. 58-232.
16,520	Panel of a Casket; French, 14th century. Scenes of hunting and hawking. Original of ivory, in the Meyrick Collection, South Kensington Museum, London. 58-233.
16,521	Semi-statuettes, a portion of a group; French (?), 13th century. A female holding an infant. Original of ivory, in the collection of the Rev. Walter Sneyd. 58-235.
16,522	Semi-statuettes; French, 15th or 16th century. A saint holding the Crown of Thorns. Probably from a group of the Deposition from the Cross. Original of ivory. 58-236.
16,523	Semi-statuettes, a portion of a group; German, 14th century. The Marys at the Sepulchre. Original of ivory, in the Royal Museum, Darmstadt, Germany. 58-237.
16,524	Panels, nine, fixed on the front of the cover of the "Sacramentaire de Metz"; French, 9th century. Various religious functions. Original of ivory, in the Bibliothèque Nationale, Paris. 58-238.
16,525	Panels, nine, fixed on the back of the cover of the "Sacramentaire de Metz"; French, 9th century. Various religious functions. Original of ivory, in the Bibliothèque Nationale, Paris. 58-239.
16,526	Panels of a Casket, six; Byzantine, 10th or 11th century. Classical figures. Original of ivory, in the Museum, Arezzo, Italy. 58-240.
16,527	Panels of a Casket, two; Byzantine, 9th to 11th century. Chiron and Achilles, and other subjects. Original of ivory, in the Meyrick Collection, South Kensington Museum, London. 58-241.
16,528	Panels of a Casket, twelve; Byzantine, 10th or 11th century. Classical figures. Original of ivory. 58-242.
16,529	Panels of a Casket (?); German (?), 14th century. Two lovers and a monk. Original of ivory, in the Royal Museum, Darmstadt, Germany. 58-243.
16,530	Handle of a Dagger; French, 15th century. Original of ivory, in the collection of M. Carrand, Lyons, France. 58-244.
16,531	Head of Christ; French, 15th century. Original of ivory, in the Douce (Meyrick) Collection, South Kensington Museum, London. 58-245.
16,532	Head of a Man wearing a Coronet, forming part of a rosary; French, late 15th century. Original of ivory, in the Douce (Meyrick) Collection, South Kensington Museum, London. 58-245a.
16,533	Head of a Monk, forming part of a rosary; French, late 15th century. Original of ivory, in the Douce (Meyrick) Collection, South Kensington Museum, London. 58-245b.
16,534	Head of a Negro, forming part of a rosary; French, 15th century. Original of ivory, in the Douce (Meyrick) Collection, South Kensington Museum, London. 58-245c.
16,535	Heads, eight; French, 15th century. Portions of a rosary. Originals of ivory, in the Douce (Meyrick) Collection, South Kensington Museum, London. 58-245d to l.

APPENDIX III—continued.
PURCHASES (SPECIMENS).

Museum No.	Date and Description.
16,536	Statuette; French, early 14th century. The Virgin and Child, forming the outside of a Triptych when closed. Original of ivory, in the Museum of the Louvre, Paris. 58-251.
16,537	Tobacco-grater; French, 17th century. Harlequin with <i>viol da gamba</i> . Original of ivory. 58-253.
16,537 ^a	Tablet; English, 18th century; with satirical representation of Orator Henley preaching. Original of ivory, in the Meyrick Collection, South Kensington Museum, London. 58-254.
16,538	Circular Box (a portion); Italian, 16th century. Dancing children. Original of ivory. 58-255.
16,539	Panels, two; Roman, 4th century. Allegory of the life of a poet. Original of ivory, in the Cabinet des Antiques, Bibliothèque Nationale, Paris. 58-256.
16,540	Handle of a Hunting-knife; French, 16th century. Hercules combating. Original of ivory. 58-257.
16,541	Tobacco-grater; French, 17th century. Grotesque peasant. Original of ivory, in the Museum of the Hôtel de Cluny, Paris. 58-258.
16,542	Handle of a Hunting-knife; French, 16th century. Infant Neptune. Original of ivory, in the Museum of the Louvre, Paris. 58-259.
16,543	Tobacco-grater; French, 17th century. Venus instructing Cupid. Original of ivory, in the Museum of the Hôtel de Cluny, Paris. 58-260.
16,544	Pyx, cylindrical; Italian, 4th or 5th century. Christ and the Apostles, and Abraham offering up Isaac. Original of ivory, in the Kunst Kammer, Berlin. 58-261.
16,545	Panels, two; Italian, 8th to 10th century. Foliage. Originals of ivory, in the British Museum, London. 58-262.
16,546	Diptych, one leaf; Italian, 5th or 6th century. Adam in Paradise. Original of ivory, in the collection of M. Carrand, Lyons, France. 58-263.
16,547	Diptych, one leaf; Carolingian, 10th century. The Marys at the Sepulchre. Original of ivory, in the South Kensington Museum, London. 58-264.
16,548	Tankard, called the Bedford Tankard; Flemish, 16th century. Satyrs and Bacchantes. Original of ivory, in the collection of Messrs. Elkington & Co. 58-265.
16,550	Panel; Flemish, first half of 17th century. Infant Satyrs and Nymphs, by Gerhard von Opstal. Original of ivory, in the Museum of the Louvre, Paris. 60-1.
16,551	Panel; Flemish, first half of 17th century. Infant Bacchanals and Silenus, by Gerhard von Opstal. Original of ivory, in the Museum of the Louvre, Paris. 60-2.
16,552	Panel, Flemish; first half of 17th century. Infant Bacchanals and Goat, by Gerhard von Opstal. Original of ivory, in the Museum of the Louvre, Paris. 60-3.
16,553	Panel; Flemish, first half of 17th century. Centaurs carrying off a Nymph, by Gerhard von Opstal. Original of ivory, in the Museum of the Louvre, Paris. 60-4.
16,554	Panel; Flemish, first half of 17th century. Triton and Nymph, by Gerhard von Opstal. Original of ivory, in the Museum of the Louvre, Paris. 60-5.
16,555	Panel of a Book Cover (?); Frankish, 10th or 11th century. Christ disputing with the Doctors, the Marriage at Cana, and Christ meeting the Nobleman. Original of ivory, in the Wallerstein Collection, Royal Library, Munich. 64-45.
16,556	Book Cover, in eight compartments; Italian, 6th or 7th century. Christ seated, with the four Evangelists standing around him, and other subjects. Original of ivory, from the Convent of Saint Michael, Murano, near Venice; in the Museum, Ravenna, Italy. 65-93.
16,557	Diptych, one leaf; Roman, beginning of the 6th century. The Consul Areobindus seated, and allegorical figures of Rome and Constantinople. Original of ivory, in the Public Museum, Zurich, Switzerland. 65-94.
16,558	Diptych, one leaf; Byzantine, 10th or 11th century. Standing figures of Saint Andrew and Saint Peter. Original of ivory, in the Imperial Museum, Vienna. 65-95.
16,559	Diptych, one leaf; Roman, 6th century. Standing female figure, probably Rome, bearing emblems of Peace. Original of ivory, in the Imperial Museum, Vienna. 65-97.
16,560	Panel; Italian, 6th century. Joseph sold by his brethren. Original (of ivory) on the chair of St. Maximian, at Ravenna, Italy. 65-99.
16,561	Panel; Italian, 6th century. The meeting of Jacob and Joseph. Original (of ivory) on the chair of St. Maximian, at Ravenna, Italy. 65-100.
16,562	Panel or Upright Bar; Italian, 6th century. Foliage springing from a vase; among the branches are various animals. Original (of ivory) on the chair of St. Maximian, at Ravenna, Italy. 65-101.
16,563	Panel of a Book Cover; Carolingian, 9th century. The Saviour in glory, surrounded by angels; the four Evangelists; carved by the Monk Tutilo of Saint Gall; and allegoric figures of the sun and moon, earth and ocean. Original of ivory, in the Library of the Monastery of St. Gall, Switzerland. 65-103.
16,564	Panel of a Book Cover; Carolingian, 9th century. Carved by the Monk Tutilo of St. Gall. Foliage, amidst which is a lion springing on its prey; the Assumption of the Virgin; and bears bringing food and fuel to St. Gall. Original of ivory, in the Library of the Monastery of St. Gall, Switzerland. 65-104.
16,565	Panel of a Book Cover, executed at St. Gall; Carolingian, 9th century. Foliage, among which are various animals. Original of ivory, in the Library of the Monastery of St. Gall, Switzerland. 65-105.
16,566	Panel; Italian, 10th or 11th century. The Crucifixion, with the Virgin, St. John, and two soldiers. Above are allegoric figures of the sun and moon. Original of ivory. 65-107.
16,567	Panel; German, 9th or 10th century. Daniel in the den of lions. Original of ivory, in the collection of the late Mathew Uzielli, Esq. 65-108.

APPENDIX III—*continued.*
PURCHASES (SPECIMENS).

Museum No.	Date and Description.
16,568	Panel; Classic, 3rd or 4th century. Figures of Æsculapius and Hygeia. Original of ivory, in a private collection in Switzerland. 65-110.
16,569	Panel of a Triptych, the centre; French, 16th century. Two angels bearing a ring, probably a reliquary; the background powdered with <i>fleurs-de-lis</i> . The complete triptych is in the South Kensington Museum, London. 65-111.
16,570	Panel of a Reliquary (?); North Italian (?), 9th century. Bust of our Saviour holding a book. Original of ivory. 65-112.
16,571	Panel of a Casket (?); Italian, Lombardic (?), 10th century. Interlacing foliage, forming four medallions of saints. Original of ivory, in the Museum, Ravenna, Italy. 65-113.
16,572	Panels of a Book Cover; Byzantine, 10th or 11th century. Three angels. Three of the Evangelistic symbols. Originals of ivory, in the Royal Museum, Darmstadt, Germany. 65-114.
16,573	Panel of a Casket (?); German, 12th century. The Saviour seated in glory, with the Evangelistic symbols (imperfect). Original of ivory, in the Royal Museum, Darmstadt, Germany. 65-116.
16,574	Panel; Roman, 4th or 5th century. Apollo and Daphne. Original of ivory, in the Public Library, Ravenna, Italy. 65-117.
16,576	Comb, centre of one side; German, 16th century. David's message to Bathsheba. Original of ivory, in the South Kensington Museum, London. 65-119.
16,577	Panel; Italian, 16th century. Angels playing on musical instruments. Original of ivory, in the South Kensington Museum, London. 65-120.
16,578	Panel; German, 12th century. The Nativity, with angel and shepherds. Original of ivory, in the Royal Museum, Darmstadt, Germany. 65-121.
16,579	Diptych, one leaf; French, 14th century. The Crucifixion. Original of ivory, in the collection of — Farrer, Esq. 65-122.
16,580	Draughtsman; Scandinavian, 12th century. Figure grasping two monsters. Original of ivory, in the Royal Museum, Copenhagen. 65-124.
16,581	Draughtsman; English, 12th or 13th century. St. Martin dividing his cloak. Original of ivory, in the Ashmolean Museum, Oxford, England. 65-125.
16,582	Draughtsman; English, 12th or 13th century. St. Martin dividing his cloak. Original of ivory, in the Ashmolean Museum, Oxford, England. 65-126.
16,583	Panel, chased silver; Anglo-Saxon (?), 7th or 8th century. Interlaced serpents. Original in the Royal Museum, Copenhagen. 65-127.
16,584	Style, for writing, with female terminal bust; Roman, 1st to 4th century. Original of ivory, in the British Museum, London. 65-128.
16,586	Pyx, cylindrical; Classical, 3rd or 4th century. Scenes from the life of Achilles. Original of ivory, in the Treasury of the Cathedral of Xanten, Germany. 65-130.
16,587	Pyx, cylindrical; Classical, 1st to 4th century. Venus and Adonis, Cupid and three Nymphs. Original of ivory, in the Public Museum, Zurich, Switzerland. 65-131.
16,588	Diptych, one leaf; Roman, beginning of the 6th century. A cornucopia, the monogram of Areobindus surmounted by a cross and an inscription. Original of ivory, in the Metropolitan Library, Lucca, Italy. 68-1.
16,589	Diptych, one leaf; Roman, beginning of the 6th century. A cornucopia, the monogram of Areobindus surmounted by a cross and an inscription. Original of ivory, in the Metropolitan Library, Lucca, Italy. 68-1a.
16,590	Head of a Pastoral Staff; Italian, 12th or 13th century. The Agnus Dei bearing a cross. Original of ivory. 68-2.
16,591	Head of a Staff; Scandinavian (?), 12th century. Animals amongst branches and leaves. Original of ivory, in the Royal Museum, Copenhagen. 68-3 & 3a.
16,592	Figure; Flemish, 17th century. An infant asleep. Original of ivory. 68-4.
16,593	Draughtsman; French (?), 12th century. David and two attendants approaching Goliath. Original of ivory, in the collection of M. Carrand, Lyons, France. 68-5.
16,594	Panels of a Casket (?); Eastern, 10th to 12th century. Figures of animals. Originals of ivory. 68-6, 6a, 6b.
16,595	Casket; German (?), 12th century. A king seated, holding a sceptre and orb. A bishop in a chair, flowing scroll ornaments intertwining dragons and other fabulous animals. Original of ivory, in the Royal Museum, Copenhagen. 71-51.
16,596	Tablet; Etruscan. Diana. Original of ivory, in the Fejérváry Collection, Mayer Museum, Liverpool, England. 73-1.
16,597	Border, a portion; Etruscan. Original of ivory, in the British Museum, London. 73-2.
16,598	Scent-box, a fragment; classical, 1st to 4th century. Silenus, holding a bunch of grapes. Original of ivory, in the Fejérváry Collection, Mayer Museum, Liverpool, England. 73-3.
16,599	Box, a fragment; Roman, 1st to 4th century. Cupid playing on two lutes. Original of ivory, in the British Museum, London. 73-4.
16,600	Panel; Etruscan. A female figure. Original of ivory, in the British Museum, London. 73-5.
16,601	Tessera, circular, used as an admission ticket; Roman, 1st to 4th century. A youth standing beside a girl seated. Original of ivory, in the British Museum, London. 73-6.
16,602	Tessera, obverse, circular, used as an admission ticket; Roman, 1st to 4th century. A Greek inscription. Original of ivory, in the British Museum, London. 73-6a.
16,603	Tessera, circular, used as an admission ticket; Roman, 1st to 4th century. Side face of a man. Original of ivory, in the British Museum, London. 73-7.
16,604	Tessera, circular, used as an admission ticket; Roman, 1st to 4th century. Side face of a man. Original of ivory, in the British Museum, London. 73-8.

APPENDIX III—*continued.*
PURCHASES (SPECIMENS).

Museum No.	Date and Description.
16,605	Tessera, circular, used as an admission ticket; Roman, 1st to 4th century. A hand. Original of ivory, in the British Museum, London. 73-9.
16,606	Tessera, circular, used as an admission ticket; Roman, 1st to 4th century. A prawn. Original of ivory, in the British Museum, London. 73-10.
16,607	Tablet; Classical, 3rd or 4th century. Cupid as the Genius of Death. Original of ivory, in the Fejérváry Collection, Mayer Museum, Liverpool, England. 73-11.
16,608	Tablet; Roman, 4th century (?) The Genius of Winter. Original of ivory, in the Fejérváry Collection, Mayer Museum, Liverpool, England. 73-12.
16,609	Panel; Roman, 3rd or 4th century. Part of a martial procession. Original of ivory, in the Public Library, Treves, Germany. 73-13.
16,610	Diptych, one leaf; Roman, 3rd century. A priestess before an altar. Original of ivory, in the South Kensington Museum, London. 73-14.
16,611	Semi-statuettes; Roman, 4th or 5th century. A female mythological figure. Original of ivory, affixed to the silver pulpit in the Cathedral of Aix-la-Chapelle, Germany. 73-15.
16,612	Semi-statuettes; Roman, 4th or 5th century. A male figure surrounded by vine branches. Original of ivory, affixed to the silver pulpit in the Cathedral of Aix-la-Chapelle, Germany. 73-16.
16,613	Semi-statuettes; Roman, 4th or 5th century. A male figure holding a vase above his head. Original of ivory, affixed to the silver pulpit in the Cathedral of Aix-la-Chapelle, Germany. 73-17.
16,615	Semi-statuettes; Roman, 4th or 5th century. An emperor on horseback. Original of ivory, affixed to the silver pulpit in the Cathedral of Aix-la-Chapelle, Germany. 73-19.
16,616	Semi-statuettes; Roman, 4th or 5th century. A female figure and a satyr. Original of ivory, affixed to the silver pulpit in the Cathedral of Aix-la-Chapelle, Germany. 73-20.
16,617	Diptych, one leaf; Roman, 6th century. Bust of the Consul Fl. Theodorus Valentinianus, 505 A.D. Original of ivory, in the Kunst Kammer, Berlin. 73-21.
16,618	Diptych, one leaf; Roman, 6th century. Bust of the Consul Fl. Theodorus Valentinianus, 505 A.D. Original of ivory, in the Kunst Kammer, Berlin. 73-22.
16,619	Diptych, one leaf; Roman (?), 6th century (?). Original of ivory, in the Fejérváry Collection, Mayer Museum, Liverpool, England. 73-23.
16,620	Diptych, one leaf; Roman, 6th century. Bust of a young consul. Original of ivory, in the Fejérváry Collection, Mayer Museum, Liverpool, England. 73-24.
16,621	Panel; Roman, 3rd or 4th century. Group. A priest joining the right hands of a man and woman. Original of ivory, in the Kunst Kammer, Berlin. 73-25.
16,622	Panel of a Book Cover; Roman, 4th or 5th century. Bust of a female in a wreath supported by two angels. Original of ivory, in a private collection at Aargau, Switzerland. 73-26.
16,623	Panels of a Casket (three); Byzantine, 11th century. Scenes from the Life of Christ. Originals of ivory, in the South Kensington Museum, London. 73-27, 27a, 27b.
16,624	Diptych, one leaf; Italian, 6th or 7th century. Christ and the woman of Samaria. Original of ivory, in the collection of the late T. Bateman, Esq., Yolgrave, Derbyshire, England. 73-28.
16,625	Diptych, one leaf; Italian, 6th or 7th century. Christ curing the paralytic. Original of ivory, in the collection of the late T. Bateman, Esq., Yolgrave, Derbyshire, England. 73-28a.
16,626	Book Cover, front; Carolingian, 9th century. The Virgin and Child, with Isaiah on the left and Melchisedec on the right panel; below, the Nativity and the angels appearing to the shepherds. Original of ivory, in the South Kensington Museum, London. 73-29.
16,627	Panel; Italian (?), 10th century (?). Ten scenes, from the Creation to the fall of man. Original of ivory, in the Kunst Kammer, Berlin. 73-30.
16,628	Panel; Italian (?), 10th century. The Crucifixion. Original of ivory, in the Kunst Kammer, Berlin. 73-31.
16,629	Panel; Lombardic (?), 10th century. The Presentation in the Temple. Original of ivory, in the South Kensington Museum, London. 73-32.
16,630	Flabellum or Aspergillum (?), a portion; French (?), 12th century. The occupations of the months of the year. Original of ivory, in the British Museum, London. 73-33.
16,631	Panel; Byzantine, second half of the 10th century. The legend of the forty martyrs abandoned on a frozen lake. Original of ivory, in the Kunst Kammer, Berlin. 73-34.
16,632	Diptych; Byzantine, 10th or 11th century. The Birth of Christ and the Presentation in the Temple. Original of ivory, in the Kunst Kammer, Berlin. 73-35.
16,633	Triptych, inside of one wing; Byzantine, first half of the 10th century. The Archangel Michael. Original of ivory, in the Kunst Kammer, Berlin. 73-36.
16,634	Triptych, outside of one wing; Byzantine, first half of the 10th century. Circles with rosettes. Original of ivory, in the Kunst Kammer, Berlin. 73-37.
16,635	Panel, widened at each end; Byzantine, 10th century. Monstrous animals and a man with a spear attacking a lion. Original of ivory, in a collection in Switzerland. 73-39.
16,636	Panel of a Casket; Byzantine, 10th century. A man gathering grapes. Original of ivory, in the Kunst Kammer, Berlin. 73-40.
16,637	Panel; Byzantine, 11th century. The raising of Lazarus. Original of ivory, in the Kunst Kammer, Berlin. 73-41.
16,638	Panel; Byzantine, 10th or 11th century. The Deposition from the Cross. Original of ivory, in the Treasury of the Cathedral of Hildesheim, Hanover. 73-42.
16,639	Panel; Byzantine, 10th to 12th century. Christ and the two disciples at Emmaus. Original of ivory, in the Kunst Kammer, Berlin. 73-43.
16,640	Panel; Byzantine, 11th century. Busts of SS. Philip, Stephen, Andrew, and Thomas, and, in the centre, St. John the Baptist. Original of ivory, in the South Kensington Museum, London. 73-44.

APPENDIX III—*continued.*
PURCHASES (SPECIMENS).

Museum No.	Date and Description.
16,641	Triptych, central piece; Byzantine, 11th century. Christ seated on a throne, and busts of the Virgin, St. John, and Michael. Original of ivory, in the Cathedral of Treves (?), Germany. 73-45.
16,642	Book Cover; Byzantine 11th century. The Virgin and Child. Original of ivory, in the Cathedral Treasury, Aix-la-Chapelle, Germany. 73-46.
16,643	Book Cover, the back; Byzantine, 11th century. Busts of saints and apostles. Original of ivory, in the Cathedral Treasury, Aix-la-Chapelle, Germany. 73-47.
16,644	Panel, round-topped; Byzantine, 11th century. The death of the Virgin, and figures of saints. Original of ivory, in the South Kensington Museum, London. 73-48.
16,645	Panel, sunk; Byzantine, 11th or 12th century. The death of the Virgin. Original of ivory, in the Royal Library of Wolfenbüttel, Germany. 73-49.
16,646	Panel; Byzantine, 11th or 12th century. The Annunciation and scenes in the life of Christ. Original of ivory, in the South Kensington Museum, London. 73-50.
16,647	Panel of a Book Cover; Byzantine, 11th to 13th century. Christ, the Virgin, and St. John. Original of ivory, in the collection of the Rev. Walter Sneyd. 73-51.
16,648	Lid of a Casket; Byzantine, 12th century. Armed knights. Original of ivory, in the collection of the late T. Bateman, Esq., Yolgrave, Derbyshire, England. 73-52.
16,649	Front of a Casket; Byzantine, 12th century. Knights in combat with a lion. Original of ivory, in the collection of the late T. Bateman, Esq., Yolgrave, Derbyshire, England. 73-53.
16,650	Panel; Spanish-Moresco, 11th century. Birds and deer amongst leaves and branches. Original of ivory, in the South Kensington Museum, London. 73-54.
16,651	Panel, deeply sunk; Byzantine, 12th or 13th century. The Virgin and Child. Original of ivory. 73-55.
16,652	Panagia, portion of; Russo-Greek, 17th century (?). The Virgin. Original of ivory, in the Kunst Kammer, Berlin. 73-60.
16,653	Panagia, portion of; Russo-Greek, 17th century (?). Bust of St. Nicholas. Original of ivory, in the Kunst Kammer, Berlin. 73-61.
16,654	Cross; Russo-Greek, 17th or 18th century. Front: A saint in the centre. Back: Scenes in the Life of Christ. Original of ivory, in the Royal Museum, Copenhagen. 73-62 & 63.
16,656	Sceptre (of Charlemagne?); Carolingian, 9th century. Original of ivory, in the Cathedral Treasury, Aix-la-Chapelle, Germany. 73-64.
16,657	Panel of a Book Cover; Carolingian, 10th century. The Crucifixion. Original of ivory, in the South Kensington Museum, London. 73-66.
16,658	Panel of a Book Cover; Carolingian, 9th century. Scenes from the Life of our Lord. Original of ivory, in the South Kensington Museum, London. 73-68.
16,659	Panel of a Book Cover, the reverse; Carolingian, 9th century. The Baptism, and Saint John preaching. Original of ivory, in the South Kensington Museum, London. 73-68 <i>a</i> .
16,660	Panel of a Book Cover (?); Carolingian, 10th century. The Transfiguration. Original of ivory, in the South Kensington Museum, London. 73-69.
16,661	Panel of a Book Cover (?); Carolingian, 10th century (?). Christ healing the paralytic. Original of ivory, in the South Kensington Museum, London. 73-70.
16,662	Diptych; Carolingian, late 10th or 11th century. The Transfiguration. Reverse of the second leaf of a palimpsest diptych. Original of ivory, in the South Kensington Museum, London. 73-71.
16,663	Diptych, lower half of one leaf; German, 9th or 10th century. The descent of the Holy Ghost. Original of ivory, in the collection of the late T. Bateman, Esq., Yolgrave, Derbyshire, England. 73-72.
16,664	Diptych, one leaf; German (?), 9th or 10th century. Scenes from Old Testament history and the Presentation in the Temple. Original of ivory, in the Fejérváry Collection, Mayer Museum, Liverpool, England. 73-75.
16,665	Panel of a Book Cover (?); German, 9th century. The offering of the Magi and the Presentation. Original of ivory, in the South Kensington Museum, London. 73-74.
16,666	Panel; German, 9th or 10th century. The Baptism. Original of ivory, in a collection from Rheinau, Switzerland. 73-75.
16,667	Panel of a Book Cover (?); Frankish, 9th or 10th century. The Miracle at Cana. Original of ivory, in the collection of Prince Hohenzollern, Dusseldorf, Germany. 73-76.
16,668	Panel of a Casket (?); Byzantine, 11th century. Warrior and a young female. Original of ivory, in the South Kensington Museum, London. 73-78.
16,669	Panel; Carolingian, 11th century. An apostle standing. Original of ivory, in the South Kensington Museum, London. 73-79.
16,670	Diptych, one leaf; French, 10th or 11th century. The incredulity of St. Thomas. Original of ivory. 73-80.
16,671	Diptych, one leaf; French, 10th or 11th century. Figure of Moses. Original of ivory. 73-81.
16,672	Panel; German, 10th century (?). Christ, St. Peter, and St. Paul. Original of ivory, from the collection of Graf von Kessestätt, in the Public Library, Treves, Germany. 73-82.
16,673	Diptych, one leaf; French (?), 10th or 11th century. Scenes of gospel history. Original of ivory, in the Kunst Kammer, Berlin. 73-83.
16,674	Diptych, one leaf; French (?), 10th or 11th century. Scenes of gospel history. Original of ivory, in the Kunst Kammer, Berlin. 73-84.
16,675	Book Cover; Rhenish-Byzantine, 8th to 10th century. Christ and the disciples. Original of ivory in the Public Museum, Cologne, Germany. 73-85.
16,676	Panel; Western Germany, 9th or 10th century. The Baptism of Christ. Original of ivory. 73-86.

APPENDIX III—*continued.*
PURCHASES (SPECIMENS).

Museum No.	Date and Description.
16,677	Diptych, one leaf; German (?), 9th or 10th century. Christ seated. Original of ivory, in the Royal Library, Berlin. 73-87.
16,678	Diptych, one leaf; German, 9th or 10th century. Saint Gregory. Original of ivory, in the Royal Library, Berlin. 73-88.
16,679	Panel, Anglo-Saxon, 11th century. The Adoration of the Kings. Original of ivory, in the South Kensington Museum, London. 73-89.
16,680	Panel of a Shrine (?); Anglo-Saxon, 9th or 10th century. Original of ivory, in the Fitzwilliam Museum, Cambridge. 73-90.
16,681	Panel of a Book Cover; German, 10th century. The Virgin discovering Christ in the Temple. Original of ivory, in the Royal Library, Berlin. 73-92.
16,682	Pectoral Crucifix; Anglo-Norman, 10th or 11th century. Original of ivory, was discovered on the site of Lewes Priory, Sussex. 73-93.
16,683	Panel; German, 10th or 11th century. The Presentation in the Temple, and the Baptism. Original of ivory, in the Treasury of the Cathedral of Treves, Germany. 73-94.
16,684	Diptych, one leaf; German, 10th or 11th century. The Birth of Christ. Original of ivory, in the Kunst Kammer, Berlin. 73-96.
16,685	Diptych, one leaf; German, 10th or 11th century. The Crucifixion of Christ. Original of ivory, in the Kunst Kammer, Berlin. 73-97.
16,686	Diptych, one leaf; German, 10th or 11th century (?). The Salutation and the Visitation of the Virgin to Elizabeth. Original of ivory, in the Kunst Kammer, Berlin. 73-98.
16,687	Diptych, one leaf; German, 10th or 11th century (?). The visit of the two Marys to the Sepulchre. Original of ivory, in the Kunst Kammer, Berlin. 73-99.
16,688	Book Cover; German, 10th to 12th century. Symbols of the Evangelists. Original of ivory, in the Public Museum, Cologne, Germany. 73-100.
16,689	Book Cover, portion of; Rhenish-Byzantine, 10th to 12th century. The Symbols of the Evangelists, and in the centre a figure of Christ, with the Virgin and St. John. Original of ivory, in the Treasury of the Cathedral of Hildesheim, Hanover. 73-101.
16,690	Crucifix of the Princess Gunhilde, the front; Scandinavian-Byzantine, 11th century. Original of walrus-bone, in the Royal Museum, Copenhagen. 73-102.
16,691	Crucifix of the Princess Gunhilde, the reverse; Scandinavian-Byzantine, 11th century. Original of walrus-bone, in the Royal Museum, Copenhagen. 73-103.
16,692	Panel; English (?), 11th century. A king riding towards another king in bed. Original of ivory, in the South Kensington Museum, London. 73-104.
16,693	Frieze, portion of; German (?), 10th to 12th century. Vine branches and foliage. Original of ivory, in the Public Museum, Cologne, Germany. 73-105.
16,694	Book Cover; German, 10th to 12th century. The Glorification of SS. Gereon and Victor. Original of ivory, in the Public Museum, Cologne, Germany. 73-106.
16,695	Panel; German, 10th to 12th century. The Flagellation of Christ. Original of ivory, in the collection of the Rev. Walter Sneyd. 73-107.
16,696	Panel; German (?), 10th to 12th century. Two figures carrying grapes to the wine-press. Original of ivory, in the Fejérváry Collection, Mayer Museum, Liverpool, England. 73-108.
16,697	Diptych, one leaf; German, 11th or 12th century. Christ's Agony in the Garden. Original of ivory, in the collection of Rhode Hawkins, Esq. 73-109.
16,698	Diptych, one leaf; German, 11th or 12th century. The Last Supper. Original of ivory, in the collection of Rhode Hawkins, Esq. 73-110.
16,699	Panel of a Book Cover (?); German, 11th or 12th century. Christ cleansing the Temple and curing the Blind Man. Original of ivory, in a private collection at Cologne, Germany. 73-111.
16,700	Panel; Rhenish, 11th or 12th century. The Birth of Christ. Original of ivory, in the Public Museum, Cologne, Germany. 73-112.
16,701	Panel; German, 11th or 12th century. The Women at the Sepulchre. Original of ivory, in the Public Museum, Cologne, Germany. 73-113.
16,702	Panel; German, 11th or 12th century. The Crucifixion. Original of ivory, in the Public Museum, Cologne, Germany. 73-114.
16,703	Panel; Byzantine, 11th century. The Birth of Christ. Original of walrus-tooth, in the South Kensington Museum, London. 73-115.
16,704	Panel; Rhenish-Byzantine, 11th century. The Adoration of the Kings. Original of walrus-tooth, in the South Kensington Museum, London. 73-116.
16,705	Panel; German, 11th or 12th century. The Annunciation. Original of ivory, in the Kunst Kammer, Berlin. 73-117.
16,706	Panel; German, 10th to 12th century. "Victory" killing a soldier. Original of ivory, affixed to an Evangelarium in the Public Library, Hamburg. 73-118.
16,707	Panel; German, 11th or 12th century. A figure of St. Paul. Original of ivory, in the Museum of the Hôtel de Cluny, Paris. 73-119.
16,708	Panel; German (?) 11th or 12th century. Rude figures of animals. Original of ivory. 73-120.
16,709	Panels, nine, affixed to a book cover; German, 11th or 12th century. Christ, the Virgin, Saint John, and the Evangelical symbols. Originals of ivory, in the Royal Museum, Darmstadt, Germany. 73-121.
16,710	Panel of a Book Cover; German, 11th or 12th century. The Crucifixion. Original of ivory, affixed to the Gospel Book of the Church of St. Maria, Lyskirchen, near Cologne, Germany. 73-122.
16,711	Panel; French, 12th century. The Saviour in Glory. Original of ivory, in the South Kensington Museum, London. 73-123.

APPENDIX III—*continued*.
PURCHASES (SPECIMENS).

Museum No.	Date and Description.
16,712	Panel; French (?), 12th century. The Annunciation and the Nativity. Original of ivory, in the South Kensington Museum, London. 73-124.
16,713	Matrix of seal; Scandinavian, 12th century. Original of walrus-tooth, in the Royal Museum, Copenhagen. 73-125.
16,714	Panel; German, 12th century. The Descent of the Holy Ghost. Original of ivory, in the Kunst Kammer, Berlin. 73-126.
16,715	Panel; German, 12th century. The four great Doctors of the Church. Original of ivory, affixed to a Sacramentarium of St. Gregory, in the Royal Library, Berlin. 73-127.
16,716	Panel; German, 12th century. An Archbishop. Original of ivory, in the Royal Museum, Munich. 73-128.
16,717	Panels, four, at the corners of an evangeliarium, or shrine; German, 12th century (?). The symbols of the Evangelists. Original of ivory, in the Treasury of the Cathedral of Treves, Germany. 73-130.
16,718	Block; Scandinavian or North German, 12th century. The Harrowing of Hell. Original of ivory, in the Royal Museum, Copenhagen. 73-131.
16,719	Block; North German (?), 12th century. Christ rising from the Tomb. Original of ivory, in the Royal Museum, Copenhagen. 73-132.
16,720	Panel; German (?), 12th or 13th century. The Crucifixion. Original of ivory, in the Fejérváry Collection, Mayer Museum, Liverpool, England. 73-133.
16,721	Panels, four; French, 12th century. The Evangelists. Originals of ivory, in the South Kensington Museum, London. 73-135.
16,722	Panel; Moorish, 11th century. Top of a casket. Original of ivory, in the South Kensington Museum, London. 73-136.
16,723	Statuette; German (?), 12th century. Figure of Christ. Original of ivory, in the Kunst Kammer, Berlin. 73-137.
16,724	Panel, centre of a Triptych; Italian (?), beginning of 14th century. Subjects from the Gospels. Original of ivory, in the South Kensington Museum, London. 73-138.
16,725	Panel of a Triptych; English, 13th century. The Crucifixion and other subjects. Original of ivory, in the Fejérváry Collection, Mayer Museum, Liverpool, England. 73-139.
16,726	Diptych; French, early 14th century. The Birth and Crucifixion of Christ. Original of ivory. 73-140.
16,727	Panel; French (?), early 14th century. The Birth of Christ. Original of ivory. 73-141.
16,728	Diptych; Rhenish, 14th century. Christ bearing his Cross, and the Descent from the Cross. Original of ivory, in the Fejérváry Collection, Mayer Museum, Liverpool, England. 73-146.
16,729	Diptych, a portion; French, 14th century. The Annunciation and the Birth of Christ. Original of ivory, in the Fejérváry Collection, Mayer Museum, Liverpool, England. 73-147.
16,730	Diptych, a portion; French, 14th century. The Adoration of the Kings, and Christ's entry into Jerusalem. Original of ivory, in the Fejérváry Collection, Mayer Museum, Liverpool, England. 73-148.
16,731	Diptych, a portion; French, 14th century. The Last Supper, and the Kiss of Judas. Original of ivory, in the Fejérváry Collection, Mayer Museum, Liverpool, England. 73-149.
16,732	Diptych, a portion; French, 14th century. The Crucifixion, and the "Noli me tangere." Original of ivory, in the Fejérváry Collection, Mayer Museum, Liverpool, England. 73-150.
16,733	Diptych, one leaf; German, 14th century. St. George and the Dragon. Original of ivory, in the Kunst Kammer, Berlin. 73-151.
16,734	Diptych, one leaf; German, 14th century. The Offering of the Three Kings. Original of ivory, in the Kunst Kammer, Berlin. 73-152.
16,735	Diptych, one leaf; German, 14th century. The Virgin and Child. Original of ivory, in the Kunst Kammer, Berlin. 73-153.
16,736	Diptych, one leaf; German, 14th century. The Crucifixion. Original of ivory, in the Kunst Kammer, Berlin. 73-154.
16,737	Diptych, one leaf; German, 14th century. The Annunciation. Original of ivory, in the Kunst Kammer, Berlin. 73-155.
16,738	Diptych, one leaf; German, 14th century. The Birth of Christ. Original of ivory, in the Kunst Kammer, Berlin. 73-156.
16,739	Diptych, one leaf; French, 14th century. The Death of the Virgin. Original of ivory. 73-157.
16,740	Diptych, one leaf; French (?), 14th century. The Crucifixion. Original of ivory, in the Fejérváry Collection, Mayer Museum, Liverpool, England. 73-158.
16,741	Diptych, one leaf; French (?), 14th century. The Birth of Christ. Original of ivory, in the Kunst Kammer, Berlin. 73-160.
16,742	Diptych, one leaf; French (?), 14th century. The Virgin and Child. Original of ivory, in the Fejérváry Collection, Mayer Museum, Liverpool, England. 73-161.
16,743	Diptych, one leaf; French (?), 14th century. The Birth of Christ. Original of ivory. 73-162.
16,744	Triptych; French, 14th century. The Crucifixion and other subjects. Original of ivory, in the Kunst Kammer, Berlin. 73-163.
16,745	Diptych, one leaf; French, 14th century. The Crucifixion. Original of ivory, in the Kunst Kammer, Berlin. 73-164.
16,746	Writing-tablet; French, 14th century. A knight with a hawk. Original of ivory. 73-165.
16,747	Writing-tablet; French, 14th century. A sylvan scene. Original of ivory. 73-166.
16,748	Diptych, one leaf; French, 14th century. The Nativity and Christ's appearance to his Disciples. Original of ivory, in the Kunst Kammer, Berlin. 73-167.

APPENDIX III—*continued.*

PURCHASES—(SPECIMENS).

Museum No.	Date and Description.
16,817	Chessman; Northern, 11th or 12th century. A King, crowned, and seated in a chair. Original of ivory, from the Isle of Lewis, in the British Museum, London. 73-284.
16,818	Chessman; Northern, 11th or 12th century. A King, crowned, and seated in a chair. Original of ivory, from the Isle of Lewis, in the British Museum, London. 73-285.
16,819	Chessman; Northern, 11th or 12th century. A Queen, crowned, and seated. Original of ivory, from the Isle of Lewis, in the British Museum, London. 73-286.
16,820	Chessman; Northern, 11th or 12th century. A Queen, crowned, and seated. Original of ivory, from the Isle of Lewis, in the British Museum, London. 73-287.
16,821	Chessman; Northern, 11th or 12th century. A Bishop, with mitre and pastoral staff, seated. Original of ivory, from the Isle of Lewis, in the British Museum, London. 73-288.
16,822	Chessman; Northern, 11th or 12th century. A Bishop, with mitre, book, and pastoral staff, standing. Original of ivory, from the Isle of Lewis, in the British Museum, London. 73-289.
16,823	Chessman; Northern, 11th or 12th century. A Knight, with large shield, on horseback. Original of ivory, from the Isle of Lewis, in the British Museum, London. 73-291.
16,824	Chessman; Northern, 11th or 12th century. A Rook, or warrior on foot, with sword and shield. Original of ivory, from the Isle of Lewis, in the British Museum, London. 73-292.
16,825	Chessman; Northern, 11th or 12th century. A Rook, or warrior on foot, with shield and sword in front. Original of ivory, from the Isle of Lewis, in the British Museum, London. 73-294.
16,826	Chessman; Northern, 11th or 12th century. A Pawn, an oblong block, with incised ornament. Original of ivory, from the Isle of Lewis, in the British Museum, London. 73-296.
16,827	Chessman; Northern (?), 12th century. A King, crowned, on horseback. Original of ivory, in the British Museum, London. 73-297.
16,828	Chessman; German, 12th century. A Queen, seated, with a kneeling figure on each side. Original of ivory, in the Kunst Kammer, Berlin. 73-298.
16,829	Chessman; German, 12th century. A King, crowned, seated in a bower. Original of ivory, in the Royal Museum, Copenhagen. 73-299.
16,830	Chessman; Northern, 12th century. A King, seated, a hound in front of him. Original of ivory, in the British Museum, London. 73-300.
16,831	Chessman (?); Irish (?), 12th century (?). A bear devouring the head of a woman. Original of ivory, in the collection of the late R. Ball, Esq., Dublin. 73-301.
16,832	Chessman; German, 13th century. A Bishop, seated in a chair. Original of ivory, in the Kunst Kammer, Berlin. 73-302.
16,833	Chessman; German, 13th century. A Bishop, seated in a chair. Original of ivory, in the Kunst Kammer, Berlin. 73-304.
16,834	Chessman; German, 14th century. A King, crowned, with sword and a hawk; at the back are seven warriors, with long shields. Original of ivory, in the Kunst Kammer, Berlin. 73-305.
16,835	Chessman; English (?), 13th century. Two Knights, seated, connected by interlacing branches of trees. Original of walrus-tooth, in the Museum of the Society of Antiquaries of Scotland. 73-306.
16,836	Chessman; German, 14th century. A Knight, on horseback, with fifteen soldiers on foot, at base. Original of ivory, in the Kunst Kammer, Berlin. 73-307.
16,837	Chessman; German, 14th century. A Knight, riding on a lion, ten soldiers on foot, at base. Original of walrus-tooth, in the Kunst Kammer, Berlin. 73-308.
16,838	Chessman; German, 14th century (?). A Giant, with shield and club. Original of ivory, in the Kunst Kammer, Berlin. 73-309.
16,839	Chessman; German, 14th century (?). A Queen, seated on a throne, with crown and sceptre. Original of ivory, in the British Museum, London. 73-310.
16,840	Chessman; German, 16th century. A Knight, on horseback. Original of ivory, in the South Kensington Museum, London. 73-311.
16,841	Chessman; English, 13th or 14th century. Two mounted Knights. Original of walrus-tooth, in the Ashmolean Museum, Oxford, England. 73-312.
16,842	Draughtsman; Anglo-Saxon. Incised circles. Original of ivory. 73-313.
16,843	Draughtsman; English (?), 12th century. The wolf and stork. Original of ivory, in the collection of the late Rev. Dr. Millard, Basingstoke, Hampshire, England. 73-314.
16,844	Draughtsman; German, 12th century. David slaying Goliath. Original of ivory, in the Kunst Kammer, Berlin. 73-317.
16,845	Draughtsman; German, 12th century. Hercules slaying Cacus. Original of ivory, in the Kunst Kammer, Berlin. 73-318.
16,846	Draughtsman; German, 12th century. A female, a hare, and a dragon. Original of ivory, in the Dyck Collection, Munich, Bavaria. 73-319.
16,847	Draughtsman; German, 12th century. A man with a bow, and two centaurs. Original of ivory, in the Kunst Kammer, Berlin. 73-320.
16,848	Draughtsman; German, 12th century. A boat with four men. Original of ivory, at Cologne (?), Germany. 73-322.
16,849	Draughtsman; German, 12th century. Samson pulling down the gates of Gaza. Original of ivory, in the British Museum, London. 73-323.
16,850	Mirror-case Cover; German, 14th century. A love scene. Original of ivory, in the Kunst Kammer, Berlin. 73-325.
16,851	Mirror-case Cover; French, 14th century. Two Knights, tilting. Original of ivory, in the Kunst Kammer, Berlin. 73-326.

APPENDIX III—*continued.*
PURCHASES—(SPECIMENS).

Museum No.	Date and Description.
16,852	Mirror-case Cover; German (?), 15th century. A gentleman presenting a rose to a lady. Original of ivory, in the Kunst Kammer, Berlin. 73-327.
16,853	Box Cover, circular; German, 16th century. Bathsheba in the bath. Original of ivory, in the South Kensington Museum, London. 73-328.
16,854	Mirror-case Cover; French, 14th century. A lady crowning a gentleman. Original of ivory, in the South Kensington Museum, London. 73-329.
16,855	Mirror-case Cover; French, 14th century. Knights on horseback, fighting. Original of ivory, in the South Kensington Museum, London. 73-330.
16,856	Mirror-case Cover; French, 14th century. A hawking party. Original of ivory, in the South Kensington Museum, London. 73-331.
16,857	Mirror-case Cover; French, 14th century. A balcony with figures. Original of ivory, in the South Kensington Museum, London. 73-332.
16,858	Mirror-case Cover; French, 14th century. Three figures in a garden. Original of ivory, in the South Kensington Museum, London. 73-333.
16,859	Mirror-case Cover; French, 14th century. A hunting party. Original of ivory, in the South Kensington Museum, London. 73-334.
16,860	Mirror-case Cover; English, end of 13th century. Gentleman and lady playing chess. Original of ivory, in the South Kensington Museum, London. 73-335.
16,861	Mirror-case Cover; English, 14th century. A game at chess. Original of ivory, in the South Kensington Museum, London. 73-336.
16,862	Mirror-case Cover (?); French, 14th century. A hawking party. Original of ivory, in the South Kensington Museum, London. 73-337.
16,863	Folding Tablets, two; English (?), 14th century. Scenes from the Gospels. Originals of ivory, in the South Kensington Museum, London. 73-338.
16,864	Box Cover; German, 15th century. God the Father, and the dead Saviour. Original of ivory, in the South Kensington Museum, London. 73-339.
16,865	Comb and Sheath; classical. Original of ivory, from Pompeii, in the collection of Mr. Böcke. 73-340.
16,866	Comb, with a double row of teeth; classical. Original of ivory, from Pompeii, in the collection of Mr. Böcke. 73-341.
16,866a	Comb; Antique Roman, 1st to 4th century. Original of ivory, in the Fejérváry Collection, Mayer Museum, Liverpool, England. 73-342.
16,867	Comb, one side; Carolingian, 9th century. The comb of St. Herebert, Archbishop of Cologne. Original of ivory, in the Public Museum, Cologne, Germany. 73-344.
16,868	Comb, one side; German, 11th century. Original of ivory, in the Public Museum, Cologne, Germany. 73-345.
16,869	Comb, one side; German, 11th century. Original of ivory, in the Public Museum, Cologne, Germany. 73-346.
16,870	Comb, a portion; English, 11th century. Original of ivory, from the collection of Mr. Böcke, in the British Museum, London. 73-347.
16,871	Comb, a portion; English, 11th century. Original of ivory, from the collection of Mr. Böcke, in the British Museum, London. 73-348.
16,872	Comb; German (?), 14th century. Front of the middle portion of a double-toothed comb. Original of ivory, in the Mayer Museum, Liverpool, England. 73-349.
16,873	Comb; German (?), 14th century. Back of the middle portion of a double-toothed comb. Original of ivory, in the Mayer Museum, Liverpool, England. 73-350.
16,874	Comb, one side; German, 16th century. Original of ivory, in the South Kensington Museum, London. 73-351.
16,875	Panel; North Italian, 15th century. Saint Sebastian. Original of ivory, in the South Kensington Museum, London. 73-352.
16,876	Panel; Italian, 16th century. The Dead Christ and Angels. Original of ivory, in the British Museum, London. 73-353.
16,877	Panel; Italian, 16th century. The Saviour and Apostles. Original of ivory, in the South Kensington Museum, London. 73-354.
16,878	Drinking Cup; formerly belonging to Martin Luther; German, 16th to 17th century. Original of ivory, in the collection of the late Lord Londesborough. 73-355.
16,879	Powder-flask; Indo-Portuguese (?), 17th century. Scenes of the Passion. Original of ivory. 73-356.
16,880	Panel; German, 17th century. The Crucifixion. Original of ivory. 73-357.
16,881	Panel; Italian, 17th century. Diana and her attendants. Original of ivory. 73-358.
16,882	Panel; German, 17th or 18th century. Dutch boors playing at cards. Original of ivory. 73-359.
16,883	Card Case, front; Hindoo, 18th century. St. George and the Dragon. Original of ivory, in the collection of Miss Barwell. 73-360.
16,884	Card Case, back; Hindoo, 18th century (?). An Indian divinity. Original of ivory, in the collection of Miss Barwell. 73-361.
16,885	Pyx, cylindrical; Italian, 6th to 9th century. Saint Mennas. Original of ivory, in the collection of Alexander Nesbitt, Esq. 73-365.
16,886	Runic Casket, six pieces; Northern, 9th to 11th century. Monstrous animals and ribbon ornament. Original of ivory, in the Museum of Brunswick, Germany. 73-366.
16,887	Statuette; English (?), 14th century. The Virgin and Child. Original of ivory. 73-367.
16,888	Panel; Spanish, first half of 17th century. St. Francis translated to Heaven. Ascribed to Alonzo Cano. Original of ivory, in the South Kensington Museum, London. 74-138.
16,889	The Strass Tankard. 59-1.

APPENDIX III—*continued.*
PURCHASES (SPECIMENS).

Museum No.	Date and Description.
	November 16.
17,614 to 17,616	Three figures in clay, representing, on a reduced scale, the external casts left in the hot pumice and ashes by human victims of the catastrophe at Pompeii in A.D. 79. The reproductions were obtained by filling the space left by the putrefaction of the bodies with plaster-of-Paris.
	<i>Japanese Pottery, &c.</i>
	May 21.
	Collection of articles of Japanese manufacture, comprising pottery, cloisonné ware, articles in bronze and iron, books of brocade patterns, dresses, hangings for mantel-pieces, &c. :—
	JAPANESE "SHIPPO" OR CLOISONNÉ WARE.—In manufacturing the cloisonné, the first process of the Japanese workman is to bring the vase, plaque, or ornament into the desired shape. If a large-sized vase is required, a piece of copper, of about 16 in. by 24 in., is beat into a tube, and then soldered together so perfectly as not to leave any visible junction. By means of long-continued hammering the tube is bulged out in the middle and contracted at the top and bottom until it assumes the required shape; the bottom is then soldered in, and the upper edge finished, after which the surface is polished perfectly by acid. Now, the artist, who is provided with a drawing or design, begins to manipulate, and with a fine brush and Indian ink transfers the design to the vase. The next process, which is a very delicate one, consists in covering with a certain resin the whole of the outlines drawn on the vase, by which are fastened wire or ribbons (of the same metal), something after the manner of silver filigree work. After this, solder is applied, and the vase is taken to a dry fire, and the wire carefully brazed on and permanently fastened to its place. The next proceeding—one that requires great artistic skill—is the filling up of the spaces formed by the wires with the variously-coloured enamels to complete the design, and during this stage of the process the article is baked in a furnace six or eight times, according to the number of layers of enamel applied. The surface of the article at this stage is rough and uneven, and is therefore taken in hand by the polisher, who has to use great judgment in order to avoid damaging the article; and it rests with his portion of the business whether the result will be perfect or defective. He uses a kind of gritty stone, which is constantly wetted, and with this he grinds down the projections until the surface becomes perfectly bright and smooth. The last touch is then given by the article being polished with a kind of cork stick, which produces that brilliant surface so admired by lovers of this art.
14,968	Cloisonné Enamel Plate; diameter, 9½ inches. Price in Japan, 45 yen = £7 10s. Namikawa, Kyoto, Japan.
14,969	Cloisonné Enamel Vase; height, 4½ inches. Price in Japan, 15 yen = £2 10s. Namikawa, Kyoto, Japan.
14,970	Three Napkin Rings, of different designs; diameter, 1¾ inches. Price in Japan, 6 yen = £1. Namikawa, Kyoto, Japan.
14,971	Set of Seven Napkin Rings, to illustrate all the stages in the manufacture of cloisonné work; diameter, 1¾ inches. Price of the set in Japan, 7 yen = £1 3s. 4d. Namikawa, Kyoto, Japan.
	<i>Pottery and Metal-work:—</i>
14,953	Vase (one of a pair); height, 12 inches. Price in Japan—Pair, 7 yen 50 sen = £1 5s.; single, 3 yen 75 sen = 12s. 6d. Taizan, Kyoto, Japan.
14,954	Vase (one of a pair); height, 7¾ inches. Price in Japan—Pair, 2 yen 40 sen = 8s.; single, 1 yen 20 sen = 4s. Taizan, Kyoto, Japan.
14,955	Vase (one of a pair); height, 6 inches. Price in Japan—Pair, 2 yen = 6s. 8d.; single, 1 yen = 3s. 4d. Taizan, Kyoto, Japan.
14,956	Vase; height, 9¾ inches. Price in Japan, 1 yen 80 sen = 6s. Taizan, Kyoto, Japan.
14,957	White Enamel Plaque; diameter, 12½ inches. Price in Japan, 8 yen 80 sen = £1 9s. 4d. Taizan, Kyoto, Japan.
14,958	Vase; height, 12¾ inches. Price in Japan, 2 yen = 6s. 8d. Kinkozan, Kyoto, Japan.
14,959	Vase, one of a pair; height, 8½ inches. Price in Japan—Pair, 3 yen = 10s.; single, 1 yen 50 sen = 5s. Kinkozan, Kyoto, Japan.
14,960	Vase, one of a pair; height, 10¼ inches. Price in Japan—Pair, 6 yen = £1; single, 3 yen = 10s. Kinkozan, Kyoto, Japan.
14,961	Vase, one of a pair; height, 10¾ inches. Price in Japan—Pair, 8 yen = £1 6s. 8d.; single, 4 yen = 13s. 4d. Kinkozan, Kyoto, Japan.
14,962	Vase, one of a pair; height, 12½ inches. Price in Japan—Pair, 6 yen = £1; single, 3 yen = 10s. Kinkozan, Kyoto, Japan.
14,963	Plaque; diameter, 15½ inches. Price in Japan, 6 yen = £1. Kinkozan, Kyoto, Japan.
14,964	White Enamel Plaque; diameter, 12½ inches. Price in Japan, 8 yen 50 sen = £1 8s. 4d. Kinkozan, Kyoto, Japan.
14,965	Vase; height, 11¾ inches. Price in Japan, 20 yen = £3 6s. 8d. Tanzan, Kyoto, Japan.
14,966	Vase, one of a pair; height, 11¾ inches. Price in Japan—Pair, 10 yen = £1 13s. 4d.; single, 5 yen = 16s. 8d. Kinkozan, Kyoto, Japan.
14,967a	Tea-pot, with two spouts; height, 2¾ inches. Price in Japan, 1 yen = 3s. 4d. Tanzan, Kyoto, Japan.
14,967b	Box, circular shape; height, 1½ inch; diameter, 3½ inches. Price in Japan, 2 yen = 6s. 8d. Tanzan, Kyoto, Japan.
14,967c	Tea-pot; height, 3½ inches. Price in Japan, 1 yen 50 sen = 5s. Tanzan, Kyoto, Japan.
14,967d	Vase; height, 4 inches. Price in Japan, 15 sen = 6d. Tanzan, Kyoto, Japan.
14,967e	Teapot, hexagonal shape; height, 6 inches. Price in Japan, 3 yen = 10s. Tanzan, Kyoto, Japan.
14,967f	Vase, hour-glass shape; height, 5¼ inches. Price in Japan, 20 sen = 8d. Tanzan, Kyoto, Japan.
14,967g	Vase, one of a pair; height, 5¾ inches. Price in Japan—Pair, 1 yen 60 sen = 5s. 4d.; single, 80 sen = 2s. 8d. Tanzan, Kyoto, Japan.

APPENDIX III—*continued*.
PURCHASES (SPECIMENS).

Museum No.	Date and Description.
14,967 ^h	Vase, one of a pair; height, $4\frac{1}{4}$ inches. Price in Japan—Pair, 1 yen 60 sen = 5s. 4d.; single, 80 sen = 2s. 8d. Tanzan, Kyoto, Japan.
14,967 ^j	Jug; height, 3 inches. Price in Japan, 10 sen = 4d. Tanzan, Kyoto, Japan.
14,967 ^k	Vase, lidded; height, $3\frac{1}{2}$ inches. Price in Japan, 1 yen 20 sen = 4s. Tanzan, Kyoto, Japan.
14,972	Bronze Teapot; height, $6\frac{1}{4}$ inches; breadth, $4\frac{1}{4}$ inches. Price in Japan, 4 yen 50 sen = 15s. Jomie, Kyoto, Japan.
14,973	Bronze Bowl; height, $4\frac{1}{2}$ inches; breadth, $5\frac{3}{4}$ inches. Price in Japan, 7 yen = £1 3s. 4d. Jomie, Kyoto, Japan.
14,974	Bronze Inlaid Salver; diameter, $12\frac{5}{8}$ inches. Price in Japan, 28 yen = £4 13s. 4d. Jomie, Kyoto, Japan.
14,975	Bronze Vase, one of a pair; height, 6 inches. Price in Japan—Pair, 25 yen = £4 3s. 4d.; single, 12 yen 50 sen = £2 1s. 8d. Nogawa, Kyoto, Japan.
14,976	Bronze Vase, one of a pair; height, $4\frac{3}{4}$ inches. Price in Japan—Pair, 20 yen = £3 6s. 8d.; single, 10 yen = £1 13s. 4d. Nogawa, Kyoto, Japan.
14,976 ^a	Circular Bronze Box; breadth, $2\frac{9}{16}$ inches; depth, $\frac{1}{16}$ inch. Price in Japan, 5 yen = 16s. 8d. Nogawa, Kyoto, Japan.
14,977	Iron Inlaid Plates; diameter, $9\frac{1}{2}$ inches. Price in Japan, 50 yen = £8 6s. 8d. Ikeda, Kyoto, Japan.
14,988	Iron Inlaid Vase, one of a pair; height, 6 inches. Price in Japan—Pair, 18 yen = £3; single, 9 yen = £1 10s. Nishimura, Kyoto, Japan.
14,989	Bronze Vase, one of a pair; height, 6 inches. Nishimura, Kyoto, Japan.
14,990	Bronze Tray; size, $12 \times 9\frac{1}{2}$ inches. Nishimura, Kyoto, Japan.

Textile Fabrics:—

14,978 ^a	Grey Silk Dress (stuffed). Length of dress, nearly 2 yards. Yamanaka, Osaka, Japan.
14,978 ^b	Red Silk Dress (stuffed). Length of dress, nearly 2 yards. Yamanaka, Osaka, Japan.
14,980	Fukusa; outside of dark red silk, inside blue silk; size, 2 feet 11 inches x 2 feet $4\frac{1}{2}$ inches. Price in Japan, 7 yen = £1 3s. 4d. Yamanaka, Osaka, Japan.
14,981	Fukusa; outside of red silk, inside blue silk; size, 2 feet 11 inches x 2 feet 3 inches. Price in Japan, 6 yen = £1. Yamanaka, Osaka, Japan.
14,982	Fukusa; outside of red silk, inside blue silk; size, 2 feet 11 inches x 2 feet 3 inches. Price in Japan, 5 yen 50 sen = 18s. 4d. Yamanaka, Osaka, Japan.
14,983	Fukusa; outside of red silk, inside purple silk; size, 3 feet x 2 feet 3 inches. Price in Japan, 5 yen = 16s. 8d. Yamanaka, Osaka, Japan.
14,984 ^a	Book (18 pages), containing 142 Brocade Patterns; size, $16 \times 12 \times 2\frac{1}{2}$ inches. Ikeda, Kyoto, Japan.
14,984 ^b	Book (16 pages), containing 105 Brocade Patterns; size, $12 \times 9\frac{1}{2} \times 2\frac{1}{2}$ inches. Ikeda, Kyoto, Japan.
14,984 ^c	Book (26 pages), containing 105 Brocade Patterns; size, $12 \times 9\frac{1}{2} \times 2\frac{1}{2}$ inches. Ikeda, Kyoto, Japan.
14,984 ^d	Book (28 pages), containing 168 Brocade Patterns; size, $17 \times 11 \times 3$ inches. Ikeda, Kyoto, Japan.
14,985	Mantelpiece Hangings; size, 7 feet $3\frac{1}{2}$ inch x 1 foot $2\frac{3}{4}$ inches. Price in Japan, 11 yen = £1 16s. 8d. Nishimura, Kyoto, Japan.
14,986	Yellow Silk Shawl, craped; bordered with a fringe. Size, 4 feet 8 inches square. Price in Japan, 8 yen = £1 6s. 8d. Nishimura, Kyoto, Japan.
14,987 ^a	One Dozen Doyleys, of variously coloured cloth; diameter, about 10 inches. Price in Japan, 2 yen = 6s. 8d. Nishimura, Kyoto, Japan.
14,987 ^b	One Dozen Doyleys, of variously coloured satin; diameter 10 inches. Price in Japan, 2 yen 50 sen = 8s. 4d. Nishimura, Kyoto, Japan.

Netsukes:—

14,979 ^a	A hollow, circular, bronze casting, on which is a fly with gilt wings. Price in Japan, 17s. 6d.
14,979 ^b	Carved wooden model of a temple with scrollwork all round, and a figure lying in a position of repose. Price in Japan, 10s. 6d.
14,979 ^c	Ivory carving, representing two youths playing blindman's-buff round a screen. Price in Japan, 12s. 3d.
14,979 ^d	Figure of tiger (?), enraged. Wood-carving. Price in Japan, 7s.
14,979 ^e	Wood-carving of Japanese female. Price in Japan, 4s. 5d.
14,979 ^f	Wood-carving of an octopus embracing a baboon. Price in Japan, 8s. 9d.
14,979 ^g	Ivory-carving: The fabled horses coming out of a bottle gourd. Price in Japan, 5s. 3d. Yamanaka, Osaka, Japan.

"Netsukes" are small Japanese carvings in ivory, wood, &c., which are used as "toggles" for securing the pipe or medicine case to the belt; each represents some legend or some Japanese custom.

September 27.

16,956	Battle-axe, wrought in pure steel, polished, and finished. Model is that of the Middle Ages, but the details are original. It occupied the artist about four months. Length, 2 feet; greatest breadth, $10\frac{7}{8}$ inches.
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APPENDIX III—*continued.*
PURCHASES (SPECIMENS).

Museum No.	Date and Description.	
<i>Pottery and Metal-work.</i>		
October 9.		
16,973	} Vases, earthenware; Syria.	
16,974		
16,975		
16,976		
16,977		
16,978		
16,979		
16,980	} Plates, earthenware; Syria.	
16,981		
16,983	Plaque, earthenware; Syria.	
16,988	Centre Flower of papier mâché; an excellent imitation of plaster-of-paris; German.	
16,986	Candlestick of wrought iron, with spiral candle regulator and snuffers; German.	
16,987	Candlestick of wrought iron, modern; German.	
November 16.		
A collection of silver objects for personal ornament in Filigree Work:—		
17,460	} Brooches, with flowers; wrought at Turin, Italy.	
17,461		
17,462		
17,463		
17,464		
17,465		
17,466		
17,467		
17,468		
17,469		
17,470		
17,471		
17,472		Paper-knife.
17,473		Hair-comb (lady's).
17,474		} Necklaces.
17,475		
17,476		Bracelet.
17,477	Card-case.	
17,478	Bouquet-holder.	
17,479	Fan-stick.	
17,480	Brooch of oxidized silver.	
Technological Series, illustrating the Manufacture of Filigree Work:—		
17,481	Pure Silver, at 1000/1000.	
17,482	Refined Copper, for alloying the pure silver.	
17,483	Silver, at 960/1000.	
17,484	Silver, at 820/1000.	
17,485	Silver, at 800/1000.	
17,486	Silver, at 700/1000.	
17,487	Solder.	
17,488	Boracic Acid.	
17,489	Fused Boracic Acid.	
17,490	Chloride of Ammonium, for soldering.	
17,491	Piece of Silver in rods, as melted.	
17,492	Pair of Pincers employed for taking up the fine cut wire.	
17,493	Twisted Silver Filigree Wires.	
17,494	Part of Fan, outlined, with all pieces necessary to finish it according to the pattern of No. 17,479; Turin.	
November 30.		
17,746	Oblong Box, with sliding lid. The frame is of ebony with ivory inlay, the panels being of porcupine quills. Colombo.	
17,747	Ivory Paper-knife, with fine fretwork pattern. Loodiana, Delhi.	
17,750	Nest of five Spherical Wooden Boxes, in descending sizes, forming a ball; lacquered. Hyderabad, Scinde, India.	
17,751	Fan made out of a palm leaf (<i>Borassus</i> sp.), with mica ornament, and coloured. Calcutta.	
17,752	An oblong Basket, lidded, of plaited pandanus leaf, stained and unstained to form geometrical patterns.	
17,757	Cushion Cover. In Scinde (India) Work, composed of silver and silk thread worked into floral and other patterns.	
17,740	Brahmin Cow, suckling a calf. Executed in white marble. (Imperfect, the horns having been broken.) Jeypore, India.	
17,741	Elephant with howdah, carved out of potstone, and polished.	
17,742	Hindoo Idol (probably Brahma) carved out of potstone, and highly polished.	

APPENDIX III—continued.
PURCHASES (SPECIMENS).

Museum No.	Date and Description.
17,743	Elephant carved out of ebony, with ivory tusks. Colombo, Ceylon.
17,744	Tortoise-shell Paper-knife, in one piece. Colombo.
17,745	Sandalwood (<i>Santalum album</i>) Paper-knife, with inlaid ivory ornamentation. This work is known as Surat-ware, from its place of manufacture—Surat, India. The ivory is inlaid in geometrical patterns on a sandalwood base, and the ivory is then coloured with metallic and other paint.
17,749	Handkerchief-box of Surat-ware.
17,756	Lidded Limoges Jar, with landscape on lid. In brown glazed ware.
	<i>Belleek-ware.</i>
17,759	Oval Twig Basket.
17,760	Cardium on coral.
17,761	Shell and Coral Cream Jug.
	<i>Extract from "Marks and Monograms on Pottery and Porcelain" (Chaffers).—</i> "The leading characteristics of design in Belleek-ware are marine subjects, such as dolphins, sea-horses, nereids, aquatic plants, coral, &c.; these are produced in parian or biscuit, and a creamy porcelain like ivory; also covered with a glittering iridescent glaze like mother-of-pearl. The mark is printed or stencilled upon the ware in red, brown, or green, and represents one of the Irish round towers, the harp and a deerhound, as well as the three-leaved shamrock. This china is a real porcelain, the result of the simple vitrification of felspar and china clay." The ware derives its name from the place of its manufacture—Belleek, Lough Erne, county Fermanagh.
17,762	Tobacco Jar of terra-cotta, from Kobe (Hiogo), Japan.
17,764	Teapot.
17,765	Teapot.
17,766	Bronze Gong. Kobe (Hiogo), Japan.
17,767	Vase, in form of a shell with elephant's head at each of its four corners. Ivory ware.
17,768	Long-necked bottle of coloured ware (yellow and white) with floral sprays and figures.
17,770	Royal blue. Kaufmann.
17,772	Cup and Saucer, with painted scenic representations, figures, &c.
17,773	Symbolic figure, "Peace," chinaware. Holding a green leaf over the left shoulder.
17,774	Symbolic figure, "Wisdom," chinaware. In the attitude of an orator, holding a serpent in the left hand.
17,775	Octagonal-shaped doll's cup.
17,776	Coffee-cup and saucer with gilt rim and small coloured views.
17,771	Ink-stand, chinaware, coloured. Nos. 17,767-71 are Dresden-ware.
	December 15.
17,733	Mace of steel, engraved, chased by hand. Executed in Sydney.
17,738	Stout sprig of pink coral mounted in gold.
	BOTANY.
	September 6.
16,938	Herbarium (with index), comprising 25 fasciculi of plants indigenous to the British Isles, containing specimens of upwards of 1,100 of the 1,400 known species. Arranged according to the natural orders, with reference to descriptions in Hooker's Flora, fifth edition, and Lindley's Flora, fifth edition.
16,939	Herbarium, comprising 94 folio fasciculi of plants indigenous to the British Isles, containing about 1,050 species; with index.
16,940	Collection of American Ferns, and British, Continental, and American Plants.
16,941	Collection of European Plants.
	ECONOMIC BOTANY (AUSTRALIAN).
	January 1.
14,740	Collection of Barks of Trees indigenous to New South Wales; all obtained from the trunks:— Bark of <i>Acacia aneura</i> ; F. v. M. "Mulga." (Leguminosæ.) Found at Ivanhoe, N.S.W. The trunk bark, obtained 25 September, 1886. The tree attains a height of about 30 feet. The timber is exceedingly hard and fine-grained, and is capable of a high polish. It is much used by the natives in the manufacture of implements, weapons, &c. The leaves are much relished by stock.
14,741	Bark of <i>Acacia aneura</i> var; F. v. M. "Narrow-leaved Mulga." (Leguminosæ.) Found at Ivanhoe, N.S.W. Similar in habit, &c., to the preceding. Leaves are much relished by stock. Bark obtained September 30, 1886.
14,744	Bark of <i>Acacia calamifolia</i> (?); Sweet. "Nealy" or "Needle-bush." (Leguminosæ.) Found at Ivanhoe, N.S.W. Small tree about 12 to 15 feet in height. Timber exceedingly hard and tough, and possessed of a very agreeable perfume; used by natives for making weapons, &c. Stock will not eat the leaves even when in a starving condition. Bark obtained September 6, 1886.
14,747	Bark of <i>Acacia colletioides</i> ; A. Cunn. "Wait-a-while," or "Prickly Acacia." (Leguminosæ.) Found at Ivanhoe, N.S.W. A low-spreading bush, suitable for hedge-planting. Bark obtained October 2, 1886.
14,742	Bark of <i>Acacia homalophylla</i> ; A. Cunn. "Yarran." (Leguminosæ.) Found at Ivanhoe, N.S.W. A small ornamental tree attaining a height of 10 or 15 feet. Timber very hard and capable of a high polish. It is possessed of an agreeable odour, and is much used by the natives for their weapons, &c. The leaves are eaten by stock. Bark obtained September 25, 1886.

APPENDIX III—continued.
PURCHASES (SPECIMENS).

Museum No.	Date and Description.
14,743	Bark of <i>Acacia homalophylla</i> var; A. Cunn. "Narrow-leaved Yarran." (Leguminosæ.) Found at Ivanhoe, N.S.W. Similar in habit to the preceding. Bark obtained September 4, 1886.
14,745	Bark of <i>Acacia Oswaldi</i> ; F. v. M. "Miljee." A small bushy tree from 6 to 8 feet high. Timber exceedingly hard and tough, possessing a very disagreeable smell when fresh or green; used by natives for short weapons, such as clubs. Leaves eaten by stock. Bark obtained September 6, 1886.
14,746	Bark of <i>Acacia sentis</i> ; F. v. M. "Thorny Acacia." (Leguminosæ.) Found at Ivanhoe, near Hay, N.S.W. A small low-spreading tree from 8 to 10 feet high; the timber is soft, but exceedingly tough; the young twigs are armed with slender acute spines or thorns. Bark obtained October 2, 1886.
14,748	Bark of <i>Acacia</i> sp. (Leguminosæ.) Found near Cobar, N.S.W. A large tree attaining a height of 40 or 50 feet. Found only in the locality whence this specimen was obtained, about 60 or 70 miles west of Cobar. The timber is exceedingly hard and strong. Bark obtained August 12 and October 12, 1886.
14,754	Bark of <i>Acacia</i> sp. "Poplar." (Leguminosæ.) Found near Darling River. A slender-growing tree, plentiful on sandhills near the Darling River. Bark and leaves possess an extremely pungent flavour, resembling watercress, but much stronger. Wood very soft and light.
14,749	Bark of <i>Casuarina glauca</i> ; Sieb. "Belar." (Casuarinæ.) Found at Ivanhoe, N.S.W. A very common tree, attaining a height of 40 or 50 feet. The timber is exceedingly hard, but brittle. It is much used for fencing-rails. Bark obtained September 25, 1886.
14,752	Bark of <i>Eremophila longifolia</i> ; F. v. M. "Emu Bush." (Myoporinæ.) Found at Ivanhoe, N.S.W. A small ornamental tree, from 10 to 15 feet in height, bearing a profusion of dull red trumpet-shaped blossoms. The bruised leaves of this tree are used by the natives for tanning or preserving their water-bags, made of the entire skins of wallabies. Bark obtained October 4, 1886.
14,752a	Leaves of <i>Eremophila longifolia</i> ; F. v. M. (Myoporinæ.) Found at Ivanhoe, N.S.W. Leaves obtained November 19, 1886.
14,751	Bark of <i>Fusanus acuminatus</i> ; Syn. <i>Santalum acuminatum</i> ; D.C. "Quandong." (Santalaceæ.) Found at Ivanhoe, Hay, N.S.W. A small tree, attaining a height of 10 or 12 feet. The fruit of this tree is made into a preserve; the hard pericarps (quandongs) are strung together to form bracelets, necklaces, &c. The kernels contain a large quantity of oil. The timber is used by the natives for obtaining fire by friction. Bark obtained October 4, 1886.
14,753	Bark of <i>Grevillea striata</i> ; R. Br. "Beef-wood." (Proteaceæ.) Found near Darling River. A medium-sized tree, attaining a height of 40 feet; the timber is beautifully marked, resembling raw beef, hence its vernacular name. Bark obtained October 14, 1886.
14,750	Bark of <i>Hakea leucoptera</i> ; R. Br. (Proteaceæ.) Found at Ivanhoe, Hay, N.S.W. A tree attaining a height of 15 or 20 feet. Timber not used. Bark obtained 4 September, 1886.

October 9.

- 16,982 Bouquet of different dried grasses ornamented with peacock's feathers.
16,984 Fan, square shaped, made from a kind of rush, with border and handle of straw. Italy.
16,985 Fan, circular shaped, ornamented with coloured stars. Italy.

February 2.

- 14574-5 Two antimacassars, made by a New Caledonian convict, from the fibre of the "Giant Aloe." *Fourcroya gigantea*, Vent. (Amaryllidæ). These articles exhibit the fineness as well as the great strength of the fibre.

February 19.

Museum No.	Description.	Museum No.	Description.
<i>Oils:—</i>			
14,658	Laurel oil.	14,667	Strasburg turpentine.
14,659	Pine oil.	14,670	Bordeaux turpentine.
14,662	Stavesacre oil.	14,688	English oil of peppermint.
14,663	Peach kernel oil.	14,689	Oil of parsley.
14,664	Ginger grass oil.	14,690	Oil of petit grain.
14,665	Rusa oil.		
<i>Fruits and Seeds:—</i>			
14,677	Stavesacre seeds.	14,696	Linseed (Baltic).
14,680	Black cummin seeds.	14,697	Linseed (Calcutta).
14,685	Brazil nuts.	14,698	Soap berries. <i>Saponaria officinalis</i> .
14,693	Linseed (English).		
<i>Gums and Resins:—</i>			
14,660	Balsam of Copaiba.	14,669	Sap green.
14,672	Gamboge, in lump.	14,683	Indian bedellium.
14,673	Gamboge, in pipe.	14,691	Extract of monesia.
14,679	Hog gum.	14,694	Genuine Burgundy pitch.
<i>Miscellaneous:—</i>			
14,678	Curaçoa aloes.	14,687	Mocha aloes.
14,686	Zanzibar aloes.	14,682	Cake safflower.

APPENDIX III—continued.

PURCHASES (SPECIMENS).

Museum No.	Description.	Museum No.	Description.
November 10.			
17,355	Pods of <i>Acacia</i> , sp. India.	17,391	Split pericarp, with seed enclosed, <i>Dipterix odorata</i> . "Tonquin bean."
17,356	Pods of <i>Acacia concinna</i> .	17,392	Fruits of <i>Datura stramonium</i> .
17,357	Pods of <i>Acacia nilotica</i> . West Africa.	17,393	Necklace, made of the seeds of <i>Elæocarpus ganiteus</i> .
17,358	Nuts of <i>Anacardium occidentale</i> . "Cashew."	17,394	Nuts of <i>Entada scandens</i> .
17,359	Nuts, roasted, <i>Anacardium occidentale</i> . "Cashew."	17,395	Nuts of <i>Entada gigalobium</i> .
17,360	Nuts of <i>Acroloma sclerocarpa</i> .	17,396	Nankin cotton <i>Gossypium</i> sp., unginned. Malta.
17,361	Nuts and kernels of <i>Aleurites triloba</i> . "Candle nuts." Fiji.	17,397	Capsules of <i>Gossypium</i> sp. India.
17,362	Pods of <i>Amomum Grana-paradisica</i> . Malagueta, Cuba.	17,398	<i>Gynocardia odorata</i> . India.
17,363	Seeds of <i>Adenantha pavonina</i> . "Barbadoes pride." India.	17,399	<i>Guizotia oleifera</i> .
17,364	Seeds of <i>Arachis hypogæa</i> . "Ground nut." India.	17,400	<i>Guilandria Bonducella</i> .
17,365	Nuts, unhusked, <i>Areca catechu</i> . "Betel nut."	17,401	<i>Hyptæne Thebaica</i> .
17,366	Nuts, unhusked, <i>Areca catechu</i> . "Betel nut."	17,402	<i>Jatropha Curcas</i> . West Africa.
17,367	Nuts, dried and split, <i>Areca catechu</i> . "Betel nut."	17,403	<i>Juglans nigra</i> . Black walnuts. North America.
17,368	Seeds of <i>Abrus precatorius</i> . (Jequirity.) West Indies.	17,404	Nuts of <i>Lecythis ollaria</i> . Sapucaya nuts.
17,369	Nuts of <i>Aegle marmelos</i> .	17,405	<i>Lecythis ollaria</i> . Capsule.
17,370	<i>Attalea Cohune</i> ; Mart. Honduras.	17,406	<i>Myristica</i> sp. Wild nutmegs. British Guiana.
17,371	Fruit of <i>Bassia Parkii</i> . "Shea butter nuts." West Africa.	17,407	Pods of <i>Moringa pterygosperma</i> . Horse-radish tree.
17,372	Fruit of <i>Bassia longifolia</i> . India.	17,408	Seeds of <i>Moringa pterygosperma</i> .
17,373	Kernels of <i>Bassia latifolia</i> . India.	17,409	<i>Mucuna</i> sp. Horse-eye bean. British Guiana.
17,374	<i>Bassia</i> sp.	17,410	Seeds of <i>Nelumbium speciosum</i> . Egyptian Lotus.
17,375	Cones of <i>Balanthes Roxburghii</i> .	17,411	Seeds of <i>Ormosia dasycarpa</i> . Snake-wood.
17,376	Nuts of <i>Bertholletia excelsa</i> . "Brazil nut."	17,412	Seeds of <i>Ormosia</i> sp.
17,377	Pods of <i>Bombax malabaricum</i> .	17,413	<i>Pongamia glabra</i> . India.
17,378	Pods of <i>Bombax</i> sp.	17,414	Seeds of <i>Papaver somniferum</i> . Poppy.
17,379	Nuts of <i>Caesalpinia Bonducella</i> .	17,416	<i>Piper longum</i> . The unexpanded flowers.
17,380	Seeds of <i>Croton Tiglium</i> . "Croton."	17,417	<i>Quercus</i> sp.; Knopperrn. Galls found on certain oaks in Hungary, &c.
17,381	<i>Crescentia Cujete</i> ; Linn. (<i>Begonia-cææ</i> .) "Calabash."	17,418	<i>Quercus</i> sp. galls.
17,382	Pods of <i>Canavalia gladiata</i> ; D.C.	17,419	<i>Raphia vinifera</i> . Fruits.
17,383	Nuts of <i>Calophyllum inophyllum</i> . Ndilo.	17,420	Seeds of <i>Ricinus communis</i> . Castor oil.
17,384	Kernels of <i>Calophyllum inophyllum</i> . Ndilo.	17,421	Kernels of <i>Sterculia acuminata</i> . Kola.
17,385	Seeds of <i>Carapa guineensis</i> . "Tallicoonal." Fiji.	17,422	Nuts of <i>Sterculia acuminata</i> . Kola.
17,386	Nuts of <i>Caryocar tomentosum</i> . West Africa.	17,423	Nuts of <i>Sapindus saponaria</i> . "Soap-nut."
17,387	Nuts of <i>Cocos nucifera</i> . Coco-nut.	17,424	Galls of <i>Tamarix gallica</i> .
17,388	Seeds of <i>Coix lachryma</i> .	17,425	Nuts of <i>Terminalia belerica</i> ; Beleric (<i>Myrobalans</i>). India.
17,389	Seeds of <i>Coix</i> sp.	17,426	Nuts of <i>Terminalia belerica</i> .
17,390	Pods of <i>Caesalpinia coriaria</i> . "Divi Divi."	17,427	Nuts of <i>Terminalia chebula</i> ; Chebulie (<i>Myrobalans</i>).
November 30.			
17,753	Turned olive-wood inkstand.	17,428	Nuts of <i>Terminalia</i> sp.
17,754	Olive-wood section, showing bark. Palestine (?).	17,429	Seeds of <i>Thea camellia</i> . "Tea."
17,755	Olive-wood section, showing bark. Palestine (?).	17,430	Seed of <i>Thevetia neriifolia</i> . "Yellow coriander."
17,758	Bokhara plum (<i>Aloo Bokhara</i>), <i>Prunus bokhariensis</i> , Royle. This fruit is commonly met with in Indian bazaars, and is used much in the same way as prunes.		
17,763	Bannister brush of coir fibre. Kobe, Hiogo, Japan.		
December 2.			
17,722	A quantity of turmeric (<i>Lega</i>), packed in a cylindro-conical package of cocoa-nut palm spathes. Samoa. Dr. Seemann, in his "Flora Vitiensis," mentions that turmeric is used in Samoa as a medicine, but more especially by the Samoan women, who hold it in great estimation as a cosmetic.		
December 15.			
17,728	Package of Samoan tobacco.		
17,729	Necklace of seeds of <i>Adenantha pavonina</i> . (Samoa).		
17,730	Two Samoan cigars (tobacco in banana leaf).		
17,731	A quantity of Kava (<i>Piper methysticum</i>). Used by the Polynesians for making an intoxicating beverage. (Samoa).		
17,732	A bundle of fibre (Fan). (Samoa).		

APPENDIX III—continued.
PURCHASES (SPECIMENS).

Museum No.	Date and Description.
16,948	Bark of <i>Acacia aneura</i> ; F. v. M. "Mulga." (Leguminosæ.) Height, 20 to 30 feet; diameter, 6 to 12 inches. Collected on August 5, 1887, at Tarella, Wilcannia. Formation: Silurian, chocolate soil and loose stones.
16,949	Insect galls (Mulga apples) of <i>Acacia aneura</i> ; F. v. M. "Mulga." (Leguminosæ.) Obtained from the leaves; the galls have an agreeable taste. Collected on August 5, 1887, at Dry Lakes. Formation: Silurian, chocolate soil and loose stones.
16,950	Insect galls (Mulga apples) of <i>Acacia aneura</i> ; F. v. M. "Mulga." (Leguminosæ.) From the leaves; unedible. Collected on August 8, 1887, at Dry Lakes. Formation: Silurian, chocolate soil and loose stones.
16,989	Log of <i>Acacia aneura</i> ; F. v. M. "Mulga." (Leguminosæ.) Height, 20 to 30 feet; diameter, 6 to 12 inches. Collected on August 20, 1887, at Tarella, Wilcannia. Formation: Silurian, chocolate soil and loose stones.
17,000a	Log, dry, of <i>Acacia aneura</i> ; F. v. M. "Mulga." (Leguminosæ.) Height, 15 to 20 feet; diameter, 6 to 12 inches. Collected on August 30, 1887, at Gnalta, Wilcannia. Formation: Silurian.
16,951	Insect galls of <i>Acacia cyperophylla</i> ; F. v. M. (Leguminosæ.) From the leaves, unedible. Collected on August 8, 1887, at Dry Lakes. Formation: Probably Tertiary.
14,801-2	Bark and gum of <i>Acacia dealbata</i> ; Link. "Silver Wattle." (Leguminosæ.) Height, 20 to 30 feet; diameter, 12 to 18 inches. Collected on March 1 and 2, 1887, at Quidong. Formation: Limestone.
14,809	Bark of <i>Acacia glaucescens</i> ; Willd. "Myall." (Leguminosæ.) Height, 15 to 20 feet; diameter, 6 to 12 inches. Collected on April 8, 1887, at Quidong. Formation: Limestone.
14,814	Leaves of <i>Acacia glaucescens</i> ; Willd. "Myall." (Leguminosæ.) Height, 15 to 20 feet; diameter, 6 to 12 inches. Collected on April 8, 1887, at Quidong. Formation: Limestone.
15,092	Log of <i>Acacia melanoxylon</i> ; R. Br. "Blackwood." (Leguminosæ.) Height, 40 to 120 feet; diameter, 12 to 36 inches. Collected on May 22, 1887, at Bonang, Delegate. Formation: Mudstone, Silurian.
16,931	Piece of timber of <i>Acacia melanoxylon</i> ; R. Br. "Blackwood." Fashioned into a gunstock. (Leguminosæ.) NOTE.—Timber used for furniture, buggy naves, &c.
17,088	Bark of <i>Acacia pendula</i> ; A. Cunn. "Bastard Gidja," or "Nilya." (Leguminosæ.) Height, 10 to 12 feet; diameter, 4 to 6 inches. Collected on September 7, 1887, at Yandarlo. Formation: Silurian.
14,804-5	Leaves and bark of <i>Acacia penninervis</i> ; Sieb. (Leguminosæ.) Height, 20 to 25 feet; diameter, 8 to 12 inches. Collected on April 4, 1887, at Quidong. Formation: Limestone.
14,821	Gum of <i>Acacia penninervis</i> ; Sieb. (Leguminosæ.) Height, 20 to 25 feet; diameter, about 1 foot. Collected on March 22 and 23, 1887, at Quidong. Formation: Limestone.
16,991	Bark of <i>Acacia salicina</i> ; Lindl. "Native Willow." (Leguminosæ.) Height, 20 to 25 feet; diameter, 12 to 18 inches. Collected on August 15, 1887, at Tarella, Wilcannia. Formation: Silurian.
16,955	Bark of <i>Acacia salicina</i> ; Lindl. "Native Willow." (Leguminosæ.) Height, 30 to 40 feet; diameter, 12 to 18 inches. Collected on August 26, 1887, at Momba, Wilcannia. Formation: Red soil supposed to be recent.
17,093	Insect galls of <i>Acacia salicina</i> ; Lindl. "Native Willow." (Leguminosæ.) Height, 15 to 20 feet; diameter, 4 to 6 inches. Collected on August 20, 1887, at Cobham Lake.
17,092	Bark of <i>Acacia sentis</i> ; F. v. M. "Prickly Acacia." (Leguminosæ.) Height, 15 to 20 feet; diameter, 4 to 6 inches. Collected on August 20, 1887, at Cobham Lake. NOTE.—The fact of this species growing in a locality is looked upon as a sure indication of water.
16,992	Bark of <i>Acacia tetragonophylla</i> ; F. v. M. "Dead finish." (Leguminosæ.) Height, 10 to 12 feet; diameter, 6 to 8 inches. Collected on August 22, 1887, at Tarella, Wilcannia. Formation: Silurian.
16,999a	Log of <i>Acacia tetragonophylla</i> ; F. v. M. "Dead finish." (Leguminosæ.) Height, 6 to 10 feet; diameter, 4 to 6 inches. Collected on August 29, 1887, at Gnalta, Wilcannia. Formation: Silurian.
16,999	Small piece of wood of <i>Acacia tetragonophylla</i> ; F. v. M. "Dead finish." (Leguminosæ.) Collected on August 30, 1887, at Gnalta, Wilcannia. Formation: Silurian.
14,812	Bark of <i>Acacia vestita</i> ; Ker. (Leguminosæ.) Height, 20 to 25 feet; diameter, 10 to 18 inches. Collected on April 9, 1887, at Quidong. Formation: Limestone.
14,815	Leaves of <i>Acacia vestita</i> ; Ker. (Leguminosæ.) Height, 20 to 25 feet; diameter, 10 to 18 inches. Collected on April 9, 1887, at Quidong. Formation: Limestone.
14,779-80	Leaves and bark of <i>Angophora intermedia</i> ; D.C. "Apple-tree." (Myrtaceæ.) Height, 30 to 50 feet; diameter, about 3 feet. Collected on December 22, 1886, at Colombo, near Candelo. Formation: Granite.
16,903	Gum of <i>Angophora intermedia</i> ; D.C. "Apple-tree." (Myrtaceæ.) Height, 30 to 50 feet; diameter, 2 to 4 feet. Collected in June 30, 1887, at Colombo, near Candelo. Formation: Granite.
16,911	Log of <i>Angophora intermedia</i> ; D.C. "Apple-tree." (Myrtaceæ.) Height, 30 to 50 feet; diameter, 2 to 4 feet. Collected in June, 1887, at Colombo, near Candelo. Formation: Granite.
14,898	Timber of <i>Atherosperma moschata</i> ; Labill. "Sassafras." (Monimiacæ.) Height, 30 to 40 feet; diameter, 1 to 2 feet. Collected in March, 1885, at Bonang, Delegate. Formation: Mudstone, Silurian.

APPENDIX III—*continued.*
PURCHASES (SPECIMENS).

Museum No.	Date and Description.
15,088	Bark of <i>Atherosperma moschata</i> ; Labill. "Sassafras." (Monimiæ.) Height, 60 to 80 feet; diameter, 2 to 3 feet. Collected on May 19, 1887, at Bonang, Delegate. Formation: Mudstone, Silurian.
15,091	Log of <i>Atherosperma moschata</i> ; Labill. "Sassafras." (Monimiæ.) Height, 60 to 80 feet; diameter, 2 to 3 feet. Collected on May 21, 1887, at Bonang, Delegate. Formation: Mudstone, Silurian. Note.—Found in deep creeks of the jungle.
16,927	Leaves of <i>Atherosperma moschata</i> ; Labill. "Sassafras." (Monimiæ.) Height, 60 to 80 feet; diameter, 2 to 3 feet. Collected on May 22, 1887, at Bonang, Delegate. Formation: Mudstone, Silurian.
16,928	Bark of <i>Atherosperma moschata</i> ; Labill. "Sassafras." (Monimiæ.) Height, 60 to 80 feet; diameter, 2 to 3 feet. Collected on May 22, 1887, at Bonang, Delegate. Formation: Mudstone, Silurian.
16,916	Whole Plant of <i>Boronia rhomboidea</i> ; Hook. (Rutaceæ.) Collected on July 16, 1887, at Charlie's Forest, Braidwood. Formation: Conglomerate.
14,803	Resin (Sandarac) of <i>Callitris calcarata</i> ; R. Br. "Pine," "Murray Pine," or "Cypress Pine." (Coniferæ.) Height, 30 to 40 feet; diameter, about 1 foot. Collected on March 3 and 4, 1887, at Quedong. Formation: Limestone.
16,900	Leaves of <i>Callitris calcarata</i> ; R. Br. "Pine," "Murray Pine," or "Cypress Pine." (Coniferæ.) Height, 20 to 40 feet; diameter, 6 to 18 inches. Collected on April 8, 1887, at Quedong, Delegate. Formation: Limestone.
17,000	Piece of Timber of <i>Callitris verrucosa</i> ; R. Br. "Rock Pine." (Coniferæ.) Height, 20 to 25 feet; diameter, 6 to 12 inches. Collected on August 30, 1887, at Danbeney Range. Formation: Silurian.
18,997	Log of <i>Capparis Mitchelli</i> ; Lindl. "Native Orange." (Capparideæ.) Height, 12 to 15 feet; diameter, 6 to 12 inches. Collected on August 29, 1887, at Gnalta Peak, Wilcannia. Formation: Silurian.
17,001	Bark of <i>Cassia</i> sp. (Leguminosæ.) Height, 10 to 15 feet; diameter, 4 to 6 inches. Collected on August 29, 1887, at Gnalta, Wilcannia. Formation: Silurian.
14,800	Whole Plant of <i>Centipeda Cunninghami</i> ; F. v. M. "Sneezeweed." Height, 4 to 12 inches. Collected on February 28, 1887, at Quedong. Formation: Limestone.
14,816	Whole Plant of <i>Centipeda orbicularis</i> ; Laur. "Sneezeweed." Length, 2 to 8 inches. Collected on April 3, 1887, at Quedong. Formation: Limestone. Note.—Found in moist situations.
16,947	Whole Plant of <i>Codonocarpus cotinifolius</i> ; F. v. M. "Quinine," or "Medicine Tree." (Phytolacææ.) Height, 20 to 25 feet; diameter, 6 to 8 inches. Collected on April 6, 1887, at Dry Lakes, Wilcannia. Formation: Supposed to be Tertiary.
16,990	Log of <i>Codonocarpus cotinifolius</i> ; F. v. M. "Quinine," or "Medicine Tree." (Phytolacææ.) Height, 20 to 25 feet; diameter, 6 to 8 inches. Collected on April 6, 1887, at Dry Lakes, Wilcannia.
16,930	Whole Plant of <i>Cymbonotus Lawsonianus</i> ; Gaud. (Compositæ.) Collected on May 2, 1887, at Delegate.
16,930a	Whole Plant of <i>Cymbonotus Lawsonianus</i> ; Gaud. (Compositæ.) Collected on May 3, 1887, at Delegate. Formation: Limestone.
16,903	Whole Plant of <i>Cymbonotus Lawsonianus</i> ; Gaud. (Compositæ.) Collected on April 6, 1887, at Quedong, Delegate. Formation: Limestone.
16,917	Leaves of <i>Doryphora sassafras</i> ; Endl. "Sassafras." (Monimiæ.) Height, 60 to 80 feet; diameter, 2 to 3 feet. Collected on July 17, 1887, at Monga, Braidwood. Formation: Humus and decomposed shale.
14,900	Piece of Timber of <i>Elæocarpus holopetalus</i> ; F. v. M. "Maddagouri." (Tiliacææ.) Height, 30 to 40 feet; diameter, 1 to 2 feet. Collected in March, 1885, at Haydon's Bog, Delegate. Formation: Mudstone, Silurian.
14,796-8	Leaves, Bark, and Gum of <i>Eucalyptus amygdalina</i> , var.; Labill. "Peppermint." (Myrtacææ.) Collected on February 14 and 16, 1887, at Bombala.
16,899	Log of <i>Eucalyptus amygdalina</i> , var.; Labill. "Peppermint." (Myrtacææ.) Height, 60 to 80 feet; diameter, 2 to 3 feet. Collected on June 17, 1887, at Bombala. Formation: Conglomerate.
14,901	Piece of Timber of <i>Eucalyptus amygdalina</i> , var.; Labill. "Cut-tail." (Myrtacææ.) Height, 200 to 300 feet; diameter, 6 to 8 feet. Collected at Haydon's Bog, Delegate.
16,898	Log of <i>Eucalyptus Gunnii</i> , var.; J. Hook. "Flooded," or "Red Gum." (Myrtacææ.) Height, 60 to 80 feet; diameter, 2 to 3 feet. Collected on June 17, 1887, at Bombala. Formation: Conglomerate. Always found in damp situations.
15,083-5	Leaves, Bark, and Gum of <i>Eucalyptus Gunnii</i> , var.; J. Hook. "Flooded," or "Bastard Gum." (Myrtacææ.) Height, 60 to 80 feet; diameter, 2 to 3 feet. Collected on May 8, 1887, at Delegate. Formation: Mudstone, Silurian.
16,933	Log of <i>Eucalyptus Gunnii</i> , var.; J. Hook. "Flooded," or "Bastard Gum." (Myrtacææ.) Height, 60 to 80 feet; diameter, 2 to 3 feet. Collected on June 12, 1887, at Delegate. Formation: Granite.
14,786-7	Leaves and Bark of <i>Eucalyptus Gunnii</i> , var.; J. Hook. "Red gum." (Myrtacææ.) Height, 80 to 100 feet; diameter, 3 to 4 feet. Collected on January 6, 1887, at Delegate. Formation: Granite.
14,783-4	Leaves and Bark of <i>Eucalyptus hæmastoma</i> ; Smith. "Rough," or "Small-leaved Stringy-bark." (Myrtacææ.) Height, 40 to 60 feet; diameter, about 2 feet. Collected on December 23, 1886, at Colombo. Formation: Granite.

APPENDIX III—*continued.*
PURCHASES (SPECIMENS).

Museum No.	Date and Description.
14,785	Gum of <i>Eucalyptus haemastoma</i> ; Smith. "Rough" or "Small-leaved Stringy-bark." (Myrtaceæ.) Height 40 to 60 feet; diameter, about 2 feet. Collected on December 24, 1886, at Colombo. Formation: Granite.
16,913	Log of <i>Eucalyptus haemastoma</i> ; Smith. "Stringy Bark." (Myrtaceæ.) Height, 60 to 80 feet; diameter, 2 to 3 feet. Collected in June, 1887, at Colombo. Formation: Granite.
15,087	Gum of <i>Eucalyptus macrorrhyncha</i> ; F. v. M. "Stringy Bark." (Myrtaceæ.) Height, 80 to 120 feet; diameter, 2 to 4 feet. Collected on May 15th and 16th, 1887, at Amboyne, Delegate. Formation: Limestone. Note.—The timber used for fencing and wheelwright's work.
16,923	Leaves of <i>Eucalyptus macrorrhyncha</i> ; F. v. M. "Stringy Bark." (Myrtaceæ.) Height, 60 to 80 feet; diameter, 2 to 3 feet. Collected on May 12, 1887, at Delegate.
16,924	Bark of <i>Eucalyptus macrorrhyncha</i> ; F. v. M. "Stringy Bark." (Myrtaceæ.) Height, 60 to 80 feet; diameter, 2 to 3 feet. Collected on May 12, 1887, at Delegate.
16,925	Insect galls of <i>Eucalyptus macrorrhyncha</i> ; F. v. M. "Stringy Bark." (Myrtaceæ.) Found on young plants and suckers. Collected on May 12, 1887, at Delegate.
14,781-2	Leaves and bark of <i>Eucalyptus melliodora</i> ; Cunn. "Box," or "Yellow Box." (Myrtaceæ.) Height, 30 to 50 feet; diameter, about 2 feet. Collected on December 23, 1886, at Colombo. Formation: Granite.
16,912	Log of <i>Eucalyptus melliodora</i> ; Cunn. "Box," or "Yellow Box." (Myrtaceæ.) Height, 80 to 100 feet; diameter, 2 to 4 feet. Collected in June, 1887, at Colombo. Formation: Granite.
14,792-4	Leaves, bark, and gum of <i>Eucalyptus odorata</i> , var; Behr. "White Box." (Myrtaceæ.) Height, 100 to 150 feet; diameter, 6 to 8 feet. Collected on February 5 and 6, 1887, at Wongrabbell. Note.—Timber soft when green, but becomes hard when dry; much used, and very durable.
14,810-1	Leaves and bark of <i>Eucalyptus polyanthema</i> ; Sch. "Box." (Myrtaceæ.) Height, 60 to 80 feet; diameter, 3 to 4 feet. Collected on April 10, 1887, at Quiedong. Formation: Limestone.
16,904	Leaves of <i>Eucalyptus rostrata</i> ; Schl. "Red Gum." (Myrtaceæ.) Height, 80 to 100 feet; diameter, 2 to 4 feet. Collected on June 27, 1887, at Colombo, near Candelo. Formation: Granite.
16,905	Bark of <i>Eucalyptus rostrata</i> ; Schl. "Red Gum." (Myrtaceæ.) Height, 80 to 100 feet; diameter, 2 to 4 feet. Collected on June 27, 1887, at Colombo, near Candelo. Formation: Granite.
16,906	Insect galls of <i>Eucalyptus rostrata</i> ; Schl. "Red Gum." (Myrtaceæ.) Young saplings. Collected on June 28, 1887, at Colombo, near Candelo. Formation: Granite.
16,914	Log of <i>Eucalyptus rostrata</i> ; Schl. "Red Gum." (Myrtaceæ.) Height, 60 to 80 feet; diameter, 2 to 4 feet. Collected in June, 1887, at Colombo. Formation: Granite.
16,993	Gum of <i>Eucalyptus rostrata</i> ; Schl. "Creek Gum." (Myrtaceæ.) Height, 30 to 40 feet; diameter, 1 to 2 feet. Collected on August 23, 1887, at Tarella, Wilcannia. Formation: Silurian.
16,994	Insect galls of <i>Eucalyptus rostrata</i> ; Schl. "Creek Gum." (Myrtaceæ.) Young plants. Collected on August 23, 1887, at Tarella, Wilcannia. Formation: Silurian.
16,996	Bark of <i>Eucalyptus rostrata</i> ; Schl. "Creek Gum." (Myrtaceæ.) Height, 50 to 70 feet; diameter, 12 to 30 inches. Collected on August 29, 1887, at Tarella, Wilcannia. Formation: Silurian.
17,002	Charcoal (obtained from limbs and branches) of <i>Eucalyptus rostrata</i> ; Schl. "Creek Gum." (Myrtaceæ.) Height, 20 to 30 feet; diameter, 1 to 2 feet. Collected on August 29, 1887, at Gnalta, Wilcannia. Formation: Silurian.
14,902	Piece of timber of <i>Eucalyptus Sieberiana</i> ; F. v. M. "Cabbage Gum." (Myrtaceæ.) Height, 40 to 60 feet; diameter, 1 to 2 feet. Collected in March, 1885, at Haydon's Bog, Delegate. Formation: Silurian, mudstone.
14,905a	Piece of timber of <i>Eucalyptus Sieberiana</i> ; F. v. M. "Cabbage Gum." (Myrtaceæ.) Height, 60 to 80 feet; diameter, 1 to 2 feet. Collected on May 5, 1887, at Delegate. Formation: Silurian, mudstone.
16,896	Log of <i>Eucalyptus Sieberiana</i> ; F. v. M. "Cabbage Gum." (Myrtaceæ.) Height, 40 to 60 feet; diameter, 1 to 2 feet. Collected on June 16, 1887, at Bombala. Formation: Conglomerate.
14,903	Piece of timber of <i>Eucalyptus stellulata</i> ; Sieb. "Sally" or "Black Gum." (Myrtaceæ.) Height, 30 to 50 feet; diameter, 2 to 3 feet. Collected in March, 1885, at Haydon's Bog, Delegate. Formation: Silurian, mudstone.
16,895	Log of <i>Eucalyptus stellulata</i> ; Sieb. "Sally" or "Black Gum." (Myrtaceæ.) Height, 20 to 40 feet; diameter, 1 to 3 feet. Collected on June 16, 1887, at Bombala. Formation: Conglomerate.
14,799	Gum of <i>Eucalyptus stellulata</i> ; Sieb. "Sally" or "Black Gum." (Myrtaceæ.) Height, 30 to 50 feet; diameter, about 2 feet. Collected on February 17 and 18, 1887, at Bombala. Formation: Limestone.
14,807-8	Leaves and bark of <i>Eucalyptus Stuartiana</i> ; F. v. V. "Apple Tree." (Myrtaceæ.) Height, 80 to 100 feet; diameter, 2 to 4 feet. Collected on April 7, 1887, at Quiedong. Formation: Limestone.
14,820	Kino of <i>Eucalyptus Stuartiana</i> ; F. v. M. "Apple Tree." (Myrtaceæ.) Height, 80 to 100 feet; diameter, 3 to 4 feet. Collected on March 24 and 25, 1887, at Quiedong. Formation: Limestone.

APPENDIX III—continued.
PURCHASES (SPECIMENS).

Museum No.	Date and Description.
15,086	Gum of <i>Eucalyptus tereticornis</i> ; Smith. "Mountain Gum." (Myrtaceæ.) Height, 100 to 180 feet; diameter, 4 to 8 feet; found on mountain ridges. Collected on May 20, 1887, at Bonang, Delegate. Formation: Silurian, Mudstone. Note.—Timber is considered valuable.
14,905	Piece of timber of <i>Eucalyptus viminalis</i> ; Labill. "Ribbon Gum." (Myrtaceæ.) Height, 60 to 80 feet; diameter, 2 to 3 feet. Collected on May 5, 1887, at Delegate. Formation: Silurian, mudstone.
14,905b	Piece of timber of <i>Eucalyptus viminalis</i> ; Labill. "Ribbon Gum." (Myrtaceæ.) Height, 60 to 80 feet; diameter, 2 to 3 feet. Collected on May 5, 1887, at Delegate. Formation: Silurian, mudstone. Note.—The timber is used for wheelwrights' work.
16,926	Insect galls of <i>Eucalyptus viminalis</i> ; Labill. "Ribbon Gum." (Myrtaceæ.) Found on sapling. Collected on May 28, 1887, at Tingiringi Mountain, Delegate.
16,897	Log of <i>Eucalyptus viminalis</i> , var.; Labill. "Ribbon Gum," or "Manna Gum" (Myrtaceæ.) Height, 60 to 80 feet; diameter, 1 to 2 feet. Collected on June 17, 1887, at Bombala. Formation: Conglomerate.
14,806	Bark of <i>Eucalyptus viminalis</i> , var.; Labill. "Manna Gum." (Myrtaceæ.) Height, 60 to 80 feet; diameter, 2 to 3 feet. Collected on April 6, 1887, at Quiedong. Formation: Limestone.
14,813	Leaves of <i>Eucalyptus viminalis</i> , var.; Labill. "Manna Gum," or "Ribbon Gum." (Myrtaceæ.) Height, 60 to 100 feet; diameter, 2 to 3 feet. Collected on April 6, 1887, at Quiedong. Formation: Limestone.
14,818	Manna of <i>Eucalyptus viminalis</i> , var.; Labill. "Manna Gum," or "Ribbon Gum." (Myrtaceæ.) Height, 60 to 80 feet; diameter, 3 to 4 feet. Collected on March 28, 1887, at Quiedong. Formation: Limestone.
14,819	Kino of <i>Eucalyptus viminalis</i> , var.; Labill. "Manna Gum," or "Ribbon Gum." (Myrtaceæ.) Height, 60 to 80 feet; diameter, 3 to 4 feet. Collected on March 26 and 27, 1887, at Quiedong. Formation: Limestone.
14,788-9	Leaves and bark of <i>Eucalyptus</i> sp. "Black Box." (Myrtaceæ.) Height, 80 to 100 feet; diameter, 3 to 4 feet. Collected on January 24, 1887, at Nangutta. Note.—Timber soft when green, but becomes hard when dry; much used and very durable.
14,790-1	Leaves and bark of <i>Eucalyptus</i> sp. "Cabbage Box." (Myrtaceæ.) Height, 80 to 100 feet; diameter, 3 to 4 feet. Collected on January 25, 1887, at Nangutta.
16,909	Leaves of <i>Eucalyptus</i> sp. "White Gum," or "Blue Gum." (Myrtaceæ.) Height, 80 to 100 feet; diameter, 3 to 4 feet. Collected on 26 June, 1887, at Colombo, near Candelo. Formation: Granite.
16,910	Bark of <i>Eucalyptus</i> sp. "White Gum" or "Blue Gum." (Myrtaceæ.) Height, 80 to 100 feet; diameter, 2 to 4 feet. Collected on June 26, 1887, at Colombo, near Candelo. Formation: Granite.
16,915	Log of <i>Eucalyptus</i> sp. "White Gum" or "Blue Gum." (Myrtaceæ.) Height, 60 to 80 feet; diameter, 2 to 4 feet. Collected in June, 1887, at Colombo, near Candelo. Formation: Granite.
16,988	Bark of <i>Eucalyptus</i> sp. "Bastard Box." (Myrtaceæ.) Height, 30 to 50 feet; diameter, 1 to 2 feet. Collected on August 9, 1887, at Dry Lakes, Wilcannia. Formation: Silurian.
17,089	Plant of <i>Euphorbia Drummondii</i> ; Boiss. "Poisonweed." (Euphorbiaceæ.) Collected on September 13 and 14, 1887, at Wonnaminta. Formation: Silurian.
17,091	Plant of <i>Euphorbia Drummondii</i> ; Boiss. "Poisonweed." (Euphorbiaceæ.) Collected on August 19, 1887, at Cobham Lake.
17,090	Plant of <i>Euphorbia erythrantha</i> ; F. v. M. "Poisonweed." (Euphorbiaceæ.) Collected on September 12, 1887, at Wonnaminta. Formation: Silurian.
14,904	Timber of <i>Exocarpus cupressiformis</i> , Labill.; "Native Cherry." (Santalaceæ.) Height, 20 to 40 feet; diameter, 1 to 2 feet. Collected on May 3, 1887, at Brown's Camp. Formation: Mudstone, Silurian.
16,953	Log of <i>Flindersia maculosa</i> ; F. v. M. "Leopard Tree." (Meliaceæ.) Height, 30 to 50 feet; diameter, 12 to 18 inches. Collected on August 15, 1887, at Tarella, Wilcannia. Formation: Silurian.
16,995	Gum of <i>Flindersia maculosa</i> ; F. v. M. "Leopard Tree." (Meliaceæ.) Height, 30 to 50 feet; diameter, 12 to 18 inches. Collected on August 9, 1887, at Tarella, Wilcannia. Formation: Silurian.
16,954	Log of <i>Grevillea striata</i> ; R. Br. "Beefwood." (Proteaceæ.) Height, 20 to 30 feet; diameter, 12 to 18 inches. Collected on August 13, 1887, at Tarella, Wilcannia. Formation: Silurian.
14,795	Plant of <i>Linum marginale</i> ; Cunn. "Flax." (Lineæ.) Height, 2 to 4 feet. Collected on February 12, 1887, at Bombala.
14,817	Plant of <i>Mentha gracilis</i> ; R. Br. "Pennyroyal." (Labiatae.) Height, 6 to 12 inches. Collected on April 12, 1887, at Quiedong. Formation: Limestone. Note.—Found chiefly in damp localities.
16,901	Plant of <i>Mentha saturojoides</i> ; R. Br. "Pennyroyal." (Labiatae.) Collected on April 7, 1887, at Quiedong, Delegate. Formation: Limestone.
16,998a	Log of <i>Myoporum Dampieri</i> , A. Cunn.; Syn. <i>Myoporum montanum</i> . R. Br. "Water-bush," or "Native Daphne." (Myoporinae.) Height, 15 to 20 feet; diameter, 6 to 10 inches. Collected on August 30, 1887, at Gnalta, Wilcannia. Formation: Silurian.
16,952	Gum of <i>Myoporum platycarpum</i> ; R. Br. (Myoporinae.) Height, 20 to 30 feet; diameter, 12 to 18 inches. Collected on August 3 and 4, 1887, at Netallie, Wilcannia. Formation: Probably Tertiary.

APPENDIX III—continued.
PURCHASES (SPECIMENS).

Museum No.	Date and Description.
14,899	Piece of timber of <i>Persoonia lanceolata</i> ; Andr. "Bonewood." (Proteaceæ.) Height, 15 to 20 feet; diameter, 12 to 18 inches. Collected in March, 1885, at Haydon's Bog, Delegate. Formation: Mudstone, Silurian.
16,998	Log of <i>Pittosporum phillyræoides</i> ; D. C. "Mock Orange," or "Native Willow." (Pittosporææ.) Height, 12 to 15 feet; diameter, 6 to 12 inches. Collected on August 29, 1887, at Gnalta, Wilcannia. Formation: Silurian.
16,902	Plant of <i>Polygonum plebejum</i> ; R. Br. (Polygonaceæ.) Collected on April 7, 1887, at Quidong, Delegate. Formation: Limestone.
15,089	Piece of timber of <i>Senecio Bedfordii</i> ; F. v. M. "Cottonwood." (Compositæ.) Height, 20 to 25 feet; diameter, 4 to 12 inches. Collected on May 19, 1887, at Bonang, Delegate. Formation: Mudstone, Silurian.
16,929	Down of <i>Senecio Bedfordii</i> ; F. v. M. "Cottonwood." (Compositæ.) Height, 16 to 20 feet; diameter, 4 to 12 inches. Obtained from under-surface of leaves. Collected on June 9 and 10, 1887, at Spring Creek, Delegate. Formation: Mudstone, Silurian.
16,932	Log of <i>Senecio Bedfordii</i> ; F. v. M. "Cottonwood." (Compositæ.) Height, 10 to 30 feet; diameter, 4 to 12 inches. Collected on June 14, 1887, at Bonang, Delegate. Formation: Mudstone, Silurian.
15,090	Log of <i>Telopea oreades</i> ; F. v. M. "Gippsland Waratah." (Proteaceæ.) Height, 8 to 40 feet; diameter, 4 to 24 inches. Collected on May 21, 1887, at Bonang, Delegate. Formation: Mudstone, Silurian. Note.—Timber said to be very elastic.

ECONOMIC ENTOMOLOGY.

May 4.

A collection of insects injurious to the vine, together with some specimens of leaves and roots—the former to show the galls caused by insects; the latter, the characteristic appearance of a vine-root infested by phylloxera. The insects are each mounted on glass slides, for the microscope.

Museum No.	Description.	Museum No.	Description.
<i>Phylloxera vastatrix radicitola</i> :—			
14,836	Ovum.	14,874	<i>Hoplophora aretata</i> (cum ovo); Riley
14,837	Ovum.	14,875	<i>Nothrus mutilus</i> ; Koch.
14,838	Putamen ovi.	14,876	<i>Nothrus mutilus</i> ; Koch.
14,839	Larva juvenis.	14,877	<i>Nothrus scaliger</i> ; Koch.
14,840	Larva juvenis.	14,878	<i>Nothrus scaliger</i> ; Koch.
14,841	Larva juvenis.	14,879	<i>Pelops acromios</i> ; Koch, Herm.
14,842	Larva semi-adulta.	14,880	<i>Pelops acromios</i> ; Koch, Herm.
14,843	Larva semi-adulta.	14,881	<i>Eremaas cymba</i> ; Nic.
14,844	Larva semi-adulta.	14,882	<i>Eremaas cymba</i> ; Nic.
14,845	Larva adulta.	14,883	<i>Leiosoma giloula</i> .
14,846	Larva adulta.	14,884	<i>Leiosoma giloula</i> .
14,847	Larva adulta.	14,885	<i>Zetes morticinus</i> ; Koch.
14,848	Larva ovum inventre gerens.	14,886	<i>Zetes morticinus</i> ; Koch.
14,849	Larva ovum inventre gerens.	14,887	<i>Tegeocranus cymbida</i> ; Hall.
14,850	Larva hibernans.	14,888	<i>Troctes fotidus</i> .
14,851	Larva hibernans.	14,889	<i>Gamasus</i> sp.
14,852	Pellis larvæ.	14,890	<i>Bdella</i> sp.
14,853	Pellis larvæ.	14,891	Larva sp.
14,854	Larva cutem deponens.	14,892	Larva sp.
14,855	Larva cutem deponens.	14,893	<i>Trombidium</i> larva or <i>Psylla</i> larva.
14,856	Nympha.	14,894	<i>Coccus vitis</i> , larva feminæ.
14,857	Pellis nymphae.	14,895	<i>Coccus vitis</i> , larva embryonalis.
14,858	Pellis nymphae.	The following specimens are preserved in spirit:—	
14,859	Alata.	14,829	Leaves of American vine, cultivated in Europe, showing galls. (Two small green leaves.)
14,860	Alata.	14,830	Leaf of American vine, cultivated in America, showing galls. Nortons, Virginia.
14,861	Alata ova in ventre gerens	14,831	Leaf of American vine, cultivated in Europe, showing galls. Nortons, Virginia.
<i>Gallicola</i> :—			
14,862	Ova.	14,832	Root of vine, strongly affected with <i>Phylloxera</i> .
14,863	Ova.	14,833	Root of European vine, very slightly affected with <i>Phylloxera</i> .
14,864	Larva juvenis.	14,834	Root of European vine, with nodes caused by <i>Phylloxera</i> .
14,865	Larva juvenis.	14,835	Root of American vine, with nodes caused by <i>Phylloxera</i> .
14,866	Larva adulta.		
14,867	Larva adulta.		
14,868	Male.		
14,869	Female.		
<i>Insects injurious to the Vine, other than Phylloxera</i> :—			
14,870	<i>Polyxenus laguras</i> ; De Gur.		
14,871	<i>Polyxenus laguras</i> ; De Gur.		
14,872	<i>Hoplophora aretata</i> ; Riley.		
14,873	<i>Hoplophora aretata</i> (cum ovo); Riley.		

November 30.

17,736 Sprig of pink coral.

17,737 Sprig of dark red coral.

APPENDIX III—*continued*.
PURCHASES (SPECIMENS).

Museum No.	Description.
ECONOMIC GEOLOGY.	
February 19.	
14,666	Stockholm petroleum.
14,692	Crabs' eyes.
May 4.	
14,896	Marble; small slab of oblong shape for use as a paper-weight, polished. Marulan, N.S.W.
July 11.	
16,891	Lignite. From Bombala, N.S.W.
October 10.	
17,003	Ferruginous septa. Gnalta. Wilcannia, N.S.W.
17,004	Fossilized wood. Wonnaminta.
17,005	Green carbonate of copper. Broken Hill, N.S.W.
17,006	Gypsum. Wonnaminta. Wilcannia.
October 31.	
17,087	Salt (chloride of sodium), more or less impure. Cobham Lake.
November 30.	
17,739	Moonstone, polished. Ceylon.
November 16.	
A Collection of Asbestos in the raw state, together with a large number of articles, showing some of the uses to which it is now applied.	
17,617	Asbestos Fibre, in the rock, Canada.
17,618	Grey Asbestos; manufactured at Turin, Italy. Val d'Aosta, Italy.
17,619	White Asbestos; manufactured at Turin, Italy. Val d'Aosta, Italy.
17,620	First Quality Asbestos; manufactured at Turin, Italy. Val di Susa, Italy.
17,621	Grey Italian Carded Asbestos; used for making asbestos gaskets, packing steam-cocks, &c., and for places where millboard or rope-packing cannot be applied; also for filtration and other purposes. Manufactured at Turin, Italy.
17,622	White Italian Carded Asbestos; used for making asbestos gaskets, packing steam-cocks, &c., and for places where millboard or rope-packing cannot be applied; also for filtration and other purposes. Manufactured at Turin, Italy.
17,623	Carded Asbestos; used for making asbestos gaskets packing steam-cocks, &c., and for places where millboard or rope-packing cannot be applied; also for filtration and other purposes. Manufactured at Turin, Italy. Val di Susa, Italy.
17,624	Carded Canadian Asbestos; used for making asbestos gaskets, packing steam-cocks, &c., and for places where millboard or rope-packing cannot be applied; also for filtration and other purposes. Manufactured at Turin, Italy.
17,625	Asbestos, powdered and washed; manufactured at Turin, Italy.
17,626	Asbestos Millboard Washers; manufactured at Turin, Italy.
17,627	Italian Asbestos Millboard; for packing steam-joints, cylinder-covers, steam-chest covers, man-hole joints, pipe flanges, &c. Manufactured at Turin, Italy.
17,628	Canadian Asbestos Millboard; for packing steam-joints, cylinder-covers, steam-chest covers, man-hole joints, pipe flanges, &c. Manufactured at Turin, Italy.
17,629	Grey Asbestos Paper; manufactured at Turin, Italy. Valtellina, Italy.
17,630	White Asbestos Paper; for electric work, and very fine joints. Manufactured at Turin, Italy. Valtellina, Italy.
17,631	White Canadian Asbestos Paper; for electric work, and very fine joints. Manufactured at Turin, Italy.
17,632	Elliptical Washer of Asbestos, bound with copper wire. Manufactured at Turin, Italy. Trond'homme, Canada.
17,633	Asbestos Cloth, of Canadian fibre. Used for filtering or straining chemical liquids, for drop curtains in theatres, furnacemen's aprons and leggings, firemen's clothes, gloves, &c. Manufactured at Turin, Italy.
17,634	Plaited Canadian Asbestos Rope, about 1½ in. diameter. Manufactured at Turin, Italy.
17,635	Plaited Canadian Asbestos Rope, about 1 in. diameter. Manufactured at Turin, Italy.
17,636	Canadian Asbestos Packing (three-ply). Manufactured at Turin, Italy.
17,637	Canadian Asbestos Packing (six-ply). Manufactured at Turin, Italy.
17,638	Fine Asbestos Yarn (double-twisted) of Canadian fibre. Manufactured at Turin, Italy.
17,639	Italian Asbestos Packing (two-ply). Manufactured at Turin, Italy.
17,640	Plaited Italian Asbestos Rope, about 1½ in. diameter. Manufactured at Turin, Italy.
17641-45	Asbestos Millboard Washers. Manufactured at Turin, Italy.
17646-49	Asbestos Millboard Washers. Manufactured at Turin, Italy.

APPENDIX III—*continued.*

PURCHASES (SPECIMENS).

Museum No.	Description.	Museum No.	Description.
November 18.			
17,650	Marble. Black River (Lower Silurian), Cornwall, Canada.	17,676	Marble (Variegated). St. Anne, Belgium.
17,651	Marble. Black River (Lower Silurian), Pointe Claire, Canada.	17,677	Portor Marble. Porto Venere, Italy.
17,652	Marble. Black River (Lower Silurian), Pointe Claire, Canada.	17,678	Marble. Vitulano, Italy. 1
17,653	Marble (Chazy). Canghnawaga, Canada.	17,679	Coralline Marble, Vitulano, Ita. y.
17,654	Marble (Chazy). Canghnawaga, Canada.	17,680	Mottled Marble. Vitulano, Ita. y.
17,655	Marble (Chazy). Gloucester, Canada.	17,681	Black Marble. Egypt.
17,656	Marble (Chazy). L'Original, Canada.	17,682	Shell Marble. Egypt.
17,657	Marble (Chazy). St. Dominique, Canada.	17,683	Variegated Marble. Egypt.
17,658	Marble (Chazy). St. Lin, Canada.	17,684	Breccia. Pyrenees.
17,659	Marble (Laurentian). Arnprior, Canada.	17,685	Variegated Breccia. Vitulano, Italy.
17,660	Marble (Laurentian). Arnprior, Canada.	17,686	Variegated Breccia. Vitulano, Italy.
17,661	Marble (Laurentian). Grenville, Canada.	17,687	Variegated Breccia. Vitulano, Italy.
17,662	Marble (Laurentian). Grenville, Canada.	17,688	Variegated Breccia. Vitulano, Italy.
17,663	Marble (Laurentian). Canada.	17,689	Septarium (section). Lyme Regis, England.
17,664	Marble (Laurentian). Canada.	17,690	Serpentine (Lower Silurian). Melbourne, Canada.
17,665	Marble (Lower Devonian). Dudswell, Canada.	17,691	Serpentine (Lower Silurian). Melbourne, Canada.
17,666	Marble (Lower Devonian). Dudswell, Canada.	17,692	Serpentine (Lower Silurian). Melbourne, Canada.
17,667	Marble (Lower Devonian). Dudswell, Canada.	17,693	Serpentine (Lower Silurian). Orford, Canada.
17,668	Marble. Quebec Group, Kinfacon, Canada.	17,694	Serpentine (Lower Silurian). Orford, Canada.
17,669	Marble (Lower Silurian). Shipton, Canada.	17,695	Serpentine (Lower Silurian). Orford, Canada.
17,670	Marble (Lower Silurian). Shipton, Canada.	17,696	Serpentine (Lower Silurian). Orford, Canada.
17,671	Marble (Lower Silurian). Shipton, Canada.	17,697	Serpentine (Lower Silurian). Shipton, Canada.
17,672	Marble (Lower Silurian). Shipton, Canada.	17,698	Serpentine (Lower Oolite). St. Joseph, Canada.
17,673	Marble. Trenton, Montreal, Canada.	17,699	Serpentine (in Limestone). Moriah, New York.
17,674	Marble (Chazy), near Chazy, New York.	17,700	Serpentine. Pyrenees.
17,675	Marble. Mallet's Bay, Vermont.	17,701	Vert Campan. Pyrenees.

ECONOMIC ZOOLOGY.

Miscellaneous.

February 19.

14,661	Dippel's Oil.	14,684	Cantharides.
14,676	White Shellac.	14,693	Blue Aleppo Galls.
14,681	Indian Galls.		

Wool and Hair.

February 24.

Samples of Wool and Hair, with market value in England, in 1886.—Ramsden & Co., Dewsbury, Yorkshire.

14,727	Cross-bred, Shin Wool. Value, 8d. 1.	14,725	Shankings from deep-grown Wool. 6.
14,723	Shin Wool from Lincoln Sheep. Value, 7d. 2.	14,732	White Kid Hair. Value, 4½d. 7.
14,726	Shin Wool from Yorkshire Sheep. Value, 6½d. 3.	14,734	White Goat Hair. Value, 4½d. 8.
14,728	Shin Wool from Low Lincoln Sheep. Value, 6½d. 4.	14,738	Brown Cow Hair. Value, 1½d. 9.
14,730	Shin Wool from Low Lincoln Sheep. Value, 6½d. 5.	14,739	White Cow Hair. Value, 3½d. 10.
		14,737	Brown Calf Hair. Value, 1½d. 11.
		14,733	Grey Kid Hair. Value, 2d. 12.
		14,736	Great Goat Hair. Value, 1½d. 13.
		14,735	Black Goat Hair. Value, 1½d. 14.

A. Collection of Wools, raw and in different stages of manufacture.—Cochrane Bros., cloth manufacturers, Galashiels, Scotland.

14,702	Pure Clothing Wool, very heavy, in grease. Loss in scouring would be about 55 per cent. 1.	14,704	Lambs' Wool, very wasty, burry. 4.
14,702 ^a	Breech Wool from 1. 2.	14,704 ^a	Belly Wool, from lambs. 5.
14,703	Scoured Wool (1), evidently for dyeing purposes. 3.	14,705	Lambs' Wool, partly washed, probably in cold water. 6.
		14,706	Wool, dyed black, for mixtures. 7.

APPENDIX III—continued.
PURCHASES (SPECIMENS).

Museum No.	Description.	Museum No.	Description.
14,707	Wool, scoured and willowed (or leased) ready for the carding machine. 8.	14,715	White, Black, and Brown Yarns, wound, ready for twisting. No. 20 is much finer than the others, spun to 60 cut or counts. 21 and 22 spun to 42 cut or counts. 20-22.
14,707 ^a	mixed; scoured, and willowed (leased), for making steel-grey cloth, ready for carding machine. 9.	14,716	Grey (black and white) Twist, ready for warps and wefts. 23.
14,708	Carded Wool, ready for condenser; white. 10.	14,716 ^a	White and Brown Mixture, twisted, ready for warps and wefts. 24.
14,708 ^a	Carded Wool, ready for condenser; grey. 11.	14,717	White Yarns, in warp bobbins. 25.
14,709	White Condensed Wool, ready for spinning. 12.	14,717 ^a	Brown Yarn, in warp bobbins. 26.
14,710	Grey Condensed Wool, ready for spinning. 13.	14,718	White, Black, Grey, Brown and White, and Brown Mixture; weft pins. 27-31.
14,711	Wool, spun, ready for reeling. 14.	14,719	Unfinished Cloth, made from Saxony wool.
14,712	White Yarn, reeled, ready for scouring. 15.	14,720	Finished Cloth, made from Saxony wool.
14,712 ^a	Grey Yarn, reeled, ready for scouring. 16.	14,721	Unfinished Cloth, made from Cheviot wool.
14,713	Scoured Yarn, ready for dyeing. 17.	14,722	Finished Cloth, made from Cheviot wool.
14,714	Dyed Yarn, ready for winding; black and brown. 18-19.		

May 26.

A Collection of Wools, raw and in different stages of manufacture.—J. Raistrich & Sons, Brackendale Mills, Thackley, near Bradford, Yorkshire.

15,060	Pure Merino Clothing Wool, in grease. 1-3.	15,065	Warp, ready to prepare for loom. 8.
15,061	Pure Merino Clothing Wool, scoured. 4.	15,066	Spun, and ready to go into the shuttle for weaving. 9.
15,062	Merino Clothing Wool, "willeyed," i.e., treated by a machine which shakes all refuse out of the wool, and cleans it. 5.	15,067	Cloth, before being taken out of loom. 10.
15,063	Sliver off carder. 6.	15,068	Cloth, after having been taken out of loom and scoured. 11.
15,064	Slubbing off condenser. 7.	15,069	Cloth, after milling or beating. 12.
		15,070	Patterns of Cloth, viz.:—19 cabinet—cloths, 3 billiard-cloths, 7 coatings.

August 19.

16,919	1½ oz. "Shoddy" or "Worsted Fly."	15,920	Sample of material from which "shoddy" is made.
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November 30.

17,748	Cap made of camel hair. Loodiana, Delhi, India.
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November 10.

Wools (New South Wales.)

Merino Wools:—

17,140	A very high type of wool, a combination of the Spanish and French merino. J. Penzer, Yarrandah, Dubbo, New South Wales. 34.	17,156	High-class stud ram's wool; greasy combing. H. C. White, Havilah, Mudgee, New South Wales. 25.
17,164	A very useful specimen of combing wool, of Tasmanian blood. J. Penzer, Yarrandah, Dubbo, New South Wales. 34.	17,148 ^a	Ewes' wool; superior combing. T. W. Hammond, Old Junee, Riverina, New South Wales. 15.
17,146	Very superior combing from the celebrated Goonoo Goonoo Stud Flock. Peel River Limited Liability Company, Goonoo Goonoo, New South Wales. 12.	17,148 ^b	Greasy wool (ewe's); breech, or lowest part of fleece, from superior combing fleece. Old Junee, Riverina. 15.
17,146	Very fine combing wool from the celebrated Goonoo Goonoo Stud Flock. Peel River Limited Liability Company, Goonoo Goonoo, New South Wales. 12.	17,149	Stud ram's wool; very superior combing. James Lee, Larras Lake, Molong, New South Wales. 17.
17,154 ^a	Greasy wool of merino ram. This specimen of ram's wool is taken off a fleece which was pronounced, by Dr. Bowman, to be the most valuable wool exhibited in the Indian and Colonial Exhibition of 1886. G. J. Mulholland, Oura, Wagga Wagga, New South Wales. 22.	17,149	Stud ram's wool; superior combing. James Lee, Larras Lake, Molong, New South Wales. 16.
17,154 ^b	A fine combing wool from the progeny of Tasmanian rams. G. J. Mulholland, Oura, Wagga Wagga, New South Wales. 23.	17,153	Hogget's wool; a very useful combing. Chisholm Bros., Kippiland, Goulburn, New South Wales. 28.
		17,158	Finecombing wool of hoggets. Chisholm Bros., Kippiland, Goulburn, New South Wales. 28.
		17,145	A deep combing wool from hogget ram, 13 months old. Chisholm Bros., Kippiland, Goulburn, New South Wales. 11.
		17,147	Ewe hogget's wool; strong combing. Collaroy Company, Limited. 14.
		17,155	Greasy wool; deep grown combing. J. M. L. Macdonald, Wallabadah, New South Wales. 24.
		17,160	Superior combing wool from hogget. Cowabee, Colmar (?). 30.

APPENDIX III—continued.

PURCHASES (SPECIMENS).

Museum No.	Description.	Museum No.	Description.
17,141	Fine combing wool. Wantabadgery, Wagga Wagga, New South Wales. 5 and 6.	17,162	Greasy wool (ewe's); superior combing. Alex. Sloane, Mulwalla, New South Wales. 32.
17,150	Ewe's wool; superior combing. Wantabadgery, Wagga Wagga, New South Wales. 18.	17,143	Greasy wool (ewe's); strong combing. Alex. Sloane, Mulwalla, New South Wales. 8.
17,141	A low or strong combing wool. Wantabadgery, Wagga Wagga, New South Wales. 5.	17,157a	Combing wool; scoured. W. Gibson & Co., Union Works, Bourke. 26.
17,139	Wool of sheep shorn in grease; strong or deep grown combing. The Hon. W. Wilson, Goonambil, Cowra, New South Wales. 1.	17,157b	Clothing wool; scoured. W. Gibson & Co., Union Works, Bourke, New South Wales. 27.
17,139	Wool of sheep shorn in grease; strong or deep grown combing. The Hon. W. Wilson, Goonambil, Cowra. 2.	<i>English Breeds of Wool:—</i>	
17,153	Greasy wool; superior combing (two samples.) Alex. Sloane, Mulwalla, New South Wales. 21.	17,152	Romney Marsh (Kent). Demi-lustre. E. B. Woodhouse, Mount Gilead, Campbelltown, New South Wales. 20.
		17,142	Romney Marsh (Kent). Demi-lustre; low quality. Mount Gilead, Campbelltown, New South Wales. 7.

Victoria.

<i>Merino Wools:—</i>	
17,170	Ewe's wool, 2-tooth; very superior combing; value, 11d. per lb. J. Ware, Mingah, Victoria. 40.
17,165a	A very high-class wool from a stud ram, 2-tooth. This stud flock is much sought after for improving or crossing with other strains. C. Ayrey, Waranooke, Victoria. 41.
17,165b	A very high-class wool from ewe the progeny of the preceding. C. Ayrey, Waranooke, Victoria. 35.
17,172	Very fine type of merino stud ram's wool, one of the most valuable strains in Victoria. T. Dowling, Jellalabad, Victoria. 43.
17,179	A very superior hogget wool from "Retreat" ewes. An excellent type of wool. George Carmichael, Retreat, Victoria. 50.
17,180	Stud ewe's wool, 8-tooth; a fine combing wool. Molesworth & Mattheson, Moranghurt, Victoria. 51.
17,171	Ewe's wool; a fine useful style of combing wool. R. Ramsden, Brunybrungle, Victoria. 42.
17,181	Specimen of pure combing wool from one of the most valuable strains of merino blood. T. Russell, Wurrott Station, Victoria. 52.
17,173	Pure merino ewe's wool; age, 15 months. Very superior combing wool; value, 13d. per lb. Thos. Russell, Yarrina, Cressy. 44.
17,167	Ewe's wool; a most useful combing wool; 17 months 17 days old; 355 days' growth. Thos. Russell, Warrook, Rokewood, Victoria. 37.
17,168	Ewe's wool, 2-tooth; an excellent style of combing; 368 days' growth; value, 1s. 2d. per lb. Thos. Russell, Warrook, Rokewood, Victoria. 38.
17,169	"Comeback" wool, from sheep aged 3 years; 349 days' growth. This style of wool has been realizing very high prices, and shows a Leicester strain; value, 1s. 2d. per lb. Josiah Austen, Greenvale, Victoria. 39.
17,166	Ewe-hogget's wool; 360 days' growth; age, 17½ months. A useful fine merino wool; value, 11d. per lb. E. Bryan Wright, jun., Spring Vale, Victoria. 36.
17,178	Wool of sheep shorn in grease (two samples); value, 12d. per lb. Victoria. 49.
17,176	Hogget's wool, washed in hot water; an excellent combing wool; value, 2s. 6d. per lb. (two samples). Victoria. 47.
17,177	Cross-bred wool, washed; value, 1s. 2d. per lb. Victoria. 48a.
17,177	Cross-bred wool, washed; value, 1s. 2d. per lb. Victoria. 48b.
17,175	Wool of merino sheep, scoured; value, 1s. 9d. per lb.; combing (two samples). Victoria. 46.
17,174	Lamb's wool; very superior; value, 3s. 6d. per lb. Victoria. 45.
17,151	White merino wool, scoured; value, 4s. 2d. per lb. Sir Samuel Wilson. 53.

Queensland.

<i>Merino Wools:—</i>	
17,196	Ewe's wool, greasy; fine combing. George Clark, East Talgai, Hendon, Queensland. 69.
17,196	Ewe's wool, greasy; fine combing. George Clark, East Talgai. 68.
17,195	Ewe's wool, washed; fine combing. George Clark, East Talgai. 68.
17,197	Ewe's wool, greasy; fine combing. George Clark, East Talgai. 67.
17,203	Stud ram's wool; superfine combing; average growth, 381 days; partly hand, partly grass fed. 77.
17,286	Stud ram's wool. (Same remarks as 77.) 58.
17,200	Stud ram's wool. (Same remarks as 77.) 74.
	Nos. 77, 58, 74, bred by Hodgson & Ramsay, Eton Vale, Darling Downs, Q.
17,159	Hogget ram's wool; fine combing. Marshall & Slade, Glengallen, Warwick. 28.
17,183	Hogget ram's wool; fine combing; weight, unskirted, 17 lbs. 10 oz. Marshall & Slade, Glengallen, Warwick. 55.

APPENDIX III—continued.

PURCHASES (SPECIMENS).	
Museum No.	Description.
17,185	Ram's wool; strong combing, 395 days' growth, greasy. C. B. Fisher, Ellangowan, Darling Downs, Q. 57.
17,198a	Ram's wool; fine combing, greasy. C. B. Fisher, Ellangowan. 72.
17,198b	Ewe's wool; strong combing, greasy. C. B. Fisher, Ellangowan. 71.
17,184	Ewe's wool; strong combing, greasy. C. B. Fisher, Ellangowan. 56.
Nos. 56, 57, 71, 72 are from the well-known strain of sheep called "Fisher blood," the progeny of sheep bred in South Australia, and which produce a heavy strong combing and great weight of fleece. 56.	
17,182	4-tooth ewe's wool, combing; wool of 337 days' growth. Shanahan & Jennings, Darling Downs, Q. 54.
17,192	4-tooth ewe's wool; strong combing, 337 days' growth. Shanahan & Jennings, Darling Downs, Q. 64.
17,193	4-tooth ewe's wool; 337 days' growth; 8 lb. 4 oz. Shanahan & Jennings, Darling Downs. 65.
<i>South Australia.</i>	
17,208a	Wool of sheep shorn in grease. 103.
17,208b	Wool of sheep shorn in grease; a beautiful specimen of high-class combing wool. 104.
17,208c	Same description as 104. 105.
17,208d	Same description as 104. 106.
17,208e	Same description as 104. 107.
17,208f	Same description as 104. 108.
17,208g	Wool of sheep shorn in grease; showing a sort of lower quality than 103-108. 109.
17,208h	Same description as 109. 110.
17,208j	Same description as 109. 111.
17,208k	Same description as 109. 112.
17,215a	Three samples of superior combing wool (ram's), from Baila Station. J. Anderson, White River, Port Lincoln. 157-159.
17,215b	Three samples of fine combing wool, from Baila Station. J. Anderson. 160-162.
17,215c	Ram's wool; strong combing, from Baila Station. J. Anderson. 163.
17,215d	Ram's wool; clothing, Baila Station. J. Anderson. 164.
17,217a	Five samples of strong combing wool. Sir Thomas Elder, Lyndhurst Station. 166.
17,217b	Two samples of wool (pieces). Sir Thomas Elder, Lyndhurst. 166.
17,217c	Stained pieces. Sir Thomas Elder. 166.
17,214a	Nine samples of combing wools. Sir Thomas Elder, Beltana. 147-155.
17,214b	Sample of belly wool. Sir Thomas Elder, Beltana. 156.
17,212	Three samples of wool. Bred by Smith & Swan, Fowler's Bay. 140-142.
17,216	Wool of sheep shorn in grease. Edmund Bowman, Martindale, Mintaro. 165.
17,222	Wool of sheep shorn in grease. Mark Kopp. 171.
17,213a	Ram's wool (two samples). E. Salter, Angaston. 143-144.
17,213b	Hogget's wool (two samples). E. Salter, Angaston. 145-146.
17,210a	Twelve samples of wool, from fine to strong combing. Bred on Cordilla Station; Sir Thomas Elder, owner. 123-134.
17,208l	Same description as 109. 113.
17,208m	Same description as 109. 114; 103-114 from Yalluin Station.
Museum No.	Description.
17,187	Ewe's wool; combing, hot-water washed. Gore & Co., Yandilla, Darling Downs, Q. 59.
17,199	Ewe's wool; fine combing. Gore & Co., Yandilla. 73.
17,194	Ewe hogget; fine combing, 315 days' growth, hot-water washed. Gore & Co., Yandilla. 66.
17,190a	Ewe's wool; super combing. Queensland Co-operative Pastoral Co., Limited, Pikedale, Darling Downs, Q. 63.
17,190b	Ewe's wool; fine combing, 365 days' growth. Queensland C. & P. Co., Limited. 70.
17,201	Wool of wethers; super clothing. Queensland C. & P. Co., Limited. 76.
17,291	Wool of wethers; super combing. Queensland C. & P. Co., Limited. 62.
17,188-9	Black merino wool; greasy, 370 days' growth. W. Allan, Dalveen, Warwick, Q. 60-61.
17,218	Wool of stud ram "Young Zulu"; cut 15 lb. of wool. Bred by John Murray, Murrayvale, Mount Crawford, South Australia. 167.
17,211a	Ram's wool; strong combing. 137.
17,211b	Ram's wool; strong combing. 138.
17,211c	Ram's wool; strong combing. 137, 139. 137, 138, 139, bred by John Murray, Murrayvale, Mount Crawford, South Australia. 139.
17,209a	Superior combing wool. 115.
17,209b	Superior combing wool. 116.
17,209c	Superior combing wool. 117.
17,209d	Medium combing wool. 118.
17,209e	Medium combing wool. 119.
17,209f	Medium combing wool. 120.
17,209g	Strong combing wool. 121.
17,209h	Strong combing wool. 122. 115-122 bred by the Honorable A. B. Murray, from Murrayvale ewes.
17,206	Eight samples of wool, from superior to strong combing. Bred by W. Cuvier, Esq., Anabranch, West Moona Station. 91-98.
17,220	Stud ram's wool. Bred by James Saunders & Co., Canowie. 169.
17,204a	Stud ram's wool. 78.
17,204b	Stud ram's wool. 79.
17,204c	Flock hogget's wool. 80.
17,204d	Flock hogget's wool. 81. 78-81 bred by B. Scppelt, Scppelsfield.
17,207	Four samples of combing wool, from fine to strong. Bred by E. C. & J. L. Stirling, Nalpa Station. 99-102.
17,210b	Sample of wool from the neck. Sheep bred on Cordilla Station. 135.
17,210c	Belly wool. Sheep bred on Cordilla Station. 136.
17,221	Wool of sheep shorn in grease; mark, H & W over B. 170.
17,205a	Six samples of strong combing wool from Moolooloo. 82-87.
17,205b	Three samples of wool from breech, unskirted; Moolooloo. 88-90.
17,224	Three samples of strong combing wool; mark, D & P. 173.
17,223	Wool of 6-year old ram, cut 15 lb.; mark, D & P. 172.
17,226	Wool of sheep shorn in grease (heavy in grease); value, 5½d. per lb. 175.
17,225	Scoured wool; value, 12d. per lb. 174.
17,225	Scoured wool; value, 13d. per lb. 176.

APPENDIX III—continued.

PURCHASES (SPECIMENS).

Museum No.	Description.	Museum No.	Description.
<i>New Zealand.</i>			
<i>Merino Wools:—</i>			
17,240	Ram's wool. Cut 9½ lb. 189.	17,234	Hogget's wool. Cut 7 lb. 183.
17,267	Ewe's wool. Cut 10¼ lb. 216.	17,250	Wool of wether. Cut 8½ lb. 199.
17,236	Ram hogget. Cut 12 lb. 185.	17,261a	Wool of sheep shorn in grease, worth 10½d. per lb. 219.
17,245	Ewe hogget. Cut 10¾ lb. 194.		
<i>Half-bred Wools:—</i>			
17,257	Ewe's wool. Fleece 7 lb., skirted. 206.	17,248	Wool of wether. Fleece, skirted, 4 lb. 197.
17,264	Hogget's wool. Skirted fleece, 6 lb. 213.	17,239	Lamb's wool. Cut 2½ lb. 188.
17,241	Wool of sheep shorn in grease. 190.		
<i>Lincoln and Romney Marsh lustre wools, bred in New Zealand:—</i>			
17,253	Lincoln ram's wool. Cut 18½ lb. 202.	17,243	Romney Marsh ewe's wool. Cut 11 lb. 192.
17,238	Lincoln lamb's wool. 187.	17,231	Romney Marsh wether's wool. 180.
17,233	Lincoln ewe hogget. 182.	17,246	Romney Marsh ram hogget's wool. Cut 16½ lb. 195.
17,252	Lincoln ewe. Cut 20 lb. 201.	17,262	Romney Marsh ram's wool. Cut 16¾ lb. 211.
17,263	Lincoln wether's wool. 212.	17,242	Romney Marsh hogget's wool. 191.
17,244	Lincoln hogget's wool. 193.		
17,255	Border Leicester wool from sheep bred in New Zealand. 204.		
17,265	Romney Marsh lamb's wool. Washed fleece 2½ lb. 214.		
<i>New Zealand half-bred and cross-bred wools:—</i>			
17,249	Cross-bred wool. 198.	17,254	Shropshire Down hogget ram's wool. 203.
	Cross-bred wool. Value 8d. per lb. 178.	17,260	Half-bred hogget's wool. 209.
17,261	Cross-bred wether's wool. Cut 12 lb. 210.	17,235	Hampshire Down ram hogget's wool. Skirted. 184.
17,226	Half-bred ram. Cut 12½ lb. 215.	17,232	Hampshire Down ram's wool. 181.
17,237	Cross-bred ewe. Cut 10½ lb. 186.	17,250	Cross-bred wether's wool, weight 8½ lb. greasy. 199.
17,268	Half-bred ewe hogget. Cut 11½ lb. 217.	17,256	Shropshire Down ewe's wool. Skirted fleece 7½ lb. 205.
17,259	Cross-bred ewe hogget. Cut 10¼ lb. 208.	17,247	Shropshire Down ram's wool. 196.
17,251	Cross-bred hogget. Cut 10¼ lb. 200.	17,258	Southdown ram's wool, cut 9½ lb. 207.
17,230	Shropshire Down hogget's wool. 179.	17,269	Southdown ewe's wool, cut 7 lb. 218.
<i>Cape of Good Hope:—</i>			
17,288	3 qualities of mohair all more or less kempy. Value 9d. Kemp is a white hair that will not take dye, and is very detrimental to the value and to manufacturing purposes. 248.	17,269a	Mohair, Natal. 227.
		17,274	Mohair, Natal. 234.
		17,269a	Mohair, Natal. 228.
<i>Merino Wool:—</i>			
17,275	French Rambouillet ram's wool, 12 months' growth, combing. Natal. 235.	17,284	Ewe's wool, combing. 244.
17,282	German Rambouillet ram's wool, 14 months' growth, combing. Natal. 242.	17,277a	Ewe's wool, carding. 237.
17,261a	Western wool, clothing. 222.	17,281	Ewe's wool, low clothing. 241.
17,265a	Ewe's wool, combing. 223.	17,262a	Wool, greasy. 220a.
17,271	Wether's wool, carding. 230.	17,270	Ewe's wool, combing. 229.
		17,262a	Wool, greasy. 220a.
		17,262b	Belly wool in grease. 220b.
		17,262b	Belly wool, greasy. 220b.
<i>Cross-bred Wools:—</i>			
17,266a	Cross-bred half-bred Leicester and merino ram's wool. Natal. 224.	17,285	Merino ewe lamb's wool, low quality. 245.
17,286	Cross-bred merino ewe's wool. 246.	17,283	Merino ram lamb's wool, low combing. 243.
17,287	Merino lamb's wool, 12 months' growth. 247.	17,282a	Lamb's wool, low quality. 233.
17,279	Fine lamb's (ewe) wool. 239.	17,277b	Ewe's wool. 237.
17,278	Fine lamb's (ewe) wool. 238.	17,267a	Wool scoured. 225.
17,280	Fine lamb's (ewe) wool. 240.	17,272	Wool scoured, coarse. 231.
17,268a	Fine lamb's wool. 226.	17,263a	Wool scoured (2 samples). 221.
17,273	Medium lamb's wool. 232.		
<i>Tasmania:—</i>			
17,311a	Wool of sheep shorn in grease, value 10d. per lb. (2 samples). 270a.	17,311b	Breech wool, greasy. 270b.

APPENDIX III—continued.

PURCHASES (SPECIMENS).

Museum No.	Description.	Museum No.	Description.
<i>Wool from various Countries:—</i>			
17,315a	Spanish merino, greasy. 274a.	17,316	Bagdad brown wool; value 8d. per lb. 275.
17,315b	Spanish merino, greasy, back of fleece. 274b.	17,303	Ionic wool (rouge colour). 262.
17,315c	Spanish merino, greasy, breech wool. 274c.	17,296	Indian wool, reddish colour. 255.
17,315d	Spanish merino, greasy, pieces or skirtings. 274d.	17,299	Indian white wool. 258.
17,302	East Indian white wool (twisted). 261.	17,295	Indian wool. 254.
17,312	Falkland Islands low combing wool, 2 samples. 271.	17,298	Indian white wool. 257.
17,310	Canadian wool, lustre combing. 269.	17,292a	East India white wool. 251.
17,300	Indian white wool. 259.	17,292b	East India white wool. 251.
17,297	Grey wool, Indian. 206.	17,291a	East India white wool. (2 samples.) 250a.
17,293	Russian camel hair. 252.	17,289	East Indian white wool. (2 samples.) 249.
17,304	Fawn grey, India. 263.	17,294	East India yellow wool. 253.
17,305	Indian white wool. 261.	17,294	East India yellow wool. 253.
17,306	East Indian wool. 265.	17,308	East India yellow wool. 267.
17,307	East Indian black wool. 266.	17,301a	East Indian yellow wool. 260a.
17,290	East Indian brown wool. 250.	17,301b	East Indian yellow wool. 260b.
17,317	South American brown alpaca wool; value 13d. per lb. 276.	17,314	Mogadore wool, scoured. 273.

ECONOMIC ZOOLOGY.

November 10.

Silk-worms and Silk.

17,340	Eria cocoons, Attacus (Philasomea). Lakhumpur, Assam.	17,349	Silk yarn dyed in Delphinium Ispark. No. 3.
17,341	Eria cocoons, prepared for carding.	17,350	Silk yarn dyed in Delphinium Ispark and indigo. No. 2.
17,342	Eria raw silk, Attacus ricini of good quality. Assam.	17,351	Silk yarn dyed in Delphinium Ispark. No. 4.
17,343	Cocoons of Attacus ricini. Donagpur.	17,352	Silk wound, 4 specimens.
17,344	Cocoons of Attacus ricini. Donagpur.	17,353	Skein of silk.
17,345	Cocoons of Cricula trifenestra. Madras.	17,354	Tussar silk dyed in Calcutta with aniline dyes.
17,346	Cocoons of Saturnia Fredhubii. West Africa.	17,430	Purree, or Indian yellow.
17,347	Chrysalides.		
17,348	Tussar silk. Mirzapore, North-west Provinces, India.		

EDUCATIONAL.

November 16.

Educational works employed for the instruction of the Blind in the Institutions of the following Continental Towns.

<i>Asylum for the Blind, Lausanne, Switzerland.</i>		17,516	Cantu libro di lettura pei fanculle, 3 parts.
<i>Printed in Braille type:—</i>		17,517	Cantu, Cenni di Storia Patria.
17,495	New testament, 8 volumes. Bound.	17,518	Cantu, Metodo di Scrittura pei ciechi colla matita.
17,496	Fables et poésies diverses. Bound.	17,519	Silvio Pellico, Doveri degli Nomini.
17,497	Syllabaire français à l'usage des aveugles.	17,520	Biografia degli Illustri Italini.
17,198	Méthode française pour l'écriture de Foucault.	17,521	Braille, Notazione numerali.
17,499	Recueil de Psaumes et Cantiques.	17,522	Beethoven, Sinfonia Re Stefano.
17,500	Recueil de morceaux d'orgue.	17,523	Czerny, 40 Exercizi per Pianoforte.
17,501	Constitution fédérale de la Confédération Suisse.	17,524	Chopin, operas 34, 48, 55.
17,502	Cours élémentaire d'harmonie.	17,525	Petrals, 15 Studi per organo.
17,503	Eléments de Géométrie définitions, &c.	17,526	Foucault, Guida numerica par scrivera.
17,504	Alrège de Géographie par Ulysee Guinaud.	<i>Roman type:—</i>	
17,505	Lesenbungen für Blinde. 3 vols.	17,512	Petrals, sillabario e lettore.
17,506	Grimm, Kinder und Hausmarchen.	17,513	Cantu, H. Galantuomo, 3 vols.
17,507	De l'Education des Aveugles.	<i>The following number is from an American Institution—Perkins' Institution, Boston, Mass.:—</i>	
<i>Institution for the Blind, Paris. Printed in Roman type:—</i>		17,509	Tables of Logarithms, lines, tangents, &c., in modified Roman type.
17,508	Arithmétique élémentaire par E. Dufour.	<i>Maps and apparatus used on the Continent for the instruction of the Blind:—</i>	
<i>Asylum for the Blind, Turin. Printed in Braille type:—</i>		17,527	Mute Map of Europe in relief.
17,510	Storia sacra,— Antico Testamento; Nuovo Testamento, 2 vols.	17,528	Map of Italy with use of Vitali's ink for the Blind.
17,511	Arithmetic, 2 vols.	17,529	Perforated board for arithmetical operations.
<i>Institution for the Blind, Milan:—</i>		17,530	Writing apparatus used at the Institution for the Blind, Milan.
17,514	Scavia Nozioni di Grammatica Italiana.	17,531	Raineri's disc for Geometry.
17,515	Primi elementi di Arithmetica.	17,532	Steel point for writing.

APPENDIX III—*continued.*

PURCHASES (SPECIMENS).

Museum No.	Description.	Museum No.	Description.
Articles made by the inmates of different Institutions for the Blind on the Continent:—			
17,581	Wicker railway travelling-basket.	17,597	Card-tray, open woodwork.
17,582	Plate basket of wicker-work.	17,598	Antimacassar, with daisies.
17,583	Specimen of chair-seat caning.	17,598 ^a	Antimacassar.
17,584	Frame for No. 17,583.	17,599	Lampstand of worsted work and beads.
17,585	Worsted winder of turned wood.	17,600	Baby's worsted jacket.
17,586	Sun-blind of unpainted laths.	17,601	Small bead basket, with artificial flowers.
17,587	Sun-blind of laths painted green.	17,602	Small bead basket, with artificial flowers.
17,588	Cocoanut thread and plait.	17,603	Embroidered pincushion.
17,588 ^a	Cocoanut rope.	17,604	Towel-holder.
17,589	Esparto thread and plait.	17,605	Towel-holder.
17,589 ^a	Esparto fibre, dyed and undyed, and rope.	17,606	Stool-cover.
17,590	Esparto door-mat.	17,606 ^a	Worsted work for covering a reticule.
17,591	Cocoanut door-mat.	17,607	Table-napkin ring.
17,592	Cocoanut door-mat, openwork.	17,608	Table-napkin ring.
17,593	Cocoanut matting.	17,609	Two watch-pockets in worsted work with beads.
17,594	Cocoanut matting, coloured.	17,610	Bead candlestick ornaments.
17,595	Paper-knife, open woodwork.	17,611	3½ metres silk lace.
17,596	Paper-knife, open woodwork.	17,612	1 metre cantu lace.
Series of Cardboard Embossed Geometrical Figures, Ornaments, and Profiles of Classical Heroes, &c.			
17,533	Bordures. (Borders.)	17,553	Clef. (A key.)
17,534	Rosace, perles, entrelacs. (Roses, pearls, and mouldings.)	17,554	Équerre et fil à plomb. (Square and plumb line.)
17,535	Rais de cœur. (Technical term for a certain architectural moulding.)	17,555	Étoile simple. (Star.)
17,536	Rosace.	17,556	Panneau. (Panel.)
17,537	Bossages, Tores. (Bossages or rustic coins, tori.)	17,557	Canaux, from Temple of Castor and Pollux. (Channelled ornament.)
17,538	Pulmonaire cymbalaire, Piloselle. (Common Pulmonaria or lungwort, snap-dragon, Piloselle.)	17,553	Frise Grecque. (Fragment Greek Frieze.)
17,539	Feuille d'Erable. (Maple leaf.)	17,559	Fleuron. (Flower, architectural ornament.)
17,540	Feuille de Chêne. (Oak leaf.)	17,560	Gulot.
17,541	Fleuron. (Flower, an architectural ornament.)	17,561	Panneau. (Fragment.)
17,542	Passiflore Palmée. (Palmated passion flower.)	17,562	Rosace Renaissance.
17,543	Lierre. (Ivy branch.)	17,563	"Ceres."
17,544	Frise Grecque. Acanthe. Palmette. (Greek frieze. Acanthus. Palm leaf.)	17,564	Minerva.
17,545	Refends et bossages. (Indented lines and bossages.)	17,565	Auguste, jeune (antique).
17,546	Denticules, dents de Scie. (Dentils, saw-teeth, architectural ornaments.)	17,566	Paris.
17,547	Niveau de Maçon. (Mason's level.)	17,567	Apollon.
17,548	Panneau Losangé avec coins à point de diamond. (Panel with lozenge-shaped ornament, diamond-pointed.)	17,568	Profile of Egyptian.
17,549	Compass.	17,569	Venus of Milo.
17,550	Triglyph.	17,570	Diana.
17,551	Grecque bordures. (Greek borders.)	17,571	Sappho.
17,552	Panneau à angles arrondis et carrés. (Panel with rounded and square angles.)	17,572	Achilles.
		17,573	Antinous.
		17,574	Jeune fille aux osselets.
		17,575	Faun, laughing.
		17,576	Agrippa.
		17,577	Ulysses.
		17,578	Caracalla.
		17,579	Venus du Capitole.
		17,580	Thalie.

ETHNOLOGY.

Musical Instruments.

March 28.

- 14,761 Taki-goto. Of hardwood, 4 ft. 6 in. long, with thirteen strings of silk neatly twisted. This instrument is provided with thirteen movable bridges, by means of which the pitch of the strings is regulated; the bridges are of wood, about 2½ in. in height. The Taki-goto is learnt chiefly by Japanese ladies moving in the upper circles of society. It is rather an expensive instrument, and requires much practice. The performer places it on the floor, and sitting in the usual Japanese attitude, bends over it and twangs the strings with her fingers, the tips of which are encased in plectra, resembling thimbles, which terminate with a little projecting piece of ivory, in form like a finger-nail. Modern. Japan.
- 14,762 Sime-Daiko, or small drum. The body in lacquer-ware, ornamented with embossed flowers and foliage in gold. Diam., 13½ in.; height, 5¼ in. With folding stand. This drum is suspended in a wooden frame by silken cords, and is beaten on its upper part with sticks. Modern. Japan.

May 12.

- 14,906 Complete suit of Japanese armour, being the uniform and accoutrements of a noble (Daimio).
- 14,907 Gilt helmet with crest
- 14,908 Spear with coverings.

APPENDIX III—continued.

PURCHASES (SPECIMENS).

Museum No.	Description.
14,909	Spear with coverings.
14,910	Lance, 7 feet long, with steel blade.
14,911	Long sword.
14,912	Short sword.
October 9.	
16,967	Foot of hookah of silver inlaid in iron. Syria.
16,968	Basin for ablutions, with lid. Brass. Used by the Druses. Syria.
16,969	Dagger with silver inlaid in iron. Syria.
16,970	Head ornament of silver, worn by a Druse bride. Syria.
<p>The following note is taken from Vice-Admiral J. W. Dowell's work entitled, "Cruising in Many Waters." At page 134 he says:—"A silver horn on the forehead, of about a foot high, cannot be pleasant to the wearer, nor could I admire it. It is hollow, and being placed upright on the head, it is secured under the chin by a silken cord, and a veil carried over it falls low down in front."</p>	
16,971	Cap or head ornament used by Druses. Silver. Syria.
16,972	Water-bottle, inlaid with silver, used by Druses. Syria.
<p>"The Druses are a curious people of mixed Syrian and Arabian origin, inhabiting the mountains of Lebanon and Antilebanon, Syria."</p>	

MECHANICS.

May 21.

Tools of a Japanese Carpenter:—

14,991	Sharpening-stone, of fine-grained hard sandstone. Used for putting an edge on tools that are very dull. Size, $8\frac{1}{4} \times 3 \times 2\frac{3}{8}$ in. Nishimura, Kyoto, Japan.
14,992	Sharpening-stone, soft and shaly in composition. Used in the same manner as our oilstone, for putting a fine edge on tools. Size, $9 \times 3 \times 2\frac{1}{2}$ in. Nishimura, Kyoto, Japan.
14,993	Sharpening-stone, of flaky structure and very brittle. Used for putting the finest edge on tools. Size, $8\frac{3}{8} \times 3 \times 1\frac{1}{8}$ in. Price in Japan, 11 sen = 4d. Nishimura, Kyoto, Japan.
14,994	Adze, steel head, with curved wooden handle. Dimensions of head, $5\frac{3}{4} \times 3\frac{3}{4}$ in.; length of handle, $24\frac{1}{2}$ in. Price in Japan, 38 sen = 1s. 3d. Nishimura, Kyoto, Japan.
14,995	Small saw, with teeth at back as well as in front, with pine (probably <i>Cryptomeria japonica</i>) handle. Size of blade, $6\frac{3}{4} \times 2\frac{1}{2}$ in.; handle, 9×1 in. Note: The teeth of these saws are pitched in the opposite way to those of English saws. Nishimura, Kyoto, Japan.
14,996	Saw, similar to 14,995, but of larger size, with pine (probably <i>Cryptomeria japonica</i>) handle. Size of blade, $9\frac{3}{4} \times 2\frac{7}{8}$ in.; handle, $9\frac{3}{4} \times 1$ in. Note: The teeth of these saws are pitched in the opposite way to those of English saws. Nishimura, Kyoto, Japan.
14,997	Saw, with pine (probably <i>Cryptomeria japonica</i>) handle. Size of blade, $14\frac{1}{2} \times 1\frac{3}{8}$ in.; handle, $11\frac{3}{4} \times 1$ in. Note: The teeth of these saws are pitched in the opposite way to those of English saws. Nishimura, Kyoto, Japan.
14,998	Saw-set, with three gauges. Length, 4 in. Nishimura, Kyoto, Japan.
14,999	Saw, with blade tapering, from $4\frac{1}{2}$ in. to 4 in., with pine (probably <i>Cryptomeria japonica</i>) handle. Size of blade, $16\frac{1}{2}$ in.; handle, $15\frac{1}{4} \times 1\frac{1}{8}$ in. Note: The teeth of these saws are pitched in the opposite way to those of English saws. Nishimura, Kyoto, Japan.
15,000	Saw file, with pine (probably <i>Cryptomeria japonica</i>) handle. Size of blade, $1\frac{1}{2} \times \frac{1}{2}$ in.; handle, $4 \times \frac{5}{8}$ in. Price in Japan, 3 sen = 1d. Nishimura, Kyoto, Japan.
15,001	Saw file; similar to 15,000. Size of blade, $2\frac{3}{8} \times \frac{5}{8}$ in.; handle, $4 \times \frac{5}{8}$ in. Price in Japan, 4 sen 5 rin = 2d. Nishimura, Kyoto, Japan.
15,002	Saw, with pine (probably <i>Cryptomeria japonica</i>) handle. Size of blade, $8\frac{3}{8} \times \frac{7}{8}$ in.; handle, $8\frac{3}{4} \times 1$ in. Note: The teeth of these saws are pitched in the opposite way to those of English saws. Nishimura, Kyoto, Japan.
15,003	Saw; somewhat similar to an ordinary keyhole saw. Size of blade, $7\frac{1}{4} \times \frac{1}{4}$ in.; handle, $6\frac{1}{2} \times \frac{5}{8}$ in. Note: The teeth of these saws are pitched in the opposite way to those of English saws. Nishimura, Kyoto, Japan.
15,004	Saw; similar to No. 14,999. Blade tapering, from $4\frac{1}{8}$ in. to $2\frac{3}{4}$ in., with pine (probably <i>Cryptomeria japonica</i>) handle. Size of blade, $13\frac{1}{2}$ in.; handle, $13\frac{1}{4} \times 1\frac{1}{8}$ in. Note: The teeth of these saws are pitched in the opposite way to those of English saws. Nishimura, Kyoto, Japan.
15,005	Saw, similar to No. 14,999. Blade tapering, from $3\frac{1}{2}$ in. to 2 in., with pine (probably <i>Cryptomeria japonica</i>) handle. Size of blade, $10\frac{1}{4}$ in.; handle, $10\frac{1}{4} \times 1$ in. Note: The teeth of these saws are pitched in the opposite way to those of English saws. Nishimura, Kyoto, Japan.
15,006	Saw, similar to No. 14,999. Blade tapering, from $2\frac{3}{4}$ in. to $2\frac{1}{4}$ in., with pine (probably <i>Cryptomeria japonica</i>) handle. Size of blade, $10\frac{1}{4}$ in.; handle, $9\frac{1}{4} \times 1$ in. Note: The teeth of these saws are pitched in the opposite way to those of English saws. Nishimura, Kyoto, Japan.
15,007	Saw, similar to No. 14,999. Blade tapering, from $3\frac{1}{8}$ in. to $1\frac{7}{8}$ in., with pine (probably <i>Cryptomeria japonica</i>) handle. Size of blade, $6\frac{1}{2}$ in.; handle, $9\frac{1}{4} \times 1$ in. Note: The teeth of these saws are pitched in the opposite way to those of English saws. Nishimura, Kyoto, Japan.
15,008	Drilling tool, with tetragonal blade and pine (probably <i>Cryptomeria japonica</i>) handle. Length of blade, $1\frac{3}{8}$ in.; handle, 8 in. Nishimura, Kyoto, Japan.

APPENDIX III—continued.
PURCHASES (SPECIMENS).

Museum No.	Description.
15,009	Drilling tool, with tetragonal blade and pine (probably <i>Cryptomeria japonica</i>) handle. Length of blade, $1\frac{1}{2}$ in.; handle, $9\frac{1}{4}$ in. Nishimura, Kyoto, Japan.
15,010	Drilling tool, with triangular point and pine (probably <i>Cryptomeria japonica</i>) handle. Length of blade, $2\frac{7}{8}$ in.; handle, $10\frac{1}{2}$ in. Price in Japan, 4 sen = $1\frac{1}{2}$ d. Nishimura, Kyoto, Japan.
15,011	Drilling tool, with tetragonal blade and pine (probably <i>Cryptomeria japonica</i>) handle. Length of blade, $2\frac{3}{8}$ in.; handle, $10\frac{1}{2}$ in. Nishimura, Kyoto, Japan.
15,012	Drilling tool, with triangular point and pine (probably <i>Cryptomeria japonica</i>) handle. Length of blade, $3\frac{3}{4}$ in.; handle, $11\frac{1}{2}$ in. Price in Japan, 4 sen 5 rin = 2d. Nishimura, Kyoto, Japan.
15,013	Screwdriver, the blade having an iron shoulder. Handle of hardwood, hooped with iron. Length of blade, 3 in.; handle, $4\frac{1}{4}$ in. Nishimura, Kyoto, Japan.
15,014	Gouge, with pine (probably <i>Cryptomeria japonica</i>) handle. Length of blade, $1\frac{3}{4}$ in.; handle, $7\frac{1}{2}$ in. Nishimura, Kyoto, Japan.
15,015	Gouge, with pine (probably <i>Cryptomeria japonica</i>) handle. Length of blade, $2\frac{5}{8}$ in.; handle, $10\frac{3}{8}$ in. Nishimura, Kyoto, Japan.
15,016	Gouge, with pine (probably <i>Cryptomeria japonica</i>) handle. Length of blade, $4\frac{3}{8}$ in.; handle, $5\frac{1}{2}$ in. Nishimura, Kyoto, Japan.
15,017	Gouge, with pine (probably <i>Cryptomeria japonica</i>) handle. Length of blade, $2\frac{1}{4}$ in.; handle, $8\frac{3}{4}$ in. Nishimura, Kyoto, Japan.
15,018	Mortising chisel, with handle of cedar (?). Length of blade, $4\frac{7}{8}$ in.; handle, $4\frac{1}{4}$ in. Nishimura, Kyoto, Japan.
15,019	Chisel, with handle of hardwood, hooped with iron. Length of blade, $6\frac{1}{8}$ in.; handle, 3 in. Nishimura, Kyoto, Japan.
15,020	Chisel, with handle of hardwood, hooped with iron (socketed). Length of blade, $6\frac{1}{2}$ inches; handle, 3 inches. Nishimura, Kyoto, Japan.
15,021	Chisel, with handle of hardwood, hooped with iron (socketed). Length of blade, $5\frac{3}{4}$ inches; handle, $2\frac{3}{4}$ inches. Nishimura, Kyoto, Japan.
15,022	Carving tool, with handle of hardwood (socketed). Length of blade, 6 inches; handle, $3\frac{1}{2}$ inches. Nishimura, Kyoto, Japan.
15,023	Carving tool, with handle of hardwood, hooped with iron (socketed). Length of blade, $3\frac{5}{8}$ inches; handle, $3\frac{3}{8}$ inches. Nishimura, Kyoto, Japan.
15,024	Carving tool, with handle of hardwood, hooped with iron (socketed). Length of blade, $3\frac{1}{2}$ inches; handle, $3\frac{3}{4}$ inches. Nishimura, Kyoto, Japan.
15,025	Pincers, of ordinary make; size, $9\frac{7}{8}$ x $2\frac{1}{4}$ inches. Price in Japan, 18 sen = 7d. Nishimura, Kyoto, Japan.
15,026	Wood-shaver, the blade tapering from $\frac{3}{4}$ inch to a point, with handle and sheath of pine (probably <i>Cryptomeria japonica</i>). Length of blade, 5 inches; handle, $5\frac{1}{4}$ inches. Nishimura, Kyoto, Japan.
15,027	Carving tool or paring chisel, with handle of hardwood. Length of blade, $6\frac{1}{2}$ inches; handle, 4 inches. Nishimura, Kyoto, Japan.
15,028	Carving tool, with handle of hardwood, hooped with iron. Length of blade, $6\frac{1}{4}$ inches; handle, $3\frac{5}{8}$ inches. Nishimura, Kyoto, Japan.
15,029	Carving tool, with handle of hardwood. Length of blade, $6\frac{1}{4}$ inches; handle, $4\frac{1}{8}$ inches. Nishimura, Kyoto, Japan.
15,030	Carving tool, with handle of hardwood, hooped with iron. Length of blade, $6\frac{1}{2}$ inches; handle, $2\frac{3}{4}$ inches. Nishimura, Kyoto, Japan.
15,031	Carving tool, with handle of dark-coloured hardwood, hooped with iron. Length of blade, $6\frac{3}{8}$ inches; handle, $3\frac{5}{8}$ inches. Nishimura, Kyoto, Japan.
15,032	Carving tool, with handle of hardwood, hooped with iron (socketed). Length of blade, $9\frac{1}{4}$ inches; handle, $3\frac{1}{2}$ inches. Nishimura, Kyoto, Japan.
15,033	Carving tool, with handle of light yellow-coloured wood (socketed). Length of blade, $6\frac{3}{8}$ inches; handle, $10\frac{1}{4}$ inches. Nishimura, Kyoto, Japan.
15,034	Carving tool, with handle of hardwood (socketed). Length of blade, $9\frac{1}{8}$ inches; handle, $7\frac{1}{8}$ inches. Nishimura, Kyoto, Japan.
15,035	Mortising chisel, the blade having an iron shoulder. Handle of hardwood, hooped with iron. Length of blade, $9\frac{1}{2}$ inches; handle, 5 inches. Nishimura, Kyoto, Japan.
15,036	Mortising chisel, the blade having an iron shoulder. Handle of hardwood hooped with iron. Length of blade, 9 inches; handle, 4 inches. Nishimura, Kyoto, Japan.
15,037	Hammer, the head having one tapering point and one ordinary circular face, with handle of hardwood. Size of head, $3\frac{1}{8}$ inches x 1 inch; handle, $8\frac{1}{4}$ inches x $\frac{1}{2}$ inch. Price in Japan, 7 sen 5 rin = 3d. Nishimura, Kyoto, Japan.
15,038	Hammer, similar to No. 15,037, but of larger size, with square face and handle of hardwood. Size of head, 5 inches x 1 inch; handle, $9\frac{1}{2}$ inches x 1 inch. Nishimura, Kyoto, Japan.
15,039	Hammer, with two circular faces, and handle of hardwood. Size of head, $3\frac{1}{8}$ x $1\frac{1}{4}$ inches; handle, $9\frac{1}{2}$ inches x 1 inch. Price in Japan, 16 sen = $6\frac{1}{2}$ d. Nishimura, Kyoto, Japan.
15,040	Instrument for marking timber by means of a cord passing over a circular spindle turned by a small iron crank. The piece of bamboo is used in connection with the marker. Size, $6\frac{1}{2}$ x 3 x 3 inches. Price in Japan, 32 sen = 1s. 1d. Nishimura, Kyoto, Japan.
15,041	Mortise-gauge of dark-coloured hardwood. Size, $3\frac{3}{4}$ x $2\frac{7}{8}$ x $1\frac{1}{8}$ inches. Nishimura, Kyoto, Japan.
15,042	Cutting-gauge, of hardwood. Size, 9 x $5\frac{3}{8}$ x $1\frac{7}{8}$ inches. Nishimura, Kyoto, Japan.
15,043	Rabbet-plane, of light-coloured wood veined somewhat similar to beech. The iron is 5 inches x $\frac{5}{8}$ inch to a point. Size, $9\frac{1}{2}$ x $2\frac{1}{2}$ inches x 1 inch. Nishimura, Kyoto, Japan.

APPENDIX III—continued.
PURCHASES (SPECIMENS).

Museum No.	Description.
15,044	Rabbet plane, of hardwood somewhat resembling oak. Iron, $4\frac{1}{2}$ inches in length, widening to the cutting point, which has a curved sharpened edge. Size, $9\frac{1}{2}$ x $2\frac{1}{2}$ inches x $\frac{1}{2}$ inch. Nishimura, Kyoto, Japan.
15,045	Rabbet plane, of hardwood somewhat resembling oak. Iron, 5 inches x $\frac{5}{8}$ inch, similar to the ordinary English rabbet plane iron. Size, $9\frac{1}{2}$ x $2\frac{5}{8}$ inches x $\frac{5}{8}$ inch. Nishimura, Kyoto, Japan.
15,046	Rabbet plane, of light-coloured hardwood somewhat resembling oak. Iron, $5\frac{3}{8}$ x $1\frac{1}{8}$ inches, similar to iron of No. 15,045. Size, $9\frac{1}{8}$ x $2\frac{5}{8}$ x $1\frac{1}{8}$ inches. Nishimura, Kyoto, Japan.
15,047	Smoothing plane, of wood somewhat resembling beech. Iron, $1\frac{3}{4}$ x $1\frac{1}{4}$ inch, similar to English make, but much thicker. Size, 4 x $1\frac{1}{2}$ inches x 1 inch. Nishimura, Kyoto, Japan.
15,048	Wood-scraper, of light-coloured hardwood. Iron, $3\frac{1}{2}$ x $1\frac{3}{4}$ inches, similar to English make, but much thicker. Size, 5 x $2\frac{1}{4}$ inches x 1 inch. Nishimura, Kyoto, Japan.
15,049	Round plane, of wood somewhat resembling oak. Iron, 4 x $1\frac{3}{8}$ inches, similar to English make, but much thicker. Size, $9\frac{5}{8}$ x $1\frac{1}{2}$ x $1\frac{1}{4}$ inches. Nishimura, Kyoto, Japan.
15,050	Hollow plane, of wood somewhat resembling oak. Iron, $4\frac{3}{8}$ x $1\frac{1}{2}$ inches, similar to English make, but much thicker. Size, $9\frac{1}{2}$ x $1\frac{1}{2}$ x $1\frac{3}{8}$ inches. Nishimura, Kyoto, Japan.
15,051	Single-tooth gauge, of light-coloured wood. Size, 5 x $3\frac{1}{4}$ x $1\frac{1}{2}$ inches. Nishimura, Kyoto, Japan.
15,052	Hollow plane, of wood somewhat resembling oak. Iron, $4\frac{1}{2}$ x $\frac{3}{4}$ inches, similar in thickness to an English iron used for the same purpose. Size, $6\frac{3}{4}$ x $1\frac{1}{4}$ x 1 inches. Nishimura, Kyoto, Japan.
15,053	Round plane, of wood somewhat resembling oak. Iron, $4\frac{1}{2}$ x $\frac{5}{8}$ inches, similar in thickness to an English iron used for the same purpose. Size, 8 x $1\frac{3}{8}$ x 1 inches. Nishimura, Kyoto, Japan.
15,054	Plane, of wood somewhat similar to beech. Iron, $4\frac{1}{2}$ x $2\frac{1}{4}$ inches, very thick in make. Size, $9\frac{3}{4}$ x $2\frac{5}{8}$ x $1\frac{1}{8}$ inches. Nishimura, Kyoto, Japan.
15,055	Plane, with curved face, similar to a plane used by English cabinet-makers, but very much smaller, and with a much thicker iron. Size, 4 x $1\frac{1}{2}$ x $1\frac{1}{4}$ inches. Nishimura, Kyoto, Japan.
15,056	Plane, of wood somewhat resembling oak. Iron, $4\frac{1}{2}$ inches in length, $2\frac{1}{2}$ inches in width, $\frac{1}{8}$ inch in thickness. Size, 10 x $2\frac{7}{8}$ x $1\frac{1}{8}$ inches. Nishimura, Kyoto, Japan.
15,057	Plane, of wood somewhat similar to beech. Iron, 3 x $2\frac{1}{4}$ inches, exceedingly thick. Size, $10\frac{1}{4}$ x 3 x 1 inches. Nishimura, Kyoto, Japan.
15,058	Square and measure. A similar instrument is used by European blacksmiths at the forge. Length, $19\frac{1}{16}$ inches; width, $9\frac{1}{2}$ inches. Price in Japan, 38 sen = 1s. 3d. Nishimura, Kyoto, Japan.

MODELS.

February 2.

Models in papier-mâché, coloured to nature, of the following:—

- | | |
|--------|----------------------------------|
| 14,568 | Human head. |
| 14,569 | Human thoracic cavity. |
| 14,570 | Human hand. |
| 14,571 | Human foot. |
| 14,572 | Horse's hoof and leg below knee. |

These models are each in several pieces, giving facility for examining the internal as well as the external parts.

March 20.

- | | |
|--------|--|
| 14,758 | Model of Japanese country-house. |
| 14,759 | Model of seigoku-bune, or sailing vessel of ancient Japan. |
| 14,760 | Model of Japanese dwelling-house. |

APPENDIX IV.
DONATIONS (SPECIMENS).

Museum No.	Description.
MISCELLANEOUS.	
February 18.	
14,699	Specimen of Jean Scherbel's Patent Cardboard Box and Claw Clamps for holding the corners together. (Donor: Fred. Walsh, Esq., International Patent and Trade Marks Office, Sydney.)
July 10.	
16,892	Specimen of Calico dyed with quercitron bark for yellow. (Donors: Messrs. J. Keys & Sons.)
16,893	Specimen of Calico dyed with old fustic for yellow and mordanted with alumina. (Donors: Messrs. J. Keys & Sons.)
16,894	Specimen of Calico dyed with logwood for black. (Donors: Messrs. J. Keys & Sons.)
APPLIED ART.	
November 7.	
17,126	"Martin-ware" Vase, 9 $\frac{3}{4}$ " x 7 $\frac{1}{2}$ ". Southall, England. }
17,127	"Martin-ware" Vase, 9 $\frac{1}{2}$ " x 6 $\frac{1}{4}$ ". Southall, England. } (Donor: Sir Alfred Roberts.)
ECONOMIC BOTANY.	
January 1.	
14,565	Sample of Pituri (<i>Duboisia Hopwoodii</i> , F.v.M.), in semi-circular bag. From the Herbert River (Pituri Creek), Queensland—latitude 23° south, longitude 139° east. (Donor: Herbert Butcher, Esq., Tintinallogy, N.S.W.)
February 2.	
14,567	<i>Portulaca oleracea</i> , Linn., "Purslane seeds" (<i>Portulacæ</i>). Used by the aborigines of the Western District for food. (Donor: K. H. Bennett, Esq., Ivanhoe, near Hay, N.S.W.)
February 24.	
14,755	Two bunches of Rose Apples. <i>Eugenia myrtifolia</i> , Sims; Syn. <i>Jambosa australis</i> , D.C. Found in New South Wales and Queensland. (Donor: The Curator.)
March 2.	
14,757	Six cobs of Corn growing on one stem. Grown by donor—Mr. Luck, Yarragee, Moruya.
April 20.	
14,764	Billet of Wood. Resembling ebony in appearance, and used by natives for making clubs; &c., Normanby Island, New Guinea. (Donor: Dr. Alex. M'Kinlay, late of H.M.S. "Swinger.")
April 20.	
14,765	Bark, used by the natives of the Engineer Group, Eastern New Guinea. Grated down into a paste; as an application for rheumatism, it acts as an active rubefacient. (Donor: Dr. Alex. M'Kinlay, late of H.M.S. "Swinger.")
14,767	Resin from St. Agnan Island, Louisiades Group. When chewed into a white paste, used by the natives for decorating their face and body, also for marking torches. (Donor: Dr. Alex. M'Kinlay, late of H.M.S. "Swinger.")
May 26.	
15,059	<i>Monstera deliciosa</i> , Lieb. (<i>Aroideæ</i>). The Fruit. The fleshy spadix, bearing perfumed and well-tasted fruits, is habitually sold in the Mexican market, where it rivals the pineapple in estimation. Mexico. (Donor: Chas. Moore, Esq., F.L.S., Director, Botanic Gardens, Sydney.)
May 31.	
15,071	<i>Castanospermum australe</i> , Cunn. et Fraser. "Moreton Bay Chestnut" The pod. (Donor: Chas. Moore, Esq., F.L.S., Director, Botanic Gardens, Sydney.)
June 23.	
15,093	<i>Quercus macrolepis</i> , Kotschy. "The Smyrna Oak." The fruit, a valonia, contains a fair proportion of tannin. (Donor: Mr. Henry Smithurst.)

APPENDIX IV—continued.

DONATIONS (SPECIMENS).

Indian.

June 24.

From the Government of India, the Collection of Economic Vegetable Products of India, consisting of Gums and Resins, Food Substances, Medicinal Products, &c., as below enumerated:—

Gums, Resins, &c.

Museum No.	Description.	Museum No.	Description.
15,947	Gum of <i>Acacia arabica</i> ; Willd. "Gum-arabic." (Leguminosæ.)	15,965	Gum of <i>Cochlospermum gossypium</i> ; DC. "Kuteera or false tragacanth." (Bixineæ.)
15,948	Gum of <i>Acacia catechu</i> ; Willd. "A gum-arabic." (Leguminosæ.)	15,966	Gum of <i>Ferula NARTHEX</i> ; Boiss. (Umbelliferae.)
15,949	Extract of <i>Acacia catechu</i> . "Catechu or Cutch."	15,967	Caoutchouc of <i>Ficus elastica</i> ; Bl. "India-rubber." (Urticaceæ.)
15,950	Gum of <i>Acacia leucophlœa</i> ; Willd. "A gum-arabic."	15,968	Gum of <i>Gluta travancorica</i> ; Beddome. (Anacardiaceæ.)
15,951	Gum of <i>Acacia modesta</i> ; Wall. "A gum-arabic."	15,969	Gum of <i>Melia azadirachta</i> ; Linn. "Neem or Margosa." (Meliaceæ.)
15,952	Gum of <i>Acacia sundra</i> ; DC. "A gum-arabic."	15,970	Gum of <i>Moringa pterygosperma</i> ; Gærtn. "Horse-radish tree gum." (Moringaceæ.)
15,953	Resin of <i>Ailanthus malabarica</i> ; DC. "Matti-pawl." (Simarubeæ.)	15,971	Gum of <i>Odina Wodier</i> ; Roxb. (Anacardiaceæ.)
15,954	Gum of <i>Albizia lebbek</i> ; Benth. "Sirissa." (Leguminosæ.)	15,972	Resin of <i>Pinus excelsa</i> ; Wall. "Bhotan Pine." (Coniferae.)
15,955	Gum of <i>Albizia procera</i> ; Benth.	15,973	Gum of <i>Pistacia lentiscus</i> ; Linn. "Mastic." (Anacardiaceæ.)
15,956	Gum of <i>Anogeissus latifolia</i> ; Wall. "Dhowra gum." (Combretaceæ.)	15,974	Gum of <i>Pterocarpus marsupium</i> ; Roxb. "Kino." (Leguminosæ.)
15,957	Gum of <i>Balsamodendron Mukul</i> ; Hook. "Mukul resin" (Burseraceæ.)	15,975	Gum, variety, of <i>Pterocarpus marsupium</i> ; Roxb. "Kino."
15,958	Extract of <i>Berberis lycium</i> ; Royle. (Berberideæ.)	15,976	Resin of <i>Schleichera trijuga</i> ; Willd. (Sapindaceæ.)
15,959	Gum of <i>Bombax malabaricum</i> ; DC. "Silk-cotton tree gum." (Malvaceæ.)	15,977	Resin of <i>Shorea assamica</i> ; Dyer. (Dipterocarpeæ.)
15,960	Gum of <i>Boswellia serrata</i> ; Roxb. "Olibanum." (Burseraceæ.)	15,978	Resin of <i>Shorea robusta</i> ; Gærtn. "Sal resin."
15,961	Gum of <i>Buchanania latifolia</i> ; Roxb. (Anacardiaceæ.)	15,979	Gum of <i>Sterculia urens</i> ; Roxb. "Kuteera." (Sterculiaceæ.)
15,962	Gum of <i>Butea frondosa</i> ; Roxb. "Pulas or dhak." (Leguminosæ.)	15,980	Gum of <i>Styrax benzoin</i> ; Dryand. "Benzoin." (Styraceæ.)
15,963	Resin of <i>Calophyllum inophyllum</i> ; Linn. "Ndilo." (Guttiferæ.)	15,981	Gum of <i>Terminalia bellerica</i> ; Roxb. "Myrobalan." (Combretaceæ.)
15,964	Resin of <i>Canarium strictum</i> ; Roxb. "Black dammar." (Burseraceæ.)	15,982	Gum of <i>Terminalia tomentosa</i> ; W. & A

Dyes, Tans, &c.

15,983	Powder of Abir.	16,003	Bark of <i>Albizia lebbek</i> ; Benth. "Sirissa." (Leguminosæ.)
15,984	Powder, variety, of Abir.	16,004	Bark of <i>Albizia procera</i> ; Benth.
15,985	Bark of <i>Acacia arabica</i> ; Willd. "Babul." (Leguminosæ.)	16,005	Root-stock of <i>Alpinia galanga</i> ; Swz. "Galangale." (Scitamineæ.)
15,986	Pods of <i>Acacia arabica</i> . "Babul."	16,006	Flower of <i>Althæa officinalis</i> ; Linn. "Mallow." (Malvaceæ.)
15,987	Seeds of <i>Acacia arabica</i> . "Babul."	16,007	Alum.
15,988	Leaves of <i>Acacia arabica</i> . "Babul."	16,008	Ash of <i>Amarantus spinosus</i> ; Willd. (Amarantaceæ.)
15,989	Gum of <i>Acacia arabica</i> . "Gum-arabic."	16,009	Fruit of <i>Anacardium occidentale</i> ; Linn. "Cashew." (Anacardiaceæ.)
15,990	Extract of <i>Acacia catechu</i> ; Willd. "Catechu or Cutch."	16,010	Leaves of <i>Anogeissus latifolia</i> ; Wall. (Combretaceæ.)
15,991	Extract, variety, of <i>Acacia catechu</i> . "Catechu or Cutch."	16,011	Nut of <i>Areca catechu</i> ; Linn. "Betel Nut." (Palmeæ.)
15,992	Bark of <i>Acacia catechu</i> . "Catechu or Cutch."	16,012	Yellow Arsenic; (Mineral.)
15,993	Pods of <i>Acacia concinna</i> ; DC.	16,013	Bark of <i>Artocarpus integrifolia</i> ; Linn. "Indian Jack Bark." (Urticaceæ.)
15,994	Bark of <i>Acacia farnesiana</i> ; Willd.	16,014	Bark of <i>Baccaurea sapida</i> ; Mull.-Arg. (Euphorbiaceæ.)
15,995	Leaves of <i>Acacia leucophlœa</i> ; Willd. "Panicked acacia." (Leguminosæ.)	16,015	Leaves of <i>Baccaurea sapida</i> ; Mull.-Arg. (Euphorbiaceæ.)
15,996	Bark of <i>Acacia leucophlœa</i> . "Panicked acacia."	16,016	Bark of <i>Barringtonia acutangula</i> ; Gærtn. (Myrtaceæ.)
15,997	Bark of <i>Acacia jacquemontii</i> ; Benth. "Babul."	16,017	Bark of <i>Bassia latifolia</i> ; Roxb. "Mahwa." (Sapotaceæ.)
15,998	Ash of <i>Achyranthes aspera</i> ; Linn. (Amarantaceæ.)	16,018	Bark of <i>Bauhinia purpurea</i> ; Linn. (Leguminosæ.)
15,999	Wood of <i>Adenanthera pavonina</i> ; Linn. "Barricari." (Leguminosæ.)	16,019	Bark of <i>Bauhinia variegata</i> ; Linn. "Mountain Ebony." (Leguminosæ.)
16,000	Leaves of <i>Adhatoda vasica</i> ; Nees. "Malabar nut." (Acanthaceæ.)		
16,001	Rind of fruit of <i>Ægle marmelos</i> ; Correa. "Bael." (Rutaceæ.)		
16,002	Pulp of fruit of <i>Ægle marmelos</i> ; "Bael."		

APPENDIX IV—continued.

DONATIONS (SPECIMENS.)

Museum No.	Description.	Museum No.	Description.
16,020	Wood of <i>Berberis aristata</i> ; DC. (Berberideæ)	16,061	Ash of <i>Holarrhena antidysenterica</i> ; Wall. (Apocynaceæ.)
16,021	Root of <i>Berberis aristata</i> ; DC. (Berberideæ.)	16,062	Dye of <i>Indigofera tinctoria</i> ; Linn. "Indigo." (Leguminosæ.)
16,022	Seeds of <i>Bixa orellana</i> ; Linn. "Annatto." (Bixineæ.)	16,063	Bark of <i>Lagerstroemia parviflora</i> ; Roxb. (Lythraceæ.)
16,023	Gum of <i>Bombax malabaricum</i> ; DC. "Silk-cotton Tree." (Malvaceæ.)	16,064	Lime. (Stone.)
16,024	Leaves of <i>Briedelia montana</i> ; Willd. (Euphorbiaceæ.)	16,065	Powder of <i>Mallotus philippinensis</i> ; Mull. "Kamala." (Euphorbiaceæ.)
16,025	Bark of <i>Briedelia retusa</i> ; Spreng.	16,066	Bark of <i>Mangifera indica</i> ; Linn. "Mango." (Anacardiaceæ.)
16,026	Flower of <i>Butea frondosa</i> ; Roxb. "Pulas or Dhak." (Leguminosæ.)	16,067	Leaves of <i>Melia azadirachta</i> ; Linn. "Neem or Margosa." (Meliaceæ.)
16,027	Wood of <i>Cæsalpinia sappan</i> ; Linn. "Sappan." (Leguminosæ.)	16,068	Mica or Talc. (Mineral.)
16,028	Ash of <i>Calotropis gigantea</i> ; R. Br. "Mudaror Yereum." (Asclepiadeæ.)	16,069	Bark of <i>Mimusops Elengi</i> ; Linn. (Sapotaceæ.)
16,029	Carbonate of soda. (Mineral.)	16,070	Root of <i>Morinda citrifolia</i> ; Linn. "Indian Mulberry." (Rubiaceæ.)
16,030	Bark of <i>Careya arborea</i> ; Roxb. (Myrtaceæ.)	16,071	Wood of <i>Morinda citrifolia</i> ; Var. (Bracteata.)
16,031	Flower of <i>Carthamus tinctorius</i> ; Linn. "Safflower." (Compositæ.)	16,072	Bark of <i>Morinda tinctoria</i> ; Roxb.
16,032	Bark of <i>Cassia auriculata</i> ; Linn. "Tanner's Cassia." (Leguminosæ.)	16,073	Bark of <i>Myrica sapida</i> ; Wall. "Box Myrtle." (Myricaceæ.)
16,033	Leather tanned with above, <i>Cassia auriculata</i> ; Linn. "Tanner's Cassia." (Leguminosæ.)	16,074	Black Earth Ochre.
16,034	Bark of <i>Cassia fistula</i> ; Linn. "Purgeng Cassia." (Leguminosæ.)	16,075	Yellow Ochre.
16,035	Bark of <i>Casuarina equisetifolia</i> ; Forst. (Casuarineæ.)	16,076	Multáni Ochre.
16,036	Seeds of <i>Cedrela toona</i> ; Roxb. "Red Cedar." (Meliaceæ.)	16,077	Geru Ochre.
16,037	Flower of <i>Cedrela toona</i> ; Roxb. "Red Cedar." (Meliaceæ.)	16,078	Rámraj Ochre.
16,038	Bark of <i>Ceriops Roxburghiana</i> ; Arnott. (Rhizophoreæ.)	16,079	Hirmji Ochre.
16,039	Bark of <i>Chickrassia tabularis</i> ; Adr. Juss. (Meliaceæ.)	16,080	Khari Ochre.
16,040	Leaves of <i>Cicer arietinum</i> ; Linn. "Check Pea." (Leguminosæ.)	16,081	Bark of <i>Odina Wodier</i> ; Roxb. (Anacardiaceæ.)
16,041	Cochineal of <i>Coccus cacti</i> ; Linn. (Hemiptera.)	16,082	Bark of <i>Oroxylum indicum</i> ; Benth. (Bignoniaceæ.)
16,042	Stick-lac of <i>Coccus lacca</i> .	16,083	Fruit of <i>Oroxylum indicum</i> ; Benth. (Bignoniaceæ.)
16,043	Shell-lac of <i>Coccus lacca</i> .	16,084	Hartál (Orpiment.)
16,044	Button-lac of <i>Coccus lacca</i> .	16,085	Seeds of <i>Peganum harmala</i> ; Linn. (Rutaceæ.)
16,045	Lac-dye of <i>Coccus lacca</i> .	16,086	Fruit of <i>Phyllanthus emblica</i> ; Linn. "Embbi Myrobalans." (Euphorbiaceæ.)
16,046	Dye of Copper sulphate.	16,087	Leaves of <i>Phyllanthus emblica</i> ; Linn. "Embbi Myrobalans." (Euphorbiaceæ.)
16,047	Leaves of <i>Cordia Myxa</i> ; Linn. "Sebesten Plum." (Boragineæ.)	16,088	Bark of <i>Phyllanthus lanceolaria</i> (?).
16,048	Rhizomes of <i>Curcuma aromatica</i> ; Salisb. "Zedoary." (Scitamineæ.)	16,089	Bark of <i>Pinus longifolia</i> ; Roxb. "Long-leaved Pine." (Coniferae.)
16,049	Rhizomes of <i>Curcuma longa</i> ; Roxb. "Turmeric."	16,090	Charcoal of <i>Pinus longifolia</i> ; Roxb. (Coniferae.)
16,050	Plant of <i>Cuscuta reflexa</i> ; Roxb. (Convolvulaceæ.)	16,091	Twigs of <i>Piper chaba</i> ; Bl. (Piperaceæ.)
16,051	Rhizomes of <i>Cyperus pertenuis</i> ; Roxb. (Cyperaceæ.)	16,092	Galls of <i>Pistacia integerrima</i> ; J. L. Stewart. (Anacardiaceæ.)
16,052	Bark of <i>Diospyros embryopteris</i> ; Pers. "Gab Fruit." (Ebenaceæ.)	16,093	Bark of <i>Prosopis pubescens</i> ; Benth. (Leguminosæ.)
16,053	Fruit of <i>Diospyros embryopteris</i> ; Pers. "Gab Fruit." (Ebenaceæ.)	16,094	Dye of Proto-sulphate of iron.
16,054	Bark of <i>Erythrina indica</i> ; Lam. (Leguminosæ.)	16,095	Bark of <i>Psidium guyava</i> ; Raddi. "Guava." (Myrtaceæ.)
16,055	Bark of <i>Eugenia jambolana</i> ; Lam. "Rose Apple." (Myrtaceæ.)	16,096	Fruit of <i>Psidium Guyava</i> ; Raddi. "Guava."
16,056	Bark of <i>Ficus religiosa</i> ; Linn. "Sacred Fig." (Urticaceæ.)	16,097	Leaves of <i>Psidium Guyava</i> ; Raddi. "Guava."
16,057	Bark of <i>Garuga pinnata</i> ; Roxb. (Burseraceæ.)	16,098	Bark of <i>Pterocarpus marsupium</i> ; Roxb. "Kino." (Leguminosæ.)
16,058	Ash of <i>Gmelina arborea</i> ; Roxb. (Verbenaceæ.)	16,099	Chips of <i>Pterocarpus santalinus</i> ; Linn f. "Red Sanders."
16,059	Heart-wood of <i>Hæmatoxylon campechianum</i> ; Linn. "Logwood." (Leguminosæ.)	16,100	Wood of <i>Pterocarpus santalinus</i> ; Linn f. "Red Sanders."
16,060	Flower of <i>Hibiscus rosa-sinensis</i> ; Linn. (Malvaceæ.)	16,101	Flower of <i>Punica granatum</i> ; Linn. "Pomegranate." (Lythraceæ.)
		16,102	Rind of fruit of <i>Punica granatum</i> ; Linn. "Pomegranate." (Lythraceæ.)
		16,103	Bark of <i>Punica granatum</i> ; Linn. "Pomegranate." (Lythraceæ.)
		16,104	Galls of <i>Quercus infectoria</i> ; Oliver. (Cupuliferae.)
		16,105	Bark of <i>Quercus pachyphylla</i> ; Kurz.

APPENDIX IV—continued.

DONATIONS (SPECIMENS.)

Museum No.	Description.	Museum No.	Description.
16,106	Fruit of <i>Randia dumetorum</i> ; Lam. "Bush <i>Randia</i> ." (Rubiaceæ.)	16,137	Bark of <i>Symplocos racemosa</i> ; Roxb. "Lodh Bark"
16,107	Bark of <i>Randia dumetorum</i> ; Lam. "Bush <i>Randia</i> ." (Rubiaceæ.)	16,138	Ash of <i>Symplocos racemosa</i> .
16,108	Root of <i>Rheum Emodi</i> ; Wall. (Polygonaceæ.)	16,139	Flower of <i>Tagetes patula</i> ; Linn. (Compositæ.)
16,109	Bark of <i>Rhizophora mucronata</i> ; Lamb. (Rhizophoreæ.)	16,140	Fruit of <i>Tamarindus indica</i> ; Linn. "Tamarind." (Leguminosæ.)
16,110	Leaves of <i>Rhus acuminata</i> ; DC. (Anacardiaceæ.)	16,141	Galls of <i>Tamarix articulata</i> ; Vahl. (Tamariscinæ.)
16,111	Leaves of <i>Rhus semi-alata</i> ; Murray. "Wax-tree."	16,142	Bark of <i>Taxus baccata</i> ; Linn. "Yew." (Coniferæ.)
16,112	Leaves of <i>Rhus Cotinus</i> ; Linn. "Sumach."	16,143	Leaves of <i>Tectona grandis</i> ; Linn. "Teak." (Verbenaceæ.)
16,113	Bark of <i>Rhus Cotinus</i> ; Linn.	16,144	Fruit of <i>Terminalia arjuna</i> ; Beddome. (Combretaceæ.)
16,114	Wood of <i>Rhus Cotinus</i> ; Linn.	16,145	Bark of <i>Terminalia arjuna</i> .
16,115	Bark of <i>Rhus mysorensis</i> ; Heyne. (Anacardiaceæ.)	16,146	Fruit of <i>Terminalia belerica</i> ; Roxb. "Belleric Myrobalans."
16,116	Galls of <i>Rhus succedanea</i> ; Linn.	16,147	Bark of <i>Terminalia belerica</i> . "Belleric
16,117	Seeds of <i>Ricinus communis</i> ; Linn. "Castor Oil." (Euphorbiaceæ.)	16,148	Leaves of <i>Terminalia belerica</i> . "Belleric Myrobalans."
16,118	Root of <i>Rubia cordifolia</i> ; Linn. "Madder." (Rubiaceæ.)	16,149	Bark of <i>Terminalia catappa</i> ; Linn. "Almond Tree."
16,119	Root of <i>Rubia cordifolia</i> ; Var.	16,150	Leaves of <i>Terminalia catappa</i> ; Linn. "Almond Tree."
16,120	Root of <i>Rubia sikkimensis</i> ; Kurs. "Sikkim Madder." (Rubiaceæ.)	16,151	Fruit of <i>Terminalia chebula</i> ; Retz. "Chebulic Myrobalans." (Combretaceæ.)
16,121	Root of <i>Rubia tinctorium</i> ; Linn.	16,152	Galls of <i>Terminalia chebula</i> . "Chebulic Myrobalans."
16,122	Nishadal of <i>Sal-ammoniac</i> .	16,153	Bark of <i>Terminalia chebula</i> . "Chebulic Myrobalans."
16,123	Bark of <i>Salix tetrasperma</i> ; Roxb. (Salicinæ.)	16,154	Fruit of <i>Terminalia citrina</i> ; Roxb.
16,124	Common Saltpetre.	16,155	Bark of <i>Terminalia paniculata</i> ; W. & A.
16,125	Refined Saltpetre.	16,156	Bark of <i>Terminalia tomentosa</i> ; W. & A.
16,126	Fruit of <i>Sapindus attenuatus</i> ; Wall. (Sapindaceæ.)	16,157	Flower of <i>Thespesia populnea</i> ; Corr. "Bhendi." (Malvaceæ.)
16,127	Fruit of <i>Sapindus mukorossi</i> ; Gärtn. (Sapindaceæ.)	16,158	Gambier of <i>Uncaria gambier</i> ; Hunter. (Rubiaceæ.)
16,128	Fruit of <i>Sapindus trifoliatus</i> ; Linn.	16,159	Root-bark of <i>Ventilago madraspatana</i> ; Gärtn. "Pupli." (Rhamneæ.)
16,129	Fruit of <i>Semecarpus anacardium</i> ; Linn. f. "Marking Nuts." (Anacardiaceæ.)	16,160	Flower of <i>Woodfordia floribunda</i> ; Salisb. (Lythraceæ.)
16,130	Bark of <i>Shorea robusta</i> ; Gaertn. "Sal." (Dipterocarpeæ.)	16,161	Leaves of <i>Woodfordia floribunda</i> ;
16,131	Ash of <i>Shorea robusta</i> ; "Sal."	16,162	Seeds of <i>Wrightia tinctoria</i> ; R. Br. (Apocynaceæ.) Sent under this name, but probably seeds of <i>Holarrhena</i> and <i>antidysenterica</i> .
16,132	Soda (Sajji)		
16,133	Soda, carbonate. (Mineral.)		
16,134	Bark of <i>Soymida febrifuga</i> ; ADr. Juss. (Meliaceæ.)		
16,135	Leaves of <i>Strobilanthes flaccidifolius</i> ; Nees. (Acanthaceæ.)		
16,136	Bark of <i>Symplocos cratægoides</i> ; Ham. (Styraceæ.)		
	<i>Fibres.</i>		
16,163	Fibre of <i>Abroma angusta</i> ; Linn. (Sterculiaceæ.)	16,176	Fibre of <i>Bambusa tulda</i> ; Roxb. (Gramineæ.)
16,164	Fibre of <i>Abutilon indicum</i> ; G. Don. "Country Mallow." (Malvaceæ.)	16,177	Fibre of <i>Barringtonia racemosa</i> ; Gärtn. (Myrtaceæ.)
16,165	Fibre of <i>Acacia arabica</i> ; Wild. "Gum-arabic." (Leguminosæ.)	16,178	Fibre of <i>Bauhinia anguina</i> ; Roxb. (Leguminosæ.)
16,166	Fibre of <i>Acacia leucophlœa</i> ; Willd. "Panicked <i>Acacia</i> ."	16,179	Fibre of <i>Bauhinia macrostachya</i> ; Wall.
16,167	Sola of <i>Æschynomene aspera</i> ; Linn. (Leguminosæ.)	16,180	Fibre of <i>Bauhinia racemosa</i> ; Lam.
16,168	Fibre of <i>Agave americana</i> ; Linn. "American Aloe." (Amaryllidæ.)	16,181	Fibre of <i>Bauhinia retusa</i> ; Ham.
16,169	Fibre, clean, of <i>Agave americana</i> ; Linn. "American Aloe."	16,182	Rope of <i>Bauhinia Vahlia</i> ; W. & A. "Maloo."
16,170	Fibre of <i>Agave vivipara</i> ; L. (Amaryllidæ.)	16,183	Fibre of <i>Bauhinia Vahlia</i> ; W. & A. "Maloo."
16,171	Fibre of <i>Aloe vulgaris</i> . Sent under this name from Madras; doubtful.	16,184	Fibre of <i>Beaumontia grandiflora</i> ; Wall. (Apocynaceæ.)
16,172	Fibre of <i>Ananassa sativa</i> ; Linn. "Pine-apple." (Bromeliaceæ.)	16,185	Fibre of <i>Bixa Orellana</i> ; Linn. "Annatto." (Bixineæ.)
16,173	Fibre of <i>Anona reticulata</i> ; Linn. "Cherimoyer." (Anonaceæ.)	16,186	Fibre of <i>Bœhmeria malabarica</i> ; Wedd. (Urticaceæ.)
16,174	Fibre of <i>Anona squamosa</i> ; Linn. "Sweet sop."	16,187	Fibre of <i>Bœhmeria nivea</i> ; H. & A. "Rhea." (Urticaceæ.)
16,175	Bark of <i>Aquilaria Agallocha</i> ; Roxb. "Lign aloes or eagle wood." (Thymelæaceæ.)	16,188	Fibre of <i>Bombax malabaricum</i> ; DC. "Silk-cotton tree." (Malvaceæ.)
		16,189	Cotton of <i>Bombax malabaricum</i> . "Silk-cotton tree."
		16,190	Cotton (variety) of <i>Bombax malabaricum</i> . "Silk-cotton tree."

APPENDIX IV—continued.

DONATIONS (SPECIMENS).

Museum No.	Description.	Museum No.	Description.
16,191	Floss of <i>Borassus flabelliformis</i> ; Linn. "Palmyra" (Palmae.)	16,239	Aerial root of <i>Fourcroya gigantea</i> . "Gigantic aloe" (Amaryllidaceae.)
16,192	Fibre of <i>Borassus flabelliformis</i> .	16,240	Aerial root of <i>Girardinia heterophylla</i> ; "Decaisne." (Urticaceae.)
16,193	Fibre of <i>Butea frondosa</i> ; Roxb. "Pulas or Dhak." (Leguminosae.)	16,241	Aerial root of <i>Godra calenis</i> (?)
16,194	Cane of <i>Calamus gracilis</i> ; Roxb. (Palmae.)	16,242	Cotton of <i>Gossypium arboreum</i> ; L. (Malvaceae)
16,195	Cane of <i>Calamus Rotang</i> ; Linn.	16,243	Nankin cotton of <i>Gossypium barba-</i> <i>dense</i> , var <i>religiosum</i> ; Linn.
16,196	Cane of <i>Calamus tenuis</i> ; Roxb.	16,244	Cotton of <i>Gossypium</i> , sp.
16,197	Fibre of <i>Calotropis gigantea</i> ; R. Br. "Mudar or Yercum." (Asclepi- adaceae.)	16,245	Uplands cotton of <i>Gossypium</i> , sp.
16,198	Fibre (variety) of <i>Calotropis gigantea</i> .	16,246	Sea Island cotton of <i>Gossypium</i> , sp.
16,199	Rope of <i>Calotropis procera</i> ; R. Br. (Asclepiadaceae.)	16,247	Cotton (variety) of <i>Gossypium</i> , sp.; Linn.
16,200	Fibre of <i>Cannabis sativa</i> ; Linn. "Hemp." (Urticaceae.)	16,248	Cotton (variety) of <i>Gossypium</i> , sp.
16,201	Fibre (variety) of <i>Cannabis sativa</i> . "Hemp."	16,249	Cotton (variety) of <i>Gossypium</i> , sp.
16,202	Fibre (variety) of <i>Cannabis sativa</i> . "Hemp."	16,250	Cotton (variety) of <i>Gossypium</i> , sp.
16,203	Fibre of <i>Careya arborea</i> ; Roxb. (Myrtaceae.)	16,251	Cotton (variety) of <i>Gossypium</i> , sp.
16,204	Fibre of <i>Caryota urens</i> ; Linn. "Kitool." (Palmae.)	16,252	Cotton (variety) of <i>Gossypium</i> , sp.
16,205	Rope of <i>Chamærops Ritchieana</i> ; Griff. (Palmae.)	16,253	Cotton of <i>Gossypium herbaceum</i> ; sp.
16,206	Leaves of <i>Cocos nucifera</i> ; Linn. "Coco- nut." (Palmae.)	16,254	Cotton (variety) of <i>Gossypium her-</i> <i>baceum</i> .
16,207	Fibre of <i>Cocos nucifera</i> . "Coco-nut."	16,255	Cotton (variety) of <i>Gossypium her-</i> <i>baceum</i> .
16,208	Fibre of <i>Corchorus olitorius</i> ; Linn. "Jute." (Tiliaceae.)	16,256	Fibre of <i>Grewia abutifolia</i> ; Juss. (Tiliaceae.)
16,209	Fibre of <i>Cordia Myxa</i> ; Linn. "Sebesten plum." (Boraginaceae.)	16,257	Fibre of <i>Grewia asiatica</i> ; Linn.
16,210	Bark of <i>Cordia Myxa</i> . "Sebesten plum."	16,258	Fibre of <i>Grewia elastica</i> ; Royle.
16,211	Rope of <i>Cordia Myxa</i> . "Sebesten plum."	16,259	Fibre of <i>Grewia laevigata</i> ; Vahl.
16,212	Leaves of <i>Corypha umbraculifera</i> ; Linn. (Palmae.)	16,260	Fibre of <i>Grewia oppositifolia</i> ; Roxb.
16,379	<i>Crotalaria juncea</i> ; Linn. (Leguminosae.)	16,261	Fibre of <i>Guazuma tomentosa</i> ; Kunth. "Bastard cedar fruits." (Sterculi- aceae.)
16,213	Rope of <i>Crotalaria Burhia</i> ; Hamilt. (Leguminosae.)	16,262	Fibre of <i>Helicteres Isora</i> ; Linn. (Ster- culiaceae.)
16,214	Fibre of <i>Cyperus Iria</i> ; L. (Cyperaceae.)	16,263	Fibre (variety) of <i>Helicteres Isora</i> .
16,215	Fibre of <i>Daphne longifolia</i> ; Meissn. (Thymelaeaceae.)	16,264	Fibre (variety) of <i>Helicteres Isora</i> .
16,216	Fibre of <i>Daphne Wallichii</i> ; Meissn.	16,265	Fibre of <i>Hibiscus Abelmoschus</i> ; Linn. (Malvaceae.)
16,217	Fibre of <i>Dendrocalamus strictus</i> ; Nees. (Gramineae.)	16,266	Fibre of <i>Hibiscus esculentus</i> ; Linn. "Okro."
16,218	Fibre of <i>Edgeworthia Gardneri</i> ; Meissn. (Thymelaeaceae.)	16,267	Fibre of <i>Hibiscus cannabinus</i> ; Linn. "Brown hemp."
16,219	Fibre of <i>Entada scandens</i> ; Bth. (Leguminosae.)	16,268	Fibre (variety) of <i>Hibiscus cannabinus</i> . "Brown hemp."
16,220	Cotton of <i>Eriodendron anfractuosum</i> ; DC. (Malvaceae.)	16,269	Fibre (variety) of <i>Hibiscus cannabinus</i> . "Brown hemp."
16,221	Fibre of <i>Eriodendron anfractuosum</i> .	16,270	Fibre of <i>Hibiscus ficulneus</i> ; Linn.
16,222	Fibre of <i>Eriolæna Candollei</i> ; Wall. (Sterculiaceae.)	16,271	Fibre of <i>Hibiscus macrophyllus</i> ; Roxb.
16,223	Fibre of <i>Eriolæna Hookeriana</i> ; W. & A. (Sterculiaceae.)	16,272	Fibre of <i>Hibiscus mutabilis</i> ; Linn.
16,224	Grass of <i>Eriophorum comosum</i> ; Wall. (Cyperaceae.)	16,273	Fibre of <i>Hibiscus Sabdariffa</i> ; Linn. "Roselle hemp."
16,225	Rope of <i>Eriophorum comosum</i> .	16,274	Fibre of <i>Hibiscus tiliaceus</i> ; Linn.
16,226	Fibre of <i>Erythrina indica</i> ; Lam. (Leguminosae.)	16,275	Rope of <i>Hibiscus tiliaceus</i> .
16,227	Fibre of <i>Excæcaria agallocha</i> ; Willd. (Euphorbiaceae.)	16,276	Rope of <i>Holarrhena antidysenterica</i> ; Wall. (Apocynaceae.)
16,228	Bark of <i>Excæcaria agallocha</i> .	16,277	Fibre of <i>Kynia calycina</i> ; Roxb. (Mal- vaceae.)
16,229	Fibre of <i>Ficus bengalensis</i> ; Linn. (Urticaceae.)	16,278	Rope of <i>Kydia calycina</i> .
16,230	Fibre (variety) of <i>Ficus bengalensis</i> .	16,279	Fibre (clean) of <i>Kydia calycina</i> .
16,231	Fibre of <i>Ficus cordifolia</i> ; Roxb.	16,280	Rope of <i>Lagerstrœmia parviflora</i> ; Roxb. (Lythraceae.)
16,232	Rope of <i>Ficus cordifolia</i> .	16,281	Fibre of <i>Laportea crenulata</i> ; Gandich. (Urticaceae.)
16,233	Rope of <i>Ficus cordifolia</i> (variety).	16,282	Fibre of <i>Lasiosiphon eriocephalus</i> ; Dene.
16,234	Fibre of <i>Ficus Cunia</i> ; Buch.	16,283	Leaves of <i>Licuala peltata</i> ; Roxb. (Palmae.)
16,235	Aerial root of <i>Ficus religiosa</i> ; Roxb.	16,284	Fibre of <i>Linum usitatissimum</i> ; Linn. "Flax." (Lineae.)
16,236	Aerial root of <i>Ficus religiosa</i> ; Linn.	16,285	Fibre of <i>Malachra capitata</i> ; L. (Mal- vaceae.)
16,237	Aerial root of <i>Ficus Roxburghii</i> ; Wall.	16,286	Fibre (variety) of <i>Malachra capitata</i> .
16,238	Aerial root of <i>Ficus Tsiela</i> ; Roxb.	16,287	Culm of <i>Maranta dichotoma</i> ; Wall. (Scitamineae.)
		16,288	Fibre of <i>Marsdenia Roylei</i> ; Wight. (Asclepiadaceae.)
		16,289	Fibre of <i>Melia Azadirachta</i> ; Linn. "Neem or Margosa." (Meliaceae.)

APPENDIX IV—continued.

DONATIONS (SPECIMENS).

Museum No.	Description.	Museum No.	Description.
16,290	Rope of <i>Melia Azadirachta</i> . "Neem or Margosa."	16,332	Fibre of <i>Sansevieria zeylanica</i> ; Willd. (variety). "Bowstring hemp." (Hæmodoraceæ.)
16,291	Fibre of <i>Melia Azadirach</i> ; Linn.	16,333	Fibre of <i>Sansevieria zeylanica</i> ; Willd. (variety). "Bowstring hemp." (Hæmodoraceæ.)
16,292	Bark of <i>Melodinus monogynus</i> ; Roxb. (Apocynaceæ.)	16,334	Fibre of <i>Sesbania grandiflora</i> ; Pers. (variety). (Leguminosæ.)
16,293	Fibre of <i>Melodinus monogynus</i> .	16,335	Fibre of <i>Sida rhombifolia</i> ; Linn. (variety). "A hemp" (Malvaceæ.)
16,294	Fibre of <i>Mimosa</i> , sp.; Linn. (Leguminosæ.)	16,336	Fibre of <i>Sida</i> , sp.; Linn. (variety). (Malvaceæ.)
16,295	Fibre of <i>Morinda tinctoria</i> ; Roxb. (Rubiaceæ.)	16,337	Silk, cocoons (mulberry).
16,296	Fibre of <i>Morinda tinctoria</i> , forma <i>exserta</i> ; Roxb.	16,338	Silk, cocoons (mulberry, variety).
16,297	Fibre of <i>Moringa pterygosperma</i> ; Gärtn. "Horse-radish tree." (Moringeæ.)	16,339	Silk, cocoons (Eria).
16,298	Fibre of <i>Musa paradisiaca</i> ; Linn. "Plantain." (Scitamineæ.)	16,340	Silk, cocoons (Eria, variety).
16,299	Fibre of <i>Musa paradisiaca</i> . "Plantain" (variety).	16,341	Silk, cocoons (Eria, variety).
16,300	Fibre of <i>Musa paradisiaca</i> . "Plantain" (variety).	16,342	Silk, cocoons (tasar).
16,301	Fibre of <i>Musa sapientum</i> ; Linn. "Banana."	16,343	Silk, cocoons (tasar, variety).
16,302	Fibre of <i>Musa sapientum</i> . "Banana" (variety).	16,344	Silk, cocoons (tasar, variety).
16,303	Variety of <i>Musa textilis</i> ; Louis. Nees.	16,345	Silk, cocoons (muga).
16,304	Rope of <i>Musa textilis</i> .	16,346	Silk, raw (mulberry).
16,305	Fibre of <i>Musa textilis</i> (variety).	16,347	Silk, raw (mulberry, chashm).
16,306	Stalks of <i>Nelumbium speciosum</i> ; Willd. "Egyptian bean." (Nymphaeaceæ.)	16,348	Silk, raw (mulberry, variety).
16,307	Fibre of <i>Odina Wodier</i> ; Roxb. (Anacardiaceæ.)	16,349	Silk, raw (mulberry, variety).
16,308	Fibre of <i>Odina Wodier</i> (variety).	16,350	Silk, raw (Eria).
16,309	Straw of <i>Oryza sativa</i> ; Linn. "Rice." (Gramineæ.)	16,351	Silk, raw (Eria, variety).
16,310	Leaves of <i>Pandanus odoratissimus</i> ; Willd. "Screw pine." (Pandaneæ.)	16,352	Silk, raw (Eria, variety).
16,311	Fibre of <i>Pavonia zeylanica</i> ; Cav. (Malvaceæ.)	16,353	Silk, raw (tasar).
16,312	Leaves of <i>Phoenix acaulis</i> ; Linn. (Palmæ.)	16,354	Silk, raw (tasar, variety).
16,313	Leaves of <i>Phoenix sylvestris</i> ; Roxb. "Wild date."	16,355	Silk, raw (muga).
16,314	Fibre of <i>Pæderia foetida</i> ; Linn. (Rubiaceæ.)	16,356	Silk, raw (muga, variety).
16,315	Grass of <i>Pollinia eriopoda</i> ; Trim. (Gramineæ.)	16,357	Fibre of <i>Sponia orientalis</i> ; Planch. (Urticaceæ.)
16,316	Fibre of <i>Polyalthia longifolia</i> ; Bth. & Hook f. (Anonaceæ.)	16,358	Fibre of <i>Sterculia guttata</i> ; W. & A. (Sterculiaceæ.)
16,317	Fibre of <i>Prosopis pubescens</i> ; Benth. (Leguminosæ.)	16,359	Fibre of <i>Sterculia urens</i> ; Roxb. (Sterculiaceæ.)
16,318	Fibre of <i>Pueraria tuberosa</i> ; DC. (Leguminosæ.)	16,360	Fibre of <i>Sterculia villosa</i> ; Roxb. (Sterculiaceæ.)
16,319	Stem of <i>Rubia cordifolia</i> ; Linn. (Rubiaceæ.)	16,361	Fibre of <i>Sterculia versicolor</i> ; Wall. (Sterculiaceæ.)
16,320	Stem (variety) of <i>Rubia cordifolia</i> .	16,362	Bark of <i>Stereospermum chelonoides</i> ; DC. (Bignoniaceæ.)
16,321	Reeds of <i>Saccharum Mara</i> (Sara); Roxb. (Gramineæ.)	16,363	Bark of <i>Strobilanthus</i> , sp.; Nees. (Acanthaceæ.)
16,322	Leaves of <i>Saccharum Munja</i> ; Roxb.	16,364	Fibre of <i>Thamnocalamus spathiflorus</i> ; Munro. (Gramineæ.)
16,323	Rope of <i>Saccharum Munja</i> .	16,365	Fibre of <i>Thespesia Lampas</i> ; Dals. (Malvaceæ.)
16,324	Fibre of <i>Saccharum Munja</i> .	16,366	Fibre of (variety) <i>Thespesia Lampas</i> ; Dals. (Malvaceæ.)
16,325	Fibre of <i>Saccharum Munja</i> (variety).	16,367	Fibre of <i>Thespesia populnea</i> ; Corr. "Bhendi" (Malvaceæ.)
16,326	Culms of <i>Saccharum Munja</i> .	16,368	Bark of <i>Thespesia populnea</i> ; Corr. "Bhendi." (Malvaceæ.)
16,327	Flower tops of <i>Saccharum Munja</i> .	16,369	Fibre of <i>Urena lobata</i> ; Linn. (Malvaceæ.)
16,328	Pressed cane of <i>Saccharum officinarum</i> ; Linn. "Sugarcane."	16,370	Fibre of <i>Urena sinuata</i> ; Linn. (Malvaceæ.)
16,329	Twigs of <i>Salix tetrasperma</i> ; Roxb. (Salicaceæ.)	16,371	Fibre of <i>Urtica (Girardinia) heterophylla</i> ; Roxb. "Nilgiri Nettle." (Urticaceæ.)
16,330	Fibre of <i>Sansevieria zeylanica</i> ; Willd. "Bowstring hemp." (Hæmodoraceæ.)	16,372	Fibre of <i>Urtica tenacissima</i> (Boehmeria?); Roxb. (Urticaceæ.)
16,331	Fibre of <i>Sansevieria zeylanica</i> ; Willd. (variety). "Bowstring hemp." (Hæmodoraceæ.)	16,373	Fibre of <i>Ventilago calyculata</i> ; Tuls. (Rhamneæ.)
		16,374	Rope of <i>Ventilago calyculata</i> ; Tuls. (Rhamneæ.)
		16,375	Fibre of <i>Ventilago madraspatana</i> ; Gärtn.
		16,376	Fibre (variety) of <i>Ventilago madraspatana</i> ; Gärtn.
		16,377	Fibre of <i>Vitis adnata</i> (?)
		16,378	Stalks of <i>Zea Mays</i> ; Linn. "Maize." (Gramineæ.)

Oils, &c.

15,839	Root of <i>Acorus Calamus</i> ; Linn. "Sweet Flag." (Aroideæ.)	15,840	Bulb of <i>Allium Cepa</i> ; Linn. "Onion." (Liliaceæ.)
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APPENDIX IV—continued.

DONATIONS (SPECIMENS).

Museum No.	Description.	Museum No.	Description.
15,841	Bulb of <i>Allium sativum</i> ; Linn. "Garlic."	15,883	Seeds of <i>Eruca sativa</i> ; Lam. (Cruciferae.)
15,842	<i>Amomum subulatum</i> ; Roxb. "Bengal cardamoms." (Scitamineae.)	15,884	Seeds of <i>Foeniculum vulgare</i> ; Gært. "Fennel." (Umbelliferae.)
15,843	Seeds of <i>Amoora Rohituka</i> ; W. & A. (Meliaceae.)	15,885	Seeds of <i>Gossypium herbaceum</i> ; Linn. "Cotton." (Malvaceae.)
15,844	<i>Anacardium occidentale</i> ; Linn. "Cashew Nuts." (Anacardiaceae.)	15,886	Seeds of <i>Guizotia abyssynica</i> ; Cass. "Ranil." (Compositae.)
15,845	<i>Andropogon citratus</i> ; DC. "Lemon grass." (Gramineae.)	15,887	Seeds of <i>Gynocardia odorata</i> ; R. Br. "Chaulmoogra." (Bixineae.)
15,846	Root of <i>Andropogon muricatum</i> ; Beauv. "Khus Khus grass."	15,888	Fruit of <i>Illicium anisatum</i> ; Linn. "Star anise." (Magnoliaceae.)
15,847	Wood of <i>Aquilaria Agallocha</i> ; Roxb. "Lign Aloes or Eagle Wood." (Thymelaeaceae.)	15,889	Root of <i>Iris florentina</i> ; Linn. "Oris." (Iridaceae.)
15,848	Nut of <i>Arachis hypogea</i> ; Linn. "Ground or Pea Nuts." (Leguminosae.)	15,890	Seeds of <i>Jatropha Curcas</i> ; Linn. "Purging nut." (Euphorbiaceae.)
15,849	Seeds of <i>Argemone mexicana</i> ; Linn. "Mexican poppy." (Papaveraceae.)	15,891	Seeds of <i>Lactuca scariola</i> ; Linn. (Compositae.)
15,850	Plant of <i>Artemisia vulgaris</i> ; Linn. "Indian Wormwood." (Compositae.)	15,892	Seeds of <i>Lagenaria vulgaris</i> ; Seringe. "Bottle Gourd." (Cucurbitaceae.)
15,851	Seeds of <i>Bassia latifolia</i> ; Roxb. "Mahwa." (Sapotaceae.)	15,893	Seeds of <i>Lepidium sativum</i> ; Linn. "Cress." (Cruciferae.)
15,852	Seeds of <i>Bassia longifolia</i> ; Willd.	15,894	<i>Linum usitatissimum</i> ; Linn. "Linseed." (Lineae.)
15,853	Seeds of <i>Benincasa cerifera</i> ; Savi. (Cucurbitaceae.)	15,895	<i>Linum usitatissimum</i> . "Linseed."
15,854	Seeds of <i>Bombax malabaricum</i> ; DC. "Silk-cotton tree." (Malvaceae.)	15,896	Seeds of <i>Melia Azadirachta</i> ; Linn. "Neem or Margosa." (Meliaceae.)
15,855	<i>Brassica alba</i> ; H.F. & T.T. "Mustard seed." (Cruciferae.)	15,897	Plant of <i>Mentha piperita</i> ; Sm. "Peppermint." (Labiatae.)
15,856	Seeds of <i>Brassica campestris</i> ; Linn.	15,898	Plant of <i>Mentha sativa</i> ; Linn. "Mint."
15,857	Seeds of <i>Brassica juncea</i> ; H.F. & T.T.	15,899	Plant of <i>Mentha viridis</i> ; Linn. "Spearmint." (Labiatae.)
15,858	<i>Brassica nigra</i> ; Koch. "Mustard seed."	15,900	Seeds of <i>Moringa pterygosperma</i> ; Gært. "Horse-radish tree."
15,859	Seeds of <i>Buchanania latifolia</i> ; Roxb. (Anacardiaceae.)	15,901	Leaves of <i>Murraya Konigii</i> ; Spr. (Rutaceae.)
15,860	Seeds of <i>Butea frondosa</i> ; Roxb. "Pulas or Dhak." (Leguminosae.)	15,902	Leaves of <i>Myrtus communis</i> ; Linn. "Myrtle." (Myrtaceae.)
15,861	Seeds of <i>Caesalpinia Bonducella</i> ; Roxb. "Nicker nuts." (Leguminosae.)	15,903	Fruit of <i>Myrtus communis</i> .
15,862	Seeds of <i>Calophyllum inophyllum</i> ; Linn. "Mdilo." (Guttiferae.)	15,904	Root of <i>Nardostachys Jatamansi</i> ; DC. "Spikenard." (Valerianaceae.)
15,863	Camphor.	15,905	Seeds of <i>Nigella sativa</i> ; Linn. "Black cumin." (Ranunculaceae.)
15,864	Seeds of <i>Carthamus tinctorius</i> ; Linn. "Safflower." (Compositae.)	15,906	Seeds of <i>Papaver somniferum</i> ; Linn. "Opium poppy." (Papaveraceae.)
15,865	Seeds of <i>Carum Carni</i> ; Linn. "Caraway." (Umbelliferae.)	15,907	Seeds (variety) of <i>Papaver somniferum</i> . "Opium poppy."
15,866	Seeds of <i>Carum copticum</i> ; Benth.	15,908	Plant of <i>Parmelia perlata</i> ; Ach. (Lichenes.)
15,867	Seeds of <i>Carum Roxburghianum</i> ; Benth.	15,909	Seeds of <i>Peganum Harmala</i> ; Linn. (Rutaceae.)
15,868	<i>Caryophyllus aromaticus</i> ; Linn. "Cloves." (Myrtaceae.)	15,910	Seeds of <i>Pimpinella Anisum</i> ; Linn. "Aniseed." (Umbelliferae.)
15,869	Wood of <i>Cedrus Deodara</i> ; Loudon. "Deodar." (Coniferae.)	15,911	Seeds of <i>Pinus Gerardiana</i> ; Wall. (Coniferae.)
15,870	Seeds of <i>Celastrus paniculatus</i> ; Willd. "Staff tree." (Celastrineae.)	15,912	Wood of <i>Pinus longifolia</i> ; Roxb. "Long-leaved pine."
15,871	Bark of <i>Cinnamomum zeylanicum</i> ; Brey. "Cinnamon." (Laurineae.)	15,913	Seeds of <i>Piper nigrum</i> ; Linn. (Piperaceae.)
15,872	Seeds of <i>Citrus medica</i> ; Linn. "Citron." (Rutaceae.)	15,914	Nuts of <i>Pistacia vera</i> ; Linn. "Pistachio." (Anacardiaceae.)
15,873	<i>Citrus medica</i> (rind of fruit).	15,915	Seeds of <i>Pithecolobium dulce</i> ; Bth. (Leguminosae.)
15,874	<i>Citrus medica</i> (rind of fruit, variety).	15,916	Leaves of <i>Pogostemon Patchouly</i> ; Pellet. "Patchouly." (Labiatae.)
15,875	Kernel of <i>Cocos nucifera</i> ; Linn. "Copa." (Palmae.)	15,917	Pods of <i>Pongamia glabra</i> ; Vent. "Indian beech." (Leguminosae.)
15,876	Seeds of <i>Coriandrum sativum</i> ; Linn. "Coriander." (Umbelliferae.)	15,918	Seeds of <i>Pongamia glabra</i> . "Indian beech."
15,877	<i>Croton Tiglium</i> ; Linn. "Croton seed." (Euphorbiaceae.)	15,919	Seeds of <i>Prunus Amygdalus</i> ; Baillon. "Bitter Almonds." (Rosaceae.)
15,878	Seeds of <i>Cucumis Melo</i> ; Linn. "Melon." (Cucurbitaceae.)	15,920	Seeds of <i>Psoralea corylifolia</i> ; Linn. (Leguminosae.)
15,879	Seeds (variety) of <i>Cucumis Melo</i> . "Melon."	15,921	Seeds of <i>Pterocarpus Marsupium</i> ; Roxb. "Kino." (Leguminosae.)
15,880	Seeds of <i>Cuminum Cyminum</i> ; Linn. "Cumin." (Umbelliferae.)	15,922	Seeds of <i>Raphanus sativus</i> ; Linn. (Cruciferae.)
15,881	Root of <i>Cyperus rotundus</i> ; Linn. "Nut grass." (Cyperaceae.)		
15,882	Pods of <i>Dalbergia Sissoo</i> ; Roxb. (Leguminosae.)		

APPENDIX IV—continued.

DONATIONS (SPECIMENS).

Museum No.	Description.	Museum No.	Description.
15,923	Fruits of <i>Rhus semi-alata</i> ; Murray. "Wax tree." (Anacardiaceæ.)	15,935	Seeds of <i>Symplocos cratægoides</i> ; Ham. (Styraceæ.)
15,924	Seeds of <i>Rhus succedanea</i> ; Linn.	15,936	Seeds of <i>Tamarindus indica</i> ; Linn. "Tamarind." (Leguminosæ.)
15,925	<i>Ricinus communis</i> ; Linn. "Castor oil seed." (Euphorbiaceæ.)	15,937	Seeds of <i>Tectona grandis</i> ; Linn. f. (Verbenaceæ.)
15,926	Seeds of <i>Salvadora oleoides</i> ; Linn. (Salvadoraceæ.)	15,938	Wood of <i>Tectona grandis</i> .
15,927	Seeds of <i>Santalum album</i> ; Linn. "Sandalwood." (Santalaceæ.)	15,939	Oil-cake of <i>Terminalia bellerica</i> ; Roxb. "Belleric Myrobalanus." (Combretaceæ.)
15,928	Wood of <i>Santalum album</i> . "Sandal- wood."	15,940	Seeds of <i>Terminalia bellerica</i> . "Belleric Myrobalanus."
15,929	Fruits of <i>Sapindus trifoliatus</i> ; Linn. (Sapindaceæ.)	15,941	Seeds of <i>Thevetia nerifolia</i> ; Linn. (Apocynaceæ.)
15,930	Seeds of <i>Semecarpus Anacardium</i> ; Linn. f. "Marking-ink Nuts." (Anacardiaceæ.)	15,942	Seeds of <i>Trigonella Fœnum-grœcum</i> ; Linn. (Leguminosæ.)
15,931	Seeds of <i>Sesamum indicum</i> ; Linn. "Gingelly." (Pedalineæ.)	15,943	Plant of <i>Viola serpens</i> ; Wall. (Violaceæ.)
15,932	Seeds (variety) of <i>Sesamum indicum</i> .	15,944	Seeds of <i>Vitex trifolia</i> ; Linn. (Verbenaceæ.)
15,933	Seeds of <i>Shorea robusta</i> ; Gært. n. "Sal." (Dipterocarpeæ.)	15,945	Seeds of <i>Wrightia tomentosa</i> ; Röm.
15,934	Seeds of <i>Spinacia oleracea</i> ; Mill. "Spinach." (Chenopodiaceæ.)	15,946	Seeds of <i>Xanthium strumarium</i> ; Linn. (Compositæ.)
<i>Drugs.</i>			
15,347	Root-bark of <i>Abroma augusta</i> ; Linn. (Sterculiaceæ.)	15,380	Flowers of <i>Adhatoda Vasica</i> .
15,348	Seeds (white) of <i>Abrus precatorius</i> ; Linn. "Jequirity." (Leguminosæ.)	15,381	Plant of <i>Adiantum Capillus-veneris</i> ; Linn. (Filices.)
15,349	Seeds (black) of <i>Abrus precatorius</i> ; Linn. "Jequirity." (Leguminosæ.)	15,382	Plant of <i>Adiantum caudatum</i> ; Linn.
15,350	Seeds (red) of <i>Abrus precatorius</i> . "Jequirity."	15,383	Leaves of <i>Ægle Marmelos</i> ; Correa. "Bael." (Rutaceæ)
15,351	Root of <i>Abrus precatorius</i> . "Jequirity."	15,384	Fruit of <i>Ægle Marmelos</i> . "Bael."
15,352	Ash of <i>Abrus precatorius</i> . "Jequirity."	15,385	Root-bark of <i>Ægle Marmelos</i> . "Bael."
15,353	Root of <i>Abutilon indicum</i> ; G. Don. "Country mallow." (Malvaceæ.)	15,386	Root of <i>Ærua lanata</i> ; Juss. (Amarantaceæ.)
15,354	Leaves of <i>Abutilon indicum</i> . "Country mallow."	15,387	Flowering tops of <i>Ærua lanata</i> .
15,355	Fruit of <i>Abutilon indicum</i> . "Country mallow."	15,388	Mushroom of <i>Agaricus campestris</i> , Linn. (Fungi)
15,356	Bark of <i>Acacia arabica</i> ; Willd. "Babul." (Leguminosæ.)	15,389	Root of <i>Agave americana</i> ; Linn. "American Aloe." (Amaryllideæ.)
15,357	Gum of <i>Acacia arabica</i> . "Gum-arabic."	15,390	Leaves of <i>Agave americana</i> . "American Aloe."
15,358	Leaves of <i>Acacia arabica</i> . "Babul."	15,391	Fruit of <i>Aglaia Roxburghiana</i> ; Miq. (Meliaceæ.)
15,359	Seeds of <i>Acacia arabica</i> . "Babul."	15,392	Bark of <i>Ailanthus excelsa</i> ; Roxb. (Simarubæ.)
15,360	Pods of <i>Acacia arabica</i> . "Babul."	15,393	Bark of <i>Ailanthus malabarica</i> ; DC. "Matti-Pawl."
15,361	Catechu (or Cutch) of <i>Acacia catechu</i> .	15,394	Gum of <i>Ailanthus malabarica</i> . "Matti- Pawl."
15,362	Bark of <i>Acacia catechu</i> ; Willd.	15,395	Plant of <i>Ajuga bracteosa</i> ; Wall. (Labiatae.)
15,363	Pods of <i>Acacia concinna</i> ; DC.	15,396	Fruit of <i>Alangium Lamarekii</i> ; Thwaites. (Cornaceæ.)
15,364	Bark of <i>Acacia leucophloea</i> ; Willd.	15,397	Bark of <i>Alangium Lamarekii</i> .
15,365	Plant of <i>Acalypha indica</i> ; Linn. (Euphorbiaceæ.)	15,398	Root-bark of <i>Alangium Lamarekii</i> .
15,366	Seeds of <i>Achyranthes aspera</i> ; Linn. (Amarantaceæ.)	15,399	Seeds of <i>Albizzia Lebbek</i> ; Willd. "Sirissa." (Leguminosæ)
15,367	Leaves of <i>Achyranthes aspera</i> .	15,400	Bark of <i>Albizzia Lebbek</i> .
15,368	Plant of <i>Achyranthes aspera</i> .	15,401	Bark of <i>Albizzia odoratissima</i> ; Benth.
15,369	Ash of <i>Achyranthes aspera</i> .	15,402	Plant of <i>Alhagi maurorum</i> ; Desv. (Leguminosæ.)
15,370	Root of <i>Aconitum ferox</i> ; Wall. "Bikh or Bish." (Ranunculaceæ.)	15,403	Bulbs of <i>Allium Cepa</i> ; Linn. "Onion." (Liliaceæ.)
15,371	Root of <i>Aconitum heterophyllum</i> ; Wall. "Atees."	15,404	Seeds of <i>Allium Cepa</i> .
15,372	Root of <i>Acorus Calamus</i> ; Linn. (Aroideæ.)	15,405	Bulbs of <i>Allium sativum</i> ; Linn. "Garlic."
15,373	Leaves of <i>Adansonia digitata</i> ; Linn. "Baobab or monkey breadfruit." (Malvaceæ)	15,406	Root-stock of <i>Alocasia indica</i> ; Schott. (Aroideæ.)
15,374	Pulp of <i>Adansonia digitata</i> . "Baobab or monkey breadfruit."	15,407	Aloes of <i>Aloe socrotrina</i> ; Lam. (Liliaceæ.)
15,375	Bark of <i>Adansonia digitata</i> . "Baobab or monkey breadfruit."	15,408	Leaves of <i>Aloe vera</i> ; Linn.
15,376	Seeds of <i>Adenanthera pavonina</i> ; Linn. "Barricari." (Leguminosæ.)	15,409	Root-stock of <i>Alpinia Galanga</i> ; Swz. "Galangale." (Scitamineæ.)
15,377	Root of <i>Adhatoda Vasica</i> ; Ness. (Acanthaceæ.)	15,410	Bark of <i>Alstonia scholaris</i> ; R. Br. "Dita or Devil tree." (Apocynaceæ.)
15,378	Leaves of <i>Adhatoda Vasica</i> .		
15,379	Ash of <i>Adhatoda Vasica</i> .		

APPENDIX IV—continued.

DONATIONS (SPECIMENS).

Museum No.	Description.	Museum No.	Description.
15,411	Root of <i>Althæa officinalis</i> ; Linn. (Malvaceæ.)	15,454	Bark of <i>Betula Bhojpattra</i> ; Wall. (Cupuliferæ.)
15,412	Flowers of <i>Althæa officinalis</i> .	15,455	Leaves of <i>Bignonia indica</i> ; Roxb. (Bignoniaceæ.)
15,413	Root of <i>Althæa rosea</i> ; L.	15,456	Gum of <i>Bombax malabaricum</i> ; DC. "Silk-cotton tree." (Malvaceæ.)
15,414	Alum.	15,457	Bark of <i>Bombax malabaricum</i> . "Silk-cotton tree."
15,415	Root of <i>Amarantus spinosus</i> ; Willd. (Amarantaceæ.)	15,458	Root of <i>Bombax malabaricum</i> . "Silk-cotton tree."
15,416	Plant of <i>Amarantus spinosus</i> .	15,459	Mineral of Borax.
15,417	Fruit of <i>Amomum subulatum</i> ; Roxb. "Bengal card amom." (Scitamineæ.)	15,460	Seeds of <i>Brassica campestris</i> ; Linn. (Cruciferae.)
15,418	Bark of <i>Amoora Rohituka</i> ; W. & A. (Meliaceæ.)	15,461	Seeds of <i>Brassica campestris</i> ; Linn, var. (Rapa.)
15,419	Bulbs of <i>Amorphophalluscampulanatus</i> ; Blume. (Aroideæ.)	15,462	Seeds of <i>Brassica nigra</i> ; Koch. "Mustard."
15,420	Nuts of <i>Anacardium occidentale</i> ; Linn. "Cashew." (Anacardiaceæ.)	15,463	Flowers of <i>Brayera anthelmintica</i> ; Kunth. (Rosaceæ.)
15,421	Pericarp of <i>Anacardium occidentale</i> . "Cashew."	15,464	Bark of <i>Briedelia montana</i> ; Willd. (Euphorbiaceæ.)
15,422	Root of <i>Anacyclus Pyrethrum</i> ; DC. (Compositæ.)	15,465	Bark of <i>Briedelia retusa</i> ; Spreng.
15,423	Seeds of <i>Anamirta Cocculus</i> ; W. & A. (Menispermaceæ.)	15,466	Kernels of <i>Buchanania latifolia</i> ; Roxb. (Anacardiaceæ.)
15,424	Leaves of <i>Ananassa sativa</i> ; Linn. (Bromeliaceæ.)	15,467	Seeds of <i>Butea frondosa</i> ; Roxb. "Pulas or dhak." (Leguminosæ.)
15,425	Plant of <i>Andrographis paniculata</i> ; Nees. (Acanthaceæ.)	15,468	Leaves of <i>Butea frondosa</i> . "Pulas or dhak."
15,426	Grass of <i>Andropogon citratus</i> ; DC. (Gramineæ.)	15,469	Dried flowers of <i>Butea frondosa</i> . "Pulas or dhak."
15,427	Root of <i>Andropogon muricatus</i> ; Retz.	15,470	Seeds of <i>Cæsalpinia Bonducella</i> ; Roxb. (Leguminosæ.)
15,428	Grass of <i>Andropogon Schœnanthus</i> ; Linn.	15,471	Wood of <i>Cæsalpinia Sappan</i> ; Linn. "Sappan."
15,429	Leaves of <i>Anisomeles malabarica</i> ; R. Br. (Labiatae.)	15,472	Kernels of <i>Calophyllum inophyllum</i> ; Linn. "Ndilo." (Guttiferæ.)
15,430	Plant of <i>Anisomeles ovata</i> ; R. Br.	15,473	Leaves of <i>Calotropis gigantea</i> ; R. Br. "Mudar or Yercum." (Asclepiadeæ.)
15,431	Mineral of Antimony; black.	15,474	Bark of <i>Calotropis gigantea</i> . "Mudar or Yercum."
15,432	Seeds of <i>Apium graveolens</i> ; Linn. (Umbelliferae.)	15,475	Camphor.
15,433	Wood of <i>Aquilaria Agallocha</i> ; Roxb. "Lign Aloes or Eagle Wood." (Thymelæaceæ.)	15,476	Resin of <i>Canarium strictum</i> ; Roxb. (Burseraceæ.)
15,434	<i>Areca Catechu</i> ; Linn. "Betel nut." (Palmae.)	15,477	Bhang of <i>Cannabis sativa</i> ; Linn. "Hemp." (Urticaceæ.)
15,435	Seeds of <i>Argemone mexicana</i> ; Linn. (Papaveraceæ.)	15,478	Charas of <i>Cannabis sativa</i> . "Hemp."
15,436	Plant of <i>Argemone mexicana</i> .	15,479	Ganja of <i>Cannabis sativa</i> ; Linn. "Hemp." (Urticaceæ.)
15,437	Plant of <i>Aristolochia bracteata</i> ; Rets. (Aristolochiaceæ.)	15,480	Fruit of <i>Capsicum frutescens</i> ; Linn. "Spur pepper." (Solanaceæ.)
15,438	Mineral of Arsenic; white.	15,481	Mineral of Carbonate of Soda.
15,439	Flower-heads of <i>Artemisia maritima</i> ; Linn. (Compositæ.)	15,482	Flowers of <i>Carthamus tinctorius</i> ; Linn. "Safflower." (Compositæ.)
15,440	Plant of <i>Artemisia vulgaris</i> ; Linn. "Indian wormwood."	15,483	Seeds of <i>Carum Carui</i> ; Linn. "Cara- way." (Umbelliferae.)
15,441	Tuber of <i>Asparagus adscendens</i> ; Roxb. (Liliaceæ)	15,484	Seeds of <i>Carum copticum</i> ; Benth.
15,442	Root of <i>Asparagus racemosus</i> ; Willd.	15,485	Seeds of <i>Carum Roxburghianum</i> ; Benth.
15,443	Root of <i>Baliospermum montanum</i> ; Mull.-Arg. (Euphorbiaceæ.)	15,486	<i>Caryophyllus aromaticus</i> ; Linn. "Cloves." (Myrtaceæ.)
15,444	Gum-resin of <i>Balsamodendron Mukul</i> ; Hook. (Burseraceæ.)	15,487	Bark of <i>Cassia auriculata</i> ; Linn. "Tanners' Cassia." (Leguminosæ.)
15,445	Banslochan of <i>Bambusa arundinacea</i> ; Rets. (Gramineæ.)	15,488	Flowers of <i>Cassia Fistula</i> ; Linn. "Purging Cassia."
15,446	Leaves of <i>Barleria prionitis</i> ; Linn. (Acanthaceæ.)	15,489	Bark of <i>Cassia Fistula</i> . "Purging Cassia."
15,447	Seeds of <i>Barringtonia racemosa</i> ; Blume. (Myrtaceæ.)	15,490	Pulp of fruit of <i>Cassia Fistula</i> . "Purging Cassia."
15,448	Flower of <i>Bassia latifolia</i> ; Roxb. "Mahwa." (Sapotaceæ.)	15,491	Leaves of <i>Cassia lanceolata</i> ; Forsk. (Leguminosæ.)
15,449	Bark of <i>Bauhinia purpurea</i> ; Linn. (Leguminosæ.)	15,492	Plant of <i>Cassia obovata</i> ; Colladon.
15,450	Bark of <i>Bauhinia Vahlia</i> ; W. & A. "Maloo."	15,493	Seeds of <i>Cassia occidentalis</i> ; Linn.
15,451	Root of <i>Bauhinia variegata</i> ; Linn. "Mountain ebony."	15,494	Leaves of <i>Cassia Tora</i> ; Linn.
15,452	Wood of <i>Berberis aristata</i> ; DC. (Berberideæ.)	15,495	Plant of <i>Cassytha filiformis</i> ; Mill. (Laurineæ.)
15,453	Extract of <i>Berberis Lycium</i> ; Royle.	15,496	Bark of <i>Casuarina equisetifolia</i> ; Forster. (Casuarineæ.)

APPENDIX IV—continued.

DONATIONS (SPECIMENS.)

Museum No.	Description.	Museum No.	Description.
15,497	Bark of <i>Cedrela Toona</i> ; Roxb. "Red cedar." (Meliaceæ.)	15,542	Leaves of <i>Datura stramonium</i> .
15,498	Wood of <i>Cedrus Deodara</i> ; Loudon. (Coniferae.)	15,543	Leaves of <i>Dendrocalamus strictus</i> ; Nees. (Gramineæ.)
15,499	Seeds of <i>Celastrus paniculata</i> ; Willd. "Malkunji." (Celastrineæ.)	15,544	Tuber of <i>Dioscorea versicolor</i> ; Wall. (Dioscoreaceæ.)
15,500	Wax of <i>Cera alba</i> .	15,545	Bark of <i>Diospyros Embryopteris</i> ; Pers. "Gab fruit." (Ebenaceæ.)
15,501	Bark of <i>Chickrassia tabularis</i> ; Adr. Juss. (Meliaceæ.)	15,546	Fruit of <i>Elletaria Cardamomum</i> ; Maton. (Scitamineæ.)
15,502	Root of <i>Chrysanthemum indicum</i> ; Linn. (Compositæ.)	15,547	Grain of <i>Eleusine corocana</i> ; Gärtn. "Ragi." (Gramineæ.)
15,503	Bark of <i>Cinchona augustifolia</i> .	15,548	Fruit of <i>Embelia robusta</i> ; Roxb. (Myrsineæ.)
15,504	Bark of <i>Cinchona Calisaya</i> ; Weddell. "Succirubra." (Rubiaceæ.)	15,549	Grass of <i>Eragrostis cynosuroides</i> ; R. & S. (Gramineæ.)
15,505	Bark of <i>Cinchona</i> . (Hybrid.)	15,550	Bark of <i>Erythrina indica</i> ; Lam. (Leguminosæ.)
15,506	Bark of <i>Cinchona Ledgeriana</i> .	15,551	Bark of <i>Eugenia Jambolana</i> ; Lam. "Rose apple." (Myrtaceæ.)
15,507	Bark of <i>Cinchona succirubra</i> ; Pavon.	15,552	Root of <i>Euphorbia antiquorum</i> ; Linn. (Euphorbiaceæ.)
15,508	Powder of <i>Cinchona succirubra</i> .	15,553	Bark of <i>Ficus bengalensis</i> ; Linn. (Urticaceæ.)
15,509	Rind of fruit of <i>Citrus medica</i> ; Linn. (Rutaceæ.)	15,554	Bark of <i>Ficus glomerata</i> ; Roxb.
15,510	Rind of <i>Citrus medica</i> ; var. (Limonum.)	15,555	Seeds of <i>Fœniculum vulgare</i> ; Gärtn. (Umbelliferae.)
15,511	Stems of <i>Cocculus Læba</i> ; DC. (Menispermaceæ.)	15,556	Leaves of <i>Gendarussa vulgaris</i> ; Nees. (Acanthaceæ.)
15,512	Stick-lac <i>Coccus lacca</i> .	15,557	Root of <i>Gentiana Kurroo</i> ; Royle. (Gentianaceæ.)
15,513	Gum of <i>Cochlospermum Gossypium</i> ; DC. (Bixineæ.)	15,558	Seeds of <i>Glycine Soja</i> ; Sieb. "Soy bean." (Leguminosæ.)
15,514	Flower of <i>Cocos nucifera</i> ; Linn. Coconut. (Palmae.)	15,559	Root of <i>Glycyrrhiza glabra</i> ; Linn. (Leguminosæ.)
15,515	Kernel of <i>Cocos nucifera</i> ; Linn. "Copra." (Palmae.)	15,560	Root of <i>Gmelina arborea</i> ; Roxb. (Verbenaceæ.)
15,516	Seeds of <i>Coffea arabica</i> ; Linn. "Coffee." - (Rubiaceæ.)	15,561	Seeds of <i>Gossypium herbaceum</i> ; L. "Cotton." (Malvaceæ.)
15,517	Flower of <i>Colchicum autumnale</i> ; Linn. "Saffron." (Liliaceæ.)	15,562	Leaves of <i>Grangea maderaspatana</i> ; Poir. (Compositæ.)
15,518	Fruit of <i>Conium aculatum</i> ; Linn. (Umbelliferae.)	15,563	Seeds of <i>Gynandropsis pentaphylla</i> . DC. (Capparidæ.)
15,519	Copper sulphate.	15,564	Seeds of <i>Gynocardia odorata</i> ; R. Br. "Chaulmougra." (Bixineæ.)
15,520	Root of <i>Coptis Teeta</i> ; Wall. "Teeta." (Ranunculaceæ.)	15,565	Root-stock of <i>Hedychium spicatum</i> ; Ham. (Scitamineæ.)
15,521	Fruit of <i>Cordia Myxa</i> ; Linn. "Sebesten plum." (Boraginæ.)	15,566	Fruit of <i>Helicteres Isora</i> ; Linn. (Sterculiaceæ.)
15,522	Bark of <i>Cordia Rothii</i> ; Rom. & Sch.	15,567	Root of <i>Helleborus niger</i> ; Linn. (Ranunculaceæ.)
15,523	Seeds of <i>Coriandrum sativum</i> ; Linn. "Coriander." (Umbelliferae.)	15,568	Root of <i>Hemidesmus indicus</i> ; R. Br. "Indian sarsaparilla." (Asclepiadæ.)
15,524	Leaves of <i>Cratæva religiosa</i> ; Forst. (Caparidæ.)	15,569	Leaves of <i>Hibiscus Abelmoschus</i> ; Linn. (Malvaceæ.)
15,525	Root of <i>Crinum asiaticum</i> ; Herb. (Amaryllidæ.)	15,570	Seeds of <i>Hibiscus cannabinus</i> ; Linn.
15,526	Flower of <i>Crocus sativus</i> ; Linn. (Iridæ.)	15,571	Seeds of <i>Hibiscus esculentus</i> ; Linn.
15,527	Croton seed of <i>Croton Tiglium</i> ; Linn. (Euphorbiaceæ.)	15,572	Bark of <i>Holarrhena antidysenterica</i> Wall. (Apocynaceæ.)
15,528	Croton seed of <i>Cucumis sativus</i> ; Linn. (Cucurbitaceæ.)	15,573	Barley of <i>Hordeum vulgare</i> ; Linn. (Gramineæ.)
15,529	Seeds of <i>Cuminum Cyminum</i> ; Linn. "Cumin." (Umbelliferae.)	15,574	Seeds of <i>Hyoscyamus niger</i> ; Linn. "Henbane." (Solanaceæ.)
15,530	Wood of <i>Cupressus sempervirens</i> ; Linn. (Coniferae.)	15,575	Root of <i>Ichnocarpus frutescens</i> ; Br. (Apocynaceæ.)
15,531	East Indian arrowroot of <i>Curcuma augustifolia</i> ; Roxb. (Scitamineæ.)	15,576	Seeds of <i>Ipomœa hederacea</i> ; Jacq. (Convolvulaceæ.)
15,532	Turmeric of <i>Curcuma longa</i> ; Roxb.	15,577	Root (white) of <i>Ipomœa Turpethum</i> ; Br.
15,533	Tubers of <i>Curcuma aromatica</i> ; Salisb.	15,578	Root (black) of <i>Ipomœa Turpethum</i> .
15,534	Indian Doub-grass or <i>Cynodon Dactylon</i> ; Pers. (Gramineæ.)	15,579	Root of <i>Jateorhiza palmata</i> ; Miers. (Menispermaceæ.)
15,535	Root of <i>Cyperus pertenuis</i> ; Roxb. (Cyperaceæ.)	15,580	Seeds of <i>Jatropha Curcas</i> ; Linn. "Physic nut." (Euphorbiaceæ.)
15,536	Bark of <i>Daphne papyracea</i> ; Wall. (Thymelæaceæ.)	15,581	Root of <i>Krameria triandra</i> ; Ruiz et. Pavon. (Polygalæ.)
15,537	Fruit of <i>Datura fastuosa</i> ; Linn. (Solanaceæ.)		
15,538	Leaves of <i>Datura fatuosa</i> .		
15,539	Flower of <i>Datura fatuosa</i> ; Linn. (Solanaceæ.)		
15,540	Seeds of <i>Datura fatuosa</i> .		
15,541	Seeds of <i>Datura stramonium</i> ; Linn. "Thorn apple."		

APPENDIX IV—continued.

DONATIONS (SPECIMENS).

Museum No.	Description.	Museum No.	Description.
15,582	Flower of <i>Lavandula Stæchas</i> ; Linn. (Labiatae.)	15,623	Bark of <i>Nerium odorum</i> ; Soland. (Apocynaceae.)
15,583	Seeds of <i>Lepidium sativum</i> ; Linn. (Cruciferae.)	15,624	Leaves of <i>Nerium odorum</i> .
15,584	Stone of Lime.	15,625	Root of <i>Nerium odorum</i> .
15,585	Seeds of <i>Linum usitatissimum</i> ; Linn. "Flax." (Lineae.)	15,626	Leaves (var. Pulo) of <i>Nicotiana Tabacum</i> ; Linn. "Tobacco." (Solanaceae.)
15,586	Seeds (variety) of <i>Linum usitatissimum</i> . "Flax."	15,627	Leaves (var. Gargach) of <i>Nicotiana Tabacum</i> . "Tobacco."
15,587	Bark of <i>Mallotus philippinensis</i> ; Mull. (Euphorbiaceae.)	15,628	Leaves (var. Motihari) of <i>Nicotiana Tabacum</i> . "Tobacco."
15,588	Fruit of <i>Melia Azadirachta</i> ; Linn. "Neem or Margosa." (Meliaceae.)	15,629	Leaves (var. Hingli) of <i>Nicotiana Tabacum</i> . "Tobacco."
15,589	Bark of <i>Melia Azadirachta</i> . "Neem or margosa."	15,630	Leaves (var. Pakapat) of <i>Nicotiana Tabacum</i> . "Tobacco."
15,590	Leaves of <i>Melia Azadirachta</i> . "Neem or margosa."	15,631	Seeds of <i>Nigella sativa</i> ; Linn. "Black cumin." (Ranunculaceae.)
15,591	Plant of <i>Melilotus officinalis</i> ; Willd. (Leguminosae.)	15,632	Leaves of <i>Nyctanthes arbor-tristis</i> ; Linn. (Oleaceae.)
15,592	Leaves of <i>Melissa officinalis</i> ; Linn. (Labiatae.)	15,633	Flowers of <i>Nymphæa alba</i> ; Linn. (Nymphaeaceae.)
15,593	Flower of <i>Melissa (Calamintha) umbrosa</i> ; Bieb.	15,634	Plant of <i>Ocimum basilicum</i> ; Linn. "Sweet Basil." (Labiatae.)
15,594	Plant of <i>Mentha arvensis</i> ; Linn. "Horse-mint." (Labiatae.)	15,635	Plant of <i>Ocimum sanctum</i> ; Linn. (Labiatae.)
15,595	Plant of <i>Mentha piperita</i> ; Linn. "Peppermint."	15,636	Bark of <i>Odina Wodier</i> ; Roxb. (Anacardiaceae.)
15,596	Plant of <i>Mentha viridis</i> ; Linn.	15,637	Root of <i>Oldenlandia umbellata</i> ; Linn. (Rubiaceae.)
15,597	Flower of <i>Mesua ferrea</i> ; Linn. "Iron-wood." (Guttiferæ.)	15,638	Leaves of <i>Olea cuspidata</i> ; Wall. (Oleaceae.)
15,598	Mica.	15,639	Bark of <i>Olea glandulifera</i> ; Wall.
15,599	Bark of <i>Michelia Champaca</i> ; Linn. (Magnoliaceae.)	15,640	Leaves of <i>Olea glandulifera</i> .
15,600	Flower of <i>Mimusops Elengi</i> ; Linn. (Sapotaceae.)	15,641	Root of <i>Onosma echioides</i> ; Linn. (Boraginæ.)
15,601	Bark of <i>Mimusops Elengi</i> .	15,642	Plant of <i>Opuntia Dillenii</i> ; Haw. (Cactee.)
15,602	Leaves of <i>Mirabilis Jalapa</i> ; Linn. (Nyctagineae.)	15,643	Seeds of <i>Origanum vulgare</i> ; Linn. (Labiatae.)
15,603	Plant of <i>Momordica dioica</i> ; Roxb. (Cucurbitaceae.)	15,644	Bark of <i>Oroxylum indicum</i> ; Benth. (Bignoniaceae.)
15,604	Root of <i>Morinda citrifolia</i> ; Roxb. (Rubiaceae.)	15,645	Hartal or Orpiment.
15,605	Leaves of <i>Morinda citrifolia</i> .	15,646	Husked <i>Oryza sativa</i> ; Linn. "Rice." (Gramineae.)
15,606	Root of <i>Moringa pterygosperma</i> ; Gærtm. "Horse-radish tree." (Moringeae.)	15,647	Unhusked <i>Oryza sativa</i> ; Linn. "Rice." (Gramineae.)
15,607	Gum of <i>Moringa pterygosperma</i> . "Horse-radish tree."	15,648	Fruit of <i>Papaver somniferum</i> ; Linn. "Opium poppy." (Papaveraceae.)
15,608	Root of <i>Morus indica</i> ; Linn. "Mulberry." (Urticaceae.)	15,649	Seeds of <i>Papaver somniferum</i> . "Opium poppy."
15,609	Seeds of <i>Mucuna pruriens</i> ; DC. "Cowhage." (Leguminosae.)	15,650	Opium of <i>Papaver somniferum</i> . "Opium poppy."
15,610	Leaves of <i>Murraya Konigii</i> ; Spr. (Rutaceae.)	15,651	Plant of <i>Parmelia perlata</i> ; Ach. (Lichenes.)
15,611	Root of <i>Musa paradisiaca</i> ; Linn. "Plantain." (Scitaminæ.)	15,652	Fruit of <i>Pedaliium Murex</i> ; Linn. (Sesameae.)
15,612	Leaves of <i>Musa paradisiaca</i> . "Plantain."	15,653	Plant of <i>Pedaliium Murex</i> .
15,613	Leaves of <i>Musa sapientum</i> ; Linn. "Banana."	15,654	Seeds of <i>Peganum Harmala</i> ; Linn. (Rutaceae.)
15,614	Bark of <i>Myrica sapida</i> ; Wall. (Myricaceae.)	15,655	Grain of <i>Penicillaria spicata</i> ; Willd. (Gramineae.)
15,615	Mace of <i>Myristica moschata</i> ; Willd. (Myristiceae.)	15,656	Seeds of <i>Phaseolus aconitifolius</i> ; Jacq. (Leguminosae.)
15,616	Nutmeg of <i>Myristica moschata</i> .	15,657	Seeds of <i>Phaseolus Mungo</i> ; Linn. "Mung or gram."
15,617	Leaves of <i>Myrtus communis</i> ; Linn. (Myrtaceae.)	15,658	Bark of <i>Phyllanthus Emblica</i> ; Linn. "Emblie myrobalans." (Euphorbiaceae.)
15,618	Root of <i>Nardostachys Jatamansi</i> ; DC. "Spikenard." (Valerianeae.)	15,659	Fruit of <i>Phyllanthus Emblica</i> ; Linn. "Emblie myrobalans." (Euphorbiaceae.)
15,619	Bark of <i>Nauclea ovalifolia</i> ; Roxb. (Rubiaceae.)	15,660	Leaves of <i>Phyllanthus Emblica</i> . "Emblie myrobalans."
15,620	Leaves of <i>Nelumbium speciosum</i> ; Willd. "Egyptian bean." (Nymphaeaceae.)	15,661	Leaves of <i>Phyllanthus multiflorus</i> ; Roxb.
15,621	Seeds of <i>Nelumbium speciosum</i> . "Egyptian bean."	15,662	Root of <i>Picrorhiza Kurroa</i> ; Royle. (Scrophulariaceae.)
15,622	Rhizomes of <i>Nephrodium Filix-mas</i> ; Richard. (Filices.)		

APPENDIX IV—continued.

DONATIONS (SPECIMENS).

Museum No.	Description.	Museum No.	Description.
15,663	Seeds of <i>Pimpinella Anisum</i> ; Linn. (Umbelliferae.)	15,704	Bark of <i>Quercus Robur</i> ; Linn. "Oak."
15,664	Seeds of <i>Pinus Gerardiana</i> ; Wall. (Coniferae.)	15,705	Fruit of <i>Randia dumetorum</i> ; Lam. "Bush randia." (Rubiaceae.)
15,665	Leaves of <i>Pinus longifolia</i> ; Roxb. "Long-leaved pine."	15,706	Bark of <i>Randia dumetorum</i> .
15,666	Wood of <i>Pinus longifolia</i> . "Long-leaved pine."	15,707	Fruit of <i>Randia uliginosa</i> ; DC. "Bog randia." (Rubiaceae.)
15,667	Bark of <i>Pinus longifolia</i> . "Long-leaved pine."	15,708	Seeds of <i>Raphanus sativus</i> ; Linn. (Cruciferae.)
15,668	Twigs of <i>Piper Chaba</i> ; Bl. (Piperaceae.)	15,709	Leaves of <i>Rhazya stricta</i> ; Decaisne. (Apocynaceae.)
15,669	Cubebbs of <i>Piper Cubeba</i> ; Linn f.	15,710	Root of <i>Rheum Emodi</i> ; Wall. (Polygonaceae.)
15,670	Unripe fruit of <i>Piper longum</i> ; Linn.	15,711	Leaves of <i>Rhinacanthus communis</i> ; Nees. (Acanthaceae.)
15,671	Seeds of <i>Piper nigrum</i> ; Linn. "Black pepper." (Piperaceae.)	15,712	Leaves of <i>Rhododendron Anthopogon</i> ; D. Don. (Ericaceae.)
15,672	Galls of <i>Pistacia integerrima</i> ; Stewart. (Anacardiaceae.)	15,713	Flowers of <i>Rhododendron arboreum</i> ; Sm. (Ericaceae.)
15,673	Nuts of <i>Pistacia vera</i> ; Linn. "Pistachio."	15,714	Leaves of <i>Rhododendron campanulatum</i> ; D. Don.
15,674	Seeds of <i>Plantago Ispaghula</i> ; Roxb. "Spogel." (Leguminosae.)	15,715	Leaves of <i>Rhus acuminata</i> ; DC. (Anacardiaceae.)
15,675	Root of <i>Plumbago coccinea</i> ; Boiss. (Plumbagineae.)	15,716	Leaves of <i>Rhus buckiamela</i> ; Roxb.
15,676	Root of <i>Plumbago zeylanica</i> ; Linn.	15,717	Bark of <i>Rhus mysorensis</i> ; Heyne.
15,677	Dried tops of <i>Pogostemon Patchouly</i> ; Pellit. "Patchouly." (Labiatae.)	15,718	Fruit of <i>Rhus semialata</i> ; Murray. "Wax-tree."
15,678	Root of <i>Polygonum aviculare</i> ; Linn. (Polygonaceae.)	15,719	Galls of <i>Rhus succedanea</i> ; Linn. (Anacardiaceae.)
15,679	Root of <i>Polypodium vulgare</i> ; Linn. (Filices.)	15,720	Leaves of <i>Ricinus communis</i> ; Linn. "Castor Oil." (Euphorbiaceae.)
15,680	Fruit of <i>Pongamia glabra</i> ; Vent. "Indian beech." (Leguminosae.)	15,721	Seeds of <i>Ricinus communis</i> . "Castor Oil."
15,681	Leaves of <i>Pongamia glabra</i> . "Indian beech."	15,722	Root of <i>Ricinus communis</i> . "Castor Oil."
15,682	Root of <i>Pongamia glabra</i> . "Indian beech."	15,723	Buds of <i>Rosa damascene</i> ; Mill. (Rosaceae.)
15,683	Bark of <i>Populus euphratica</i> ; Oliv. (Salicinæ.)	15,724	Twigs of <i>Rubia cordifolia</i> ; Linn. (Rubiaceae.)
15,684	Flower-buds of <i>Populus euphratica</i> .	15,725	Root of <i>Rubia cordifolia</i> .
15,685	Plant of <i>Portulaca oleracea</i> ; Linn. (Portulacæ.)	15,726	Leaves of <i>Rumex vesicarius</i> ; Linn. (Polygonaceae.)
15,686	Mineral of <i>Potassium</i> .	15,727	Plant of <i>Rumex vesicarius</i> .
15,687	Root of <i>Potentilla nepalensis</i> ; Hook. (Rosaceae.)	15,728	Plant of <i>Ruta graveolens</i> ; Linn. (Rutaceae.)
15,688	Bark of <i>Premna mucronata</i> ; Roxb. (Verbenaceae.)	15,729	Root of <i>Saccharum officinarum</i> ; Linn. "Sugar-cane." (Gramineae.)
15,689	Nuts of <i>Prunus Amygdalus</i> ; Baillon. "Bitter almonds." (Rosaceae.)	15,730	Sugar (refined) of <i>Saccharum officinarum</i> . "Sugar-cane."
15,690	Shells of <i>Prunus Amygdalus</i> .	15,731	Sugar (unrefined) of <i>Saccharum officinarum</i> ; Linn. (Gramineae.)
15,691	Fruit of <i>Prunus communis</i> ; Huds. "Bullaces."	15,732	Mineral (Sajji).
15,692	Bark of <i>Psidium Guyava</i> ; Raddi. "Guava." (Myrtaceae.)	15,733	Nishadal of <i>Sal-ammoniac</i> .
15,693	Seeds of <i>Psoralea corylifolia</i> ; Linn. "Bauchee." (Leguminosae.)	15,734	Root of <i>Salicornia indica</i> ; Willd. (Chenopodiaceae.)
15,694	Wood of <i>Pterocarpus santalinus</i> ; Linn. f. (Leguminosae.)	15,735	Bark of <i>Salix tetrasperma</i> ; Roxb. (Salicinæ.)
15,695	Leaves of <i>Pterospermum acerifolium</i> ; Willd. (Sterculiaceae.)	15,736	Seeds of <i>Salvadora oleoides</i> ; Dene. (Salvadoraceae.)
15,696	Flower of <i>Pterospermum suberfolium</i> ; Lam.	15,737	Sandalwood of <i>Santalum album</i> ; Linn. (Santalaceae.)
15,697	Root of <i>Paeraria tuberosa</i> ; DC. (Leguminosae.)	15,738	Seeds of <i>Santalum album</i> .
15,698	Rind of fruit of <i>Punica Granatum</i> ; Linn. "Pomegranate." (Lythraceae.)	15,739	Root of <i>Sapindus trifoliatus</i> ; Linn. (Sapindaceae.)
15,699	Seeds of <i>Punica Granatum</i> . "Pomegranate."	15,740	Root of <i>Sarcostemma brevistigma</i> ; Wight & Arn. (Asclepiadeae.)
15,700	Bark of <i>Punica Granatum</i> . "Pomegranate."	15,741	Root of <i>Saxifraga ligulata</i> ; Wall. (Saxifragaceae.)
15,701	Root of <i>Punica Granatum</i> . "Pomegranate."	15,742	Fruit of <i>Scindapsus officinalis</i> ; Schott. (Aroideae.)
15,702	Leaves of <i>Pyrus aucuparia</i> ; Gært. (Rosaceae.)	15,743	Fruit of <i>Semecarpus Anacardium</i> ; Linn. f. "Marking-ink Nuts." (Anacardiaceae.)
15,703	Galls of <i>Quercus infectoria</i> ; Oliver. (Cupuliferae.)	15,744	Bark of <i>Semecarpus Anacardium</i> . "Marking-ink Nuts."
		15,745	Seeds (black) of <i>Sesamum indicum</i> Linn. "Gingelly." (Pedalinæ.)

APPENDIX IV—continued.

DONATIONS (SPECIMENS.)

Museum No.	Description.	Museum No.	Description.
15,746	Bark of <i>Sesbania grandiflora</i> ; Pers. (Leguminosæ.)	15,791	Ripe fruit of <i>Terminalia Chebula</i> ; Retz. "Chebulic myrobalans." (Combretaceæ.)
15,747	Leaves of <i>Sesbania grandiflora</i> .	15,792	Unripe fruit of <i>Terminalia Chebula</i> . "Chebulic myrobalans."
15,748	Seeds (yellow) of <i>Setaria italica</i> ; Beauv. "Italian Millet." (Gramineæ.)	15,793	Small fruit of <i>Terminalia Chebula</i> . "Chebulic myrobalans."
15,749	Resin of <i>Shorea robusta</i> ; Gært. "Sal." (Dipterocarpeæ.)	15,794	Galls of <i>Terminalia Chebula</i> . "Chebulic myrobalans."
15,750	Plant of <i>Sida aculeata</i> ; Burm. (Malvaceæ.)	15,795	Bark of <i>Terminalia tomentosa</i> ; W. & A.
15,751	Seeds of <i>Sida cordifolia</i> ; Linn.	15,796	Bark of <i>Tetranthera laurifolia</i> ; Jacq. (Laurineæ.)
15,752	Silajit of Silajatu.	15,797	Bark of <i>Tetranthera monopetala</i> ; Roxb. (Laurineæ.)
15,753	Mineral, Silicate of magnesia.	15,798	Fruit of <i>Thespesia populnea</i> ; Corr. "Bhendi." (Malvaceæ.)
15,754	<i>Smilax China</i> ; Linn. (Liliaceæ.)	15,799	Stems of <i>Tinospora cordifolia</i> ; Miers. (Menispermaceæ.)
15,755	Root of <i>Smilax ovalifolia</i> ; Roxb. (Liliaceæ.)	15,800	Root of <i>Tinospora cordifolia</i> .
15,756	Leaves of <i>Solanum Melongena</i> ; Linn. "Bringall or egg plant." (Solanaceæ.)	15,801	Plant of <i>Tragia involucrata</i> ; Mull.-Arg. (Euphorbiaceæ.)
15,757	Root of <i>Solanum Melongena</i> .	15,802	Nuts of <i>Trapa bispinosa</i> ; Roxb. "Singhara." (Ornagraceæ.)
15,758	Potato of <i>Solanum tuberosum</i> ; Linn.	15,803	Plant of <i>Trianthema pentandra</i> ; Linn. (Ficoideæ.)
15,759	Fruit of <i>Solanum xanthocarpum</i> ; Schrad.	15,804	Fruit of <i>Tribulus terrestris</i> ; Linn. (Zygophylleæ.)
15,760	Grass of <i>Sorghum halepense</i> ; Pers. (Gramineæ.)	15,805	Plant of <i>Trichosanthes dioica</i> ; Roxb. (Cucurbitaceæ.)
15,761	Grain of <i>Sorghum vulgare</i> ; Pers. "Great millet or guinea corn."	15,806	Seeds of <i>Trigonella Fœnum-græcum</i> ; Linn. "Fœni grek." (Leguminosæ.)
15,762	Bark of <i>Soymida febrifuga</i> ; A. Juss. (Meliaceæ.)	15,807	Wheat of <i>Triticum sativum</i> ; Lam. "Wheat." (Gramineæ.)
15,763	Root of <i>Sphæranthus indicus</i> ; Linn. (Compositæ.)	15,808	Root of <i>Tylophora asthmatica</i> ; Wight & Arn. (Asclepiadeæ.)
15,764	Plant of <i>Spinacia hispida</i> ?	15,809	Root of <i>Typhonium orixense</i> ; Schott. (Aroideæ.)
15,765	Seeds of <i>Spinacia oleracea</i> ; Mill. "Spinach." (Chenopodiaceæ.)	15,810	Gambier of <i>Uncaria Gambier</i> ; Hunter. (Rubiaceæ.)
15,766	Leaves of <i>Spinacia oleracea</i> . "Spinach."	15,811	Bulb of <i>Urginea indica</i> ; Kunth. (Liliaceæ.)
15,767	Bark of <i>Spondias mangifera</i> ; Pers. "Hog plum or wild mango." (Anacardiaceæ.)	15,812	Root of <i>Valeriana officinalis</i> ; Linn. (Valerianeæ.)
15,768	Fruit of <i>Spondias mangifera</i> . "Hog plum or wild mango."	15,813	Root of <i>Vanda Roxburghii</i> ; R. Br. (Orchideæ.)
15,769	Leaves of <i>Sterculia colarata</i> ; Roxb. (Sterculiaceæ.)	15,814	Resin of <i>Vateria indica</i> ; Linn. (Dipterocarpeæ.)
15,770	Bark of <i>Stereospermum chelonioides</i> ; DC. (Bignoniaceæ.)	15,815	Seeds of <i>Vernonia anthelmintica</i> ; Willd. "Purple Fleabane." (Compositæ.)
15,771	Bark of <i>Stereospermum suaveolens</i> ; DC.	15,816	Plant of <i>Viola cinerea</i> ; Boiss. (Violaceæ.)
15,772	Bark of <i>Streblus asper</i> ; Lour. (Urticaceæ.)	15,817	Plant of <i>Viola odorata</i> ; Linn.
15,773	Seeds of <i>Strychnos Nux-vomica</i> ; Linn. "False angustura." (Loganiaceæ.)	15,818	Root of <i>Viola serpens</i> ; Wall.
15,774	Seeds of <i>Strychnos potatorum</i> ; Linn. f. "Clearing nuts."	15,819	Leaves of <i>Vitex Negundo</i> ; Linn. (Verbenaceæ.)
15,775	Plant of <i>Suæda nudiflora</i> ; Moq. (Chenopodiaceæ.)	15,820	Root of <i>Vitex Negundo</i> .
15,776	Mineral, Sulphur.	15,821	Leaves of <i>Vitex trifolia</i> ; Linn.
15,777	Plant of <i>Svertia Chirata</i> ; Ham. (Gentianaceæ.)	15,822	Plant of <i>Wedelia calendulacea</i> ; Less. (Compositæ.)
15,778	Root of <i>Sygodium flexuosum</i> ?	15,823	Root of <i>Withania somnifera</i> ; Dunal. (Solanaceæ.)
15,779	Bark of <i>Symplocos cratagoides</i> ; Hamilton. (Styraceæ.)	15,824	Flower of <i>Woodfordia floribunda</i> ; Salisb. (Lythraceæ.)
15,780	Bark of <i>Symplocos racemosa</i> ; Roxb.	15,825	Seeds of <i>Wrightia tinctoria</i> ; Br. (Apocynaceæ.) Sent under this name; probably <i>Holarrhena antidysenterica</i> .
15,781	Bark of <i>Tamarindus indica</i> ; Linn. "Tamarind." (Leguminosæ.)	15,826	Fruit of <i>Xanthium strumarium</i> ; Linn. (Compositæ.)
15,782	Shells of <i>Tamarindus indica</i> . "Tamarind."	15,827	Plant of <i>Xanthium strumarium</i> ; Linn. (Compositæ.)
15,783	Tamarind of <i>Tamarindus indica</i> . "Tamarind."	15,828	Seeds of <i>Xanthoxylon alatum</i> ; Roxb. (Rutaceæ.)
15,784	Galls of <i>Tamarix articulata</i> ; Vahl. (Tamariscineæ.)	15,829	Bark of <i>Xanthoxylon alatum</i> .
15,785	Twigs of <i>Tamarix dioica</i> ; Roxb.	15,830	Seeds of <i>Zea Mays</i> ; Linn. "Maize." (Gramineæ.)
15,786	Bark of <i>Tectona grandis</i> ; Linn. (Verbenaceæ.)		
15,787	Wood of <i>Tectona grandis</i> .		
15,788	Bark of <i>Terminalia Arjuna</i> ; Bedd. (Combretaceæ.)		
15,789	Fruit of <i>Terminalia belerica</i> ; Roxb. "Belleric myrobalans."		
15,790	Bark of <i>Terminalia Catappa</i> ; Linn.		

APPENDIX IV—continued.

DONATIONS (SPECIMENS).

Museum No.	Description.	Museum No.	Description.
15,831	Flour of Zea Mays. "Maize."	15,834	Bark of Zizyphus Jujuba. "Jujube."
15,832	Rhizomes of Zingiber officinale; Roscoe. (Scitamineæ.)	15,835	Leaves of Zizyphus Jujuba. "Jujube."
15,833	Fruit of Zizyphus Jujuba; Lank. "Jujube." (Rhamnææ.)	15,836	Root of Zizyphus Jujuba. "Jujube."
		15,837	Root of Zizyphus nummularia; W. & A.
		15,838	Fruit of Zizyphus vulgaris; Lank.
<i>Foods.</i>			
15,095	Black seeds of Abrus precatorius; Linn. "Jequirity." (Leguminosæ.)	15,133	Fruit of Capsicum frutescens; Linn. "Spur." (Solanaceæ.)
15,096	Red seeds of Abrus precatorius. "Jequirity."	15,134	Seeds of Carthamus tinctorius; Linn. "Safflower." (Compositæ.)
15,097	White seeds of Abrus precatorius. "Jequirity."	15,135	Yellow seeds of Cicer arietinum; Linn. "Chick pea." (Leguminosæ.)
15,098	Gum of Acacia arabica; Willd. "Gum- arabic." (Leguminosæ.)	15,136	White seeds of Cicer arietinum. "Chick pea."
15,099	Seeds of Acacia arabica. "Babul."	15,137	Pulse of Cicer arietinum. "Chick pea."
15,100	Acacia Catechu; Willd. "Catechu."	15,138	Kernel of Cocos nucifera; Linn. "Copra." (Palmæ.)
15,101	Variety of Acacia Catechu. "Catechu."	15,139	Seeds of Coffea arabica; Linn. "Coffee." (Rubiaceæ.)
15,102	Root-bark of Acacia Jacquemontii; Benth. "Babul." (Leguminosæ.)	15,140	Seeds of Coix lachryma; Linn. "Job's tears." (Gramineæ.)
15,103	Bark of Acacia leucophloea; Willd. "Panicked acacia."	15,141	Fruit of Cordia Myxa; Linn. "Sebesten plum." (Boraginæ.)
15,104	Pods of Acacia leucophloea; Willd. "Panicked acacia."	15,142	Seeds of Cucumis Melo; Linn. "Melon." (Cucurbitaceæ.)
15,105	Baobab or monkey bread-fruit of An- dansonnia digitata; Linn. (Malvaceæ.)	15,143	Seeds of Cucumis Melo; Linn. (Cu- curbitaceæ.)
15,106	Baobab leaves of Andansonnia digitata.	15,144	Wild arrowroot of Curcuma angusti- folia; Roxb. "East Indian arrow- root." (Scitamineæ.)
15,107	Fruit of Ægle Marmelos; Correa. "Bael." (Rutaceæ.)	15,145	Plant of Cyamopsis psoraloides; DC. "Guar." (Leguminosæ.)
15,108	Fruit of Alangium Lamarckii; Thwaites. (Cornaceæ.)	15,146	Fruit of Dillenia indica. Linn. (Dil- leniaceæ.)
15,109	Bulbs of Allium Cepa; Linn. "Onion." (Liliaceæ.)	15,147	Tuber of Dioscorea bulbifera; Linn. "Yams." (Dioscoreaceæ.)
15,110	Bulbs of Allium sativum; Linn. "Garlic."	15,148	Seeds of Dolichos biflorus; Linn. (Leguminosæ.)
15,111	Seeds of Amaranthus Anardana; Hamilt. "Common amaranth." (Amaran- taceæ.)	15,149	Pods of Dolichos Lablab; Linn. "Horse gram."
15,112	Seeds of Amaranthus frumentaceus; Buch.	15,150	Fruit of Elaeocarpus serratus; Linn. (Tiliaceæ.)
15,113	Nuts of Anacardium occidentale; Linn. "Cashew." (Anacardiaceæ.)	15,151	Grain of Eleusine corocana; Gærtn. "Ragi." (Gramineæ.)
15,114	Nuts of Arachis hypogæa; Linn. "Ground or pea." (Leguminosæ.)	15,152	Seeds of Ervum Lens; Linn. "Lentil." (Leguminosæ.)
15,115	Nuts of Areca Catechu; Linn. "Betel." (Palmæ.)	15,153	Seeds (split) of Ervum Lens. "Lentil."
15,116	Nuts, var. Dakhini, of Areca Catechu; "Betel."	15,154	Fruit of Eugenia Jambolana; Lam. "Rose apple." (Myrtaceæ.)
15,117	Oats of Avena sativa; Linn. "Oats." (Gramineæ.)	15,155	Seeds of Fagopyrum esculentum; Mœnch. "Buck-wheat." (Polygon- aceæ.)
15,118	Flowers of Bassia latifolia; Roxb. "Mahwa." (Sapotaceæ.)	15,156	Fruit of Ficus Carica; Linn. "Fig." (Urticaceæ.)
15,119	Pods of Bauhinia retusa; Ham. "Maloo." (Leguminosæ.)	15,157	Fruit of Ficus Cunia; Buch. "Fig."
15,120	Seeds of Bauhinia Vahlia; Roxb. "Maloo." (Leguminosæ.)	15,158	Glycine Soja; Sieb. & Zucc. "Soy bean." (Leguminosæ.)
15,121	Pods of Bauhinia variegata; Linn. "Mountain ebony."	15,159	Fruit of Gmelina arborea; Roxb. (Verbenaceæ.)
15,122	Buds of Bauhinia variegata. "Moun- tain ebony."	15,160	Seeds of Gossypium herbaceum; Linn. "Cotton." (Malvaceæ.)
15,123	Pods of Bauhinia, sp.	15,161	Fruit of Guazuma tomentosa; Kunth. "Bastard cedar." (Sterculiaceæ.)
15,124	Seeds of Brassica campestris; Linn. (Cruciferae.)	15,162	Barley of Hordeum vulgare; Linn. "Barley." (Gramineæ.)
15,125	Seeds of Brassica juncea; H. f. & T.	15,163	Root of Ipomæa Batatas; Lamk. "Sweet potato." (Convolvulaceæ.)
15,126	Brassica nigra; Koch. "Mustard seed."	15,164	Juglans regia; Linn. "Walnut." (Juglandææ.)
15,127	Seeds of Buchanania latifolia; Roxb. (Anacardiaceæ.)	15,165	Lathyrus sativus; Linn. "Vetchlings." (Leguminosæ.)
15,128	Seeds of Cajanus indicus; Spreng. "Pigeon peas." (Leguminosæ.)	15,166	Lathyrus sativus. "Vetchlings."
15,129	Pulse of Cajanus indicus. "Pigeon peas."	15,167	Unripe fruit of Mangifera indica; Linn. (Anacardiaceæ.)
15,130	Seeds of Cajanus indicus. "Pigeon peas variety."	15,168	Dried juice of Mangifera indica. "Mango."
15,131	Pulse of Cajanus indicus; Spreng. (Leguminosæ variety.)		
15,132	Leaves of Camellia theifera; Griff. "Tea." (Ternstroemiaceæ.)		

APPENDIX IV—continued.

DONATIONS (SPECIMENS).

Museum No.	Description.	Museum No.	Description
15,169	Plant of <i>Mentha arvensis</i> ; Linn. "Mint." (Labiatae.)	15,207	<i>Oryza sativa</i> (unhusked). "Rice." Var. Kála-mánik.
15,170	Plant of <i>Mentha piperita</i> ; Linn. "Peppermint."	15,208	<i>Oryza sativa</i> (unhusked). "Rice." Var. Munár.
15,171	Fruit of <i>Mesua ferrea</i> ; Linn. "Ironwood." (Guttiferae.)	15,209	<i>Oryza sativa</i> (husked). "Rice." Var. Mugi.
15,172	Fruit of <i>Momordica Charantia</i> ; Linn. (Cucurbitaceae.)	15,210	<i>Oryza sativa</i> (unhusked). "Rice." Var. Kele.
15,173	Leaves of <i>Moringa pterygosperma</i> ; Gært. "Horse-radish." (Moringaceae.)	15,211	<i>Oryza sativa</i> (unhusked). "Rice." Var. Hansráj.
15,174	Flower of <i>Moringa pterygosperma</i> . "Horse-radish."	15,212	<i>Oryza sativa</i> (unhusked). "Rice." Var. Dighá.
15,175	Fruit of <i>Moringa pterygosperma</i> . "Horse-radish."	15,213	<i>Oryza sativa</i> (unhusked). "Rice." Var. Bálam.
15,176	Fruit of <i>Morus indica</i> ; Linn. "Mulberry." (Utricaceae.)	15,214	<i>Oryza sativa</i> (husked.) "Rice." Var. Bálam.
15,177	Leaves of <i>Murraya Konigii</i> ; Spr. (Rutaceae.)	15,215	Seed of <i>Panicum frumentaceum</i> (Husked); Roxb. "Sanwa millet." (Gramineae.)
15,178	Fruit of <i>Myrica sapida</i> ; Wall. "Boxmyrtle." (Myricaceae.)	15,216	Seed of <i>Panicum frumentaceum</i> (unhusked); Roxb. "Sanwa millet."
15,179	Seeds of <i>Nelumbium speciosum</i> ; Willd. "Egyptian beans." (Nymphaeaceae.)	15,217	Seed of <i>Panicum miliaceum</i> (unhusked); Linn. "Chena or Indian millet."
15,180	Root of <i>Nymphaea Lotus</i> ; Linn. "White lotus." (Nymphaeaceae.)	15,218	Seed of <i>Panicum miliare</i> (unhusked); Lamb. "Little millet."
15,181	Seeds of <i>Ocimum basilicum</i> ; Linn. "Sweet basil." (Labiatae.)	15,219	Seed of <i>Papaver somniferum</i> (unhusked); Linn. "Opium poppy." (Papaveraceae.)
15,182	<i>Oryza sativa</i> (husked rice); Linn. "Rice." (Gramineae, var. Achra.)	15,220	Seed of <i>Paspalum scrobiculatum</i> (unhusked); Linn. "Koda millet." (Gramineae.)
15,183	<i>Oryza sativa</i> (unhusked). "Rice." Var. Achra.	15,221	Seed of <i>Pennisetum typhoideum</i> (unhusked); Rich. "Bulrush millet." (Gramineae.)
15,184	<i>Oryza sativa</i> (unhusked). "Rice." Var. Benáphul.	15,222	Seeds of <i>Phaseolus aconitifolius</i> ; Jacq. (Leguminosae.)
15,185	<i>Oryza sativa</i> (husked); Linn. "Rice." (Gramineae, var. Benáphul.)	15,223	Seeds of <i>Phaseolus Mungo</i> ; Linn. "Gram or mung bean."
15,186	<i>Oryza sativa</i> (unhusked). "Rice." Var. Chini-shakkar.	15,224	Seeds (variety) of <i>Phaseolus Mungo</i> . "Gram or mung bean."
15,187	<i>Oryza sativa</i> (husked). "Rice." Var. chini-shakkar.	15,225	Seeds (variety) of <i>Phaseolus Mungo</i> . "Gram or mung bean."
15,188	<i>Oryza sativa</i> (unhusked). "Rice." Var. Chapli.	15,226	Seeds (variety) of <i>Phaseolus Mungo</i> . "Gram or mung bean."
15,189	<i>Oryza sativa</i> (unhusked). "Rice." Var. Dudh-kalam.	15,227	Seeds (variety) of <i>Phaseolus Mungo</i> , var. <i>radiatus</i> ; Linn. "Gram or mung bean." (Leguminosae.)
15,190	<i>Oryza sativa</i> (unhusked). "Rice." Var. Ghrita-sáil.	15,228	Seeds (split) of <i>Phaseolus Mungo</i> . "Gram or mung bean."
15,191	<i>Oryza sativa</i> (unhusked); Linn. "Rice." (Gramineae.)	15,229	<i>Phoenix dactylifera</i> ; Linn. "Dates." (Palmæ.)
15,192	<i>Oryza sativa</i> (unhusked). "Rice." Var. Harsa.	15,230	Fruit of <i>Phoenix Sylvestris</i> ; Roxb. "Wild dates."
15,193	<i>Oryza sativa</i> (unhusked). "Rice." Var. Bânsjira.	15,231	Fruit of <i>Phyllanthus emblica</i> ; Linn. "Embric Myrobalanus." (Euphorbiaceae.)
15,194	<i>Oryza sativa</i> (unhusked). "Rice." Var. Rúp-kalmá.	15,232	Fruit of <i>Pinus longifolia</i> ; Roxb. "Long-leaved pine." (Coniferae.)
15,195	<i>Oryza sativa</i> (unhusked). "Rice." Var. Rutíá.	15,233	Nut of <i>Pistacia vera</i> ; Linn. "Pistacia nuts." (Anacardiaceae.)
15,196	<i>Oryza sativa</i> (unhusked). "Rice." Var. Chiknal.	15,234	<i>Pisum arvense</i> ; Linn. "Grey or field peas." (Leguminosae.)
15,197	<i>Oryza sativa</i> (unhusked). "Rice." Var. Lálkalmá.	15,235	Seeds of <i>Pisum arvense</i> . "Grey or field peas."
15,198	<i>Oryza sativa</i> (unhusked). "Rice." Var. Lálmoti.	15,236	<i>Pisum sativum</i> ; Linn. "Common pea."
15,199	<i>Oryza sativa</i> (husked). "Rice." Var. Lálmoti.	15,237	Seeds (variety) of <i>Pisum sativum</i> . "Common pea."
15,200	<i>Oryza sativa</i> (unhusked). "Rice." Var. Bânsmati.	15,238	<i>Pisum sativum</i> (split). "Common pea."
15,201	<i>Oryza sativa</i> (unhusked). "Rice." Var. Bânspáti.	15,239	Seeds of <i>Pisum sativum</i> (variety); Linn. "Common pea." (Leguminosae.)
15,202	<i>Oryza sativa</i> (unhusked). "Rice." Var. Soná-muktá.	15,240	Seeds of <i>Pisum sativum</i> (split); Linn. "Common pea."
15,203	<i>Oryza sativa</i> (husked); Linn. "Rice." (Gramineae), var. Dádkháni.	15,241	Seeds of <i>Pisum sativum</i> (variety); Linn. "Common pea."
15,204	<i>Oryza sativa</i> (unhusked). "Rice." Var. Piso.	15,242	Seeds of <i>Pisum sativum</i> (split); Linn. "Common pea."
15,205	<i>Oryza sativa</i> (husked). "Rice." Var. Piso.		
15,206	<i>Oryza sativa</i> (unhusked). "Rice." Var. Nalkosh.		

APPENDIX IV—continued.

DONATIONS (SPECIMENS).			
Museum No.	Description.	Museum No.	Description.
15,243	Prunus Amygdalus, var. Amara; Baillon. "Bitter almonds." (Rosaceæ.)	15,276	Grain (variety) of Sorghum vulgare. "Great millet or guinea corn."
15,244	Fruit of Prunus armeniaca; Linn. "Apricots."	15,277	Leaves of Spinacia oleracea; Mill. "Spinach." (Chenopodiaceæ.)
15,245	Fruit of Prunus communis, var. insitia; Huds. "Bullaces."	15,278	Root of Spinacia oleracea. "Spinach."
15,246	Fruit of Psidium Guaiava; Raddi. "Guavas." (Myrtaceæ.)	15,279	Fruit of Spondias mangifera; Pers. "Hog plum or wild mango." (Anacardiaceæ.)
15,247	Fruit of Pyrus variolosa; Wall. (Rosaceæ.)	15,280	Fruit of Strychnos potatorum; Linn. fil. "Clearing nuts." (Loganiaceæ.)
15,248	Fruit of Randia dumetorum; Lam. "Bush randia." (Rubiaceæ.)	15,281	Pods of Tamarindus indica; Linn. "Tamarind." (Leguminosæ.)
15,249	Fruit of Randia uliginosa; DC. "Bog Randia."	15,282	Tamarind of Tamarindus indica. "Tamarind."
15,250	Flower of Rhododendron arboreum; Sm. (Ericaceæ.)	15,283	Leaves of Tamarindus indica. "Tama- rind."
15,251	Berries of Rhus semi-alata; Murray. "Wax-tree." (Anacardiaceæ.)	15,284	Fruit of Terminalia belerica; Roxb. "Belleric Myrobalans." (Combretaceæ.)
15,252	Buds of Rosa damascene. Mill. (Rosaceæ.)	15,285	Fruit of Terminalia Chebula; Retz. "Chebulic Myrobalans."
15,253	Saccharum officinarum (sugarcane); Linn. "Sugarcane." (Gramineæ.)	15,286	Fruit of Terminalia Chebula. "Che- bulic Myrobalans."
15,254	Saccharum officinarum (sugar). "Sugar- cane."	15,287	Small fruit of Terminalia Chebula; Retz. "Chebulic Myrobalans." (Combretaceæ.)
15,255	Saccharum officinarum (sugar, variety). "Sugarcane."	15,288	Nut of Trapa bispinosa; Roxb. "Sing- hara." (Onagraceæ.)
15,256	Saccharum officinarum (sugar, variety). "Sugarcane."	15,289	Flour of Trapa bispinosa. "Singhara."
15,257	Saccharum officinarum (sugar, variety). "Sugarcane."	15,290	Wheat of Triticum sativum; Lam. (Gramineæ.)
15,258	Saccharum officinarum (sugar, variety). "Sugarcane."	15,291	Wheat (variety) of Triticum sativum.
15,259	Saccharum officinarum (sugar, variety). "Sugarcane."	15,292	Wheat (variety) of Triticum sativum.
15,260	Saccharum officinarum (sugar, variety). "Sugarcane."	15,293	Wheat (variety) of Triticum sativum.
15,261	Saccharum officinarum (sugar, variety). "Sugarcane."	15,294	Wheat (variety) of Triticum sativum.
15,262	Fruit of Sageretia Brandrethiana; Aitch. (Rhamnææ.)	15,295	Wheat of Typha angustifolia; Linn. "Bulrush." (Typhaceæ.)
15,263	Salt (variety).	15,296	Sugar of Typha elephantina; Roxb. "Elephant or dib grass."
15,264	Salt (variety).	15,297	Seeds of Vigna Catiang; Endl. "Cati- ang." (Leguminosæ.)
15,265	Salt (variety).	15,298	Seeds (split) of Vigna Catiang; Endl. "Catiang."
15,266	Salt (variety).	15,299	Vitis vinifera; Linn. "Raisins." (Ampelideæ.)
15,267	Fruit of Schleicheria trijuga; Willd. (Sapindaceæ.)	15,300	Vitis vinifera (variety). "Raisins."
15,268	Semecarpus Anacardium; Linn. f. "Marking nuts." (Anacardiaceæ.)	15,301	Seeds of Zanthoxylum Rhetsa; DC. (Rutaceæ.)
15,269	Seeds of Sesamum indicum; Linn. "Gingelly." (Pedalineæ.)	15,302	Seeds of Zea Mays; Linn. "Maize." (Gramineæ.)
15,270	Seeds (variety) of Sesamum indicum. "Gingelly."	15,303	Seeds (variety) of Zea Mays. "Maize."
15,271	Seeds of Setaria italica; Kunth. "Italian millet." (Gramineæ.)	15,304	Seeds (variety) of Zea Mays. "Maize."
15,272	Seeds of Shorea robusta; Gartin. "Sal." (Dipterocarpeæ.)	15,305	Flour of Zea Mays. "Maize."
15,273	Fruit of Solanum gracilipes; Dene. (Solanaceæ.)	15,306	Fruit of Zizyphus Jujuba; Lam. "Jujube." (Rhamnææ.)
15,274	Fruit of Solanum Melongena; Linn. "Brinjal or egg plant."	15,307	Fruit (variety) of Zizyphus Jujuba. "Jujube."
15,275	Grain of Sorghum vulgare; Pers. "Great millet or guinea corn." (Gramineæ.)	15,308	Fruit of Zizyphus nummularia; W. & A.
		15,309	Fruit of Zizyphus vulgaris; Lamk.
		15,310	Fruit of Zizyphus xylopyra; Willd.
SPICES.			
15,311	Bulbs of Allium cepa; Linn. "Onion." (Liliacæ.)	15,316	Seeds of Brassica juncea; H. F. & T. T. "Indian mustard."
15,312	Bulbs of Allium sativum; Linn. "Garlic."	15,317	Seeds of Brassica nigra; Koch. "Black mustard."
15,313	Fruit of Amomum subulatum; Roxb. (Scitamineæ.)	15,318	Fruit of Capsicum annuum; Linn. "Spanish pepper." (Solanaceæ.)
15,314	Seeds of Apium graveolens; Linn. "Wild celery." (Umbelliferae.)	15,319	Seeds of Carum copticum; Benth. (Umbelliferae.)
15,315	Seeds of Brassica campestris; Linn. "Turnip." (Cruciferae.)	15,320	Cloves of Caryophyllus aromaticus; Linn. "Cloves." (Myrtaceæ.)

APPENDIX IV.—*continued.*

DONATIONS (SPECIMENS).

Museum No.	Description.	Museum No.	Description.
15,321	Leaves of <i>Cinnamomum obtusifolium</i> ; Nees. (Laurineæ.)	15,334	Plant of <i>Mentha sativa</i> ; Linn. "Mint." (Labiatae.)
15,322	Bark of <i>Cinnamomum zeylanicum</i> ; Breyn. "Cinnamon."	15,335	Nutmeg of <i>Myristica moschata</i> ; Willd.; "Nutmegs." (Myristaceæ.)
15,323	Kernel of <i>Cocos nucifera</i> ; Linn. "Coco-nut." (Palmae.)	15,336	<i>Myristica moschata</i> . "Mace."
15,324	Leaves of <i>Corchorus olitorius</i> ; Linn. "Jute." (Tiliaceæ.)	15,337	Seeds of <i>Nigella sativa</i> ; Linn; var <i>indica</i> . "Black cumin." (Ranunculaceæ.)
15,325	<i>Coriandrum sativum</i> ; Linn. "Coriander." (Umbelliferae.)	15,338	Seeds of <i>Papaver somniferum</i> ; Linn. (Papaveraceæ.)
15,326	Flower of <i>Crocus sativus</i> ; Linn. (Irideæ.)	15,339	Seeds of <i>Peucedanum graveolens</i> ; Benth. "Dill." (Umbelliferae.)
15,327	Seeds of <i>Cuminum Cyminum</i> ; Linn. "Cumin." (Umbelliferae.)	15,340	Seeds of <i>Piper Cubeba</i> ; Linn, f.; "Cubebs." (Piperaceæ.)
15,328	Seeds (variety) of <i>Cuminum Cyminum</i> . "Cumin."	15,341	Seeds of <i>Piper nigrum</i> ; Linn. "Black pepper."
15,329	Rhizomes of <i>Curcuma longa</i> ; Roxb. "Turmeric." (Scitamineæ.)	15,342	<i>Tamarindus indica</i> ; Linn. "Tamarinds." (Leguminosæ.)
15,330	<i>Elettaria Cardamomum</i> ; Maton. "Cardamoms." (Scitamineæ.)	15,343	Leaves of <i>Trichosanthes dioica</i> ; Roxb. (Cucurbitaceæ.)
15,331	<i>Ferula Narthex</i> ; Boiss. "Assafætida." (Umbelliferae.)	15,344	Seeds of <i>Trigonella Fœnum-græcum</i> ; Linn. "Fenugreek." (Leguminosæ.)
15,332	Seeds of <i>Fœniculum vulgare</i> ; Gærtu. "Fennel." (Umbelliferae.)	15,345	Seeds of <i>Vernonia anthelmintica</i> ; Willd. "Purple fleabane." (Compositæ.)
15,333	Leaves of <i>Melia Azadirachta</i> ; Linn. "Neem or Margosa." (Meliaceæ.)	15,346	Rhizome of <i>Zingiber officinale</i> ; Roscoe. "Ginger." (Scitamineæ.)
July 5.			
16,890	Quantity of indigenous tobacco (sun-dried) wrapped in portion of spathe of sago palm. Obtained from natives of the village of Tumu, 50 miles north of Cape Blackwood, Gulf of Papua, New Guinea. Theodore Bevan, Esq., F.R.G.S., Sydney.		
August 8.			
16,918	Resin of grass-tree gum of <i>Xanthorrhœa hastilis</i> , R.Br. From New South Head Road, towards Bondi. J. H. Maiden, Esq., F.R.G.S., Sydney.		
August 22.			
16,922	A quantity of seeds and fruits of the Mahwa-tree, <i>Bassia latifolia</i> ; Roxb. The Government of India, through F. B. Wauson, Esq., Deputy Conservator of Forests, Chata, Nagpur Division.		
July 5.			
16,934	Sago meal or flour ($\frac{1}{2}$ lb.) From Evorra village, Jubilee River, 16 miles north-east of Bald Head, New Guinea, See Proc. Linn. Soc.; N.S.W., for 1887. Theodore F. Bevan, Esq., F.R.G.S., Sydney.		
September 14.			
16,943	Bark of <i>Eucalyptus maculosa</i> . "Spotted gum." Spring Hill, Mittagong. Mr. C. E. Fraser, Mittagong.		
September 30.			
16,957	Bark of <i>Exocarpus cupressiformis</i> ; Labill. "Native cherry." Near Ryde, 30/7/87. J. H. Maiden, Esq., F.R.G.S., Sydney.		
16,958	Bark of <i>Acacia longifolia</i> ; Willd. "Golden wattle." Near Ryde, 30/7/87.		
16,959	Bark of <i>Banksia integrifolia</i> ; Linn, fil. "Coast honeysuckle." Oatley's Grant, 23/7/87.		
16,960	Bark of <i>Banksia serrata</i> ; Linn, fil. "Common honeysuckle." Oatley's Grant, 23/7/87.		
16,961	Bark of <i>Acacia longifolia</i> ; Willd. "Golden wattle." Oatley's Grant, Illawarra Railway line, 23/7/87.		
16,962	Bark of <i>Etaeocarpus grandis</i> ; F. v. M. Sydney, 20/7/87.		
16,963	Bark of <i>Rhus rhodanthema</i> ; F. v. M. Sydney, 20/7/87.		
16,964	Leaves of <i>Rhus rhodanthema</i> ; F. v. M. Sydney, 20/7/87.		
16,965	<i>Rhus</i> sp. (probably <i>coriaria</i>); Sumach. Sydney, 20/7/87.		
October 27.			
17,072	Twigs of <i>Alstonia constricta</i> ; F. v. M. "Feverbark-tree." The Rev. J. Milne Curran, F.G.S.		
October 31.			
17,073	Oblong mat of <i>Pandanus</i> "Screw-pine." Fibre, woven in a loom (native), unstained; transversely disposed on one side, and at equal intervals are nine ornamental bands of fibre, stained black, in geometrical patterns worked into the mat; length, 6 ft. 9 in.; breadth, 2 ft. 6 in. (exclusive of fringe). Santa Cruz Islands. Mrs. Selwyn, Sydney.		
17,074	Basket of woven screw-pine fibre, the fringe of the handle being bast from a Tiliaceous plant. By way of ornament, oblong flaps of screw-pine cloth are stretched, four on each side. Each flap is ornamented with black geometrical patterns; about 9 in. square (exclusive of handle). Santa Cruz Islands.		
17,075	Boat-shaped bowl dug out of wood and carved after the fashion of a bird. Inlaid with mother-of-pearl stem and stern; blackened. Greatest length, 15 $\frac{1}{4}$ in.; breadth, 3 $\frac{1}{2}$ in.; height, 4 in. Solomon Islands.		
17,076	Comb of whale-bone, twenty-three teeth; shape, sub-triangular; the handle beautifully ornamented with very fine screw-pine plait, stained yellow and red. Greatest length, 7 in.; width at end of teeth, 2 $\frac{3}{8}$ in. Ulana, Solomon Islands.		
November 13.			
17,138	Bark of <i>Acacia implexa</i> . County of Camden, New South Wales. Rev. Dr. Woolls, F.L.S.		

APPENDIX IV—*continued*.

DONATIONS (SPECIMENS).

November 26.

Samples of tea, about 6 oz. weight. Messrs. Griffiths Bros., Melbourne.

Museum No.	Description.	Museum No.	Description.
17,704	Pekoe. Java.	17,709	Pekoe siftings. Java.
17,705	Pekoe, black leaf. Java.	17,710	Pekoe Souchong. Java.
17,706	Orange Pekoe. Java.	17,711	Souchong. Java.
17,707	Flowery Pekoe. Java.	17,712	Broken leaf. Java.
17,708	Broken Pekoe. Java.		

December 16.

- 17,727 | Pod and preparations from *Strophanthus hispidus*; DC. (Apocynæ.) A new remedy in certain diseases of the heart. It has superseded *Digitalis* under some circumstances. West Africa. Messrs. Burroughs, Wellcome, & Co., Melbourne.

December 12.

- 17,734 | *Owenia acidula*; F. v. M. "Mooley fruit, or native nectarine." (Meliaceæ.) Eaten by aboriginals. Grown on Yancarnia, Wilcannia. Mrs. Robert Kennedy, Wonnaminta.

December 29.

Gums, resins, and kinos, as follows. Charles Moore, Esq., F.L.S., Curator, Botanic Gardens, Sydney.

Museum No.	Description.	Museum No.	Description.
17,779	Gum of <i>Acacia homalophylla</i> ; A. Cunn.	17,791	Kino of <i>Eucalyptus maculata</i> ; Hook.
17,781	Gum of <i>Albizzia procera</i> ; Benth.	17,788	Kino of <i>Eucalyptus melliodora</i> ; A. Cunn.
17,783	Resin of <i>Araucaria Bidwilli</i> ; Hook.	17,789	Kino of <i>Eucalyptus obliqua</i> ; L'Herit.
17,782	Resin of <i>Araucaria Cunninghamii</i> ; S. Richmond River.	17,790	Kino of <i>Eucalyptus rostrata</i> ; Schl.
17,784	Resin of <i>Callitris columellaris</i> ; F. v. M.	17,786	Kino of <i>Eucalyptus sissilis</i> ; F. v. M.
17,785	<i>Callitris verrucosa</i> ; R. Br.	17,778	Gum of <i>Macrozamia Perowskiana</i> ; Miq. Botanic Gardens, Sydney.
17,792	Kino of <i>Eucalyptus amygdalina</i> ; Labell.	17,780	<i>Sterculia rupestris</i> ; Benth.
17,787	Kino of <i>Eucalyptus leucocylon</i> ; F. v. M.		

ECONOMIC GEOLOGY.

February 17.

Samples to illustrate the manufacture of Portland cement. Messrs. Macdonnell & Busch, Bond-street, Sydney.

Museum No.	Description.	Museum No.	Description.
14,637	Sample of Medway clay.	14,646	Brick—one part cement, three parts sand; gauged, January 19, 1887.
14,638	Chalk and clay, after mixing and before drying. "Wet slurry."	14,647	Brick—one part cement, four parts sand; gauged, January 19, 1887. Seven briquettes of "neat" cement bearing these marks:—
14,639	Chalk and clay, after drying and before burning. "Dry slurry."	14,648	Set 27/7/84. No. F 190.
14,640	Portland cement clinker, after burning and crushing and before going into the millstones.	14,649	Set 10/11/84. No. G 449.
14,641	Ground cement.	14,650	Set 1/12/84. No. 576.
14,642	Portland cement clinker, after burning and before crushing and grinding.	14,651	Set 23/12/84. No. 586, tested to 14,628 on the 6th January, 1886, and not broken.
14,643	Brick of neat cement; gauged, January 22, 1887.	14,652	Set 5/8/85. No. 94.
14,644	Brick—one part cement, one parts and; gauged, January 21, 1887.	14,653	Set 31/12/85. No. 13.
11,645	Brick—one part cement, two parts sand; gauged, 20 January, 1887.	14,054	Set 6/12/85(?). No. $\frac{3}{4}$ ².
		14,655-7	Three circular tablets, about 3 inches diameter, of neat cement; dated 31 December, 1885.

April 17.

- 14,763 | Psilomelane (Manganese ore) from Newbabin Station, near Nymagee, New South Wales. Mr. E. C. Pettitt, Nyngan, New South Wales.

April 30.

- 14,826 | Silver ore from the "Silver King" Mine, Sunny Corner, near Bathurst, New South Wales. Mr. W. Adam, Sydney.

May 7.

- 14,897 | Meerschau (silicate of magnesia), from the Gwydir River, New South Wales. Mr. Alex. McPherson, Sydney.

July 4.

- 15,094 | Small slab of Portovenere marble, polished on one side. Portovenere, Italy. Mr. W. H. Gilding, Sydney.

August 19.

- 16,921 | Bottle of crude Petroleum oil from the Gisborne Oil Well, New Zealand. William Fleming, Esq., Sydney, through Theodore Bevan, Esq.

APPENDIX IV—*continued.*

DONATIONS (SPECIMENS).

Museum No.	Description.		
August 27.			
16,935	Collection of Cobalt ores and associated rocks obtained from the Cobalt Mines, at Port Macquarie, New South Wales. Uriah Dudley, Esq., Port Macquarie.		
September 1.			
16,937	Prehnite from Prospect Waterworks. A. Godhard, Esq., Prospect Waterworks.		
October 27.			
Copper ores and associated rocks from Cobar. The Rev. J. Milne Curran, F.G.S., Cobar.			
Museum No.	Description.	Museum No.	Description.
17,011	Quartz with green carbonate of copper; Girilambone Mine, Cobar.	17,031	Slate out of which 17,030 is obtained. Cobar.
17,012	Veinstone; Girilambone Mine, Cobar.	17,032-3	Fibrous malachite.
17,013-4	Specimens of a vein, full size; Girilambone Mine.	17,034-5	Galena found with copper in the Cobar Mine.
	These are typical of veins in the Girilambone District, and, though of no thickness, extend to great depths.	17,036	Redruthite. Cobar.
17,015-7	Carbonates, blue and green, from upper part of Cobar lode.	17,037-8	Fibrous malachite on ironstone. Cobar.
17,018-20	Carbonates of copper in impure steatite; Cobar, New South Wales.	17,039-40	Rocks associated with copper ores. Cobar.
17,021	Slate, forming country around the Cobar lode.	17,041	Azurite. Cobar.
17,022	Black slate, with magnetic iron pyrites, from the lowest levels in the Cobar Mine.	17,042	Steatitic slate wall of lode. Cobar.
17,023-4	Pyrrhotite and chalcopyrite from Cobar Mine.	17,043-7	Green carbonates of copper. Cobar.
17,025	Chalcopyrite (copper pyrites). Cobar.	17,048-50	Native copper. Cobar.
17,026-7	Pyrrhotite and chalcopyrite. Cobar.	17,051-2	Azurite crystals. Cobar.
17,028-9	Malachite, forming incrustation. Cobar.	17,053-4	Green carbonates of copper. Cobar.
17,030	From lowest level of Cobar Mine.	17,055	Volcanic ash indurated and interbedded with silurian rocks.
		17,056	Fine-grained (steatitic) sandstone, used for making fire-bricks for smelting furnaces.
		17,057-64	Green carbonates of copper. Cobar.
		17,065	Azurite and green carbonate of copper.
		17,071	Azurite. Cobar.
		17,825	Mass of azurite crystals.
October 31.			
17,077	Cerargyrite or Horn Silver. Broken Hill Mine. Mrs. Robert Kennedy, Wonnominjita, N.S.W.	17,082	Kopai (powdered gypsum). Used instead of lime for making mortar, mixed with more than its own quantity of sand.
17,078	Carbonate of silver. Broken Hill Mine.	17,083	Limestone.
17,079	Fossilized wood (3 specimens).	17,084	Cuprous Silver ore. Day Dream Mine.
17,080	Chloro-bromide of silver.	17,085	Tin ores (3 specimens). Lady Don Claim, Poolamacca.
17,081	Slab of gypsum.	17,086	Silver ores (2 specimens).
Copper ores from the Cobar mines. R. N. Williams, Esq., manager, the Great Cobar Mines, Cobar, N.S.W.			
17,094	Chalcopyrite.	17,108-10	Blue carbonate of copper, crystallized (9 specimens); silky crystals of malachite, with azurite crystals.
17,095	Slate, with dendritic manganese oxide, forming country to the north of the copper lode. Cobar.	17,111	Mass of azurite crystals, with fibrous malachite, imbedded in impure steatite.
17,096-7	Native copper (2 specimens).	17,112	Green carbonate of copper, in impure steatite.
17,098-100	Malachite on impure steatite (6 specimens).	17,113-15	Chalcopyrite (6 large specimens).
17,101-4	Blue carbonate of copper on impure steatite (12 specimens).	17,116-18	Redruthite (9 large specimens).
17,105-7	Blue and green carbonates of copper (six specimens).		
November 11.			
17,129	Nodules of sand and small pebbles concreted by a ferruginous cement. Mittagong.	Mr. C. E. Fraser,	
17,130	Brown clay, with ironstone.		
November 18.			
17,703	Graphite, from New England, New South Wales.	Messrs. Pike & Erskine, Sydney.	
December 2.			
17,713	Sixteen small rubies, from the MacDonnell Ranges, South Australia.	Mr. W. Gardner, through Mr. Thomas Colyer, Sydney.	
17,715	Graphite, from New England, New South Wales.	Mr. Charles Wooller, Sydney.	
17,723	Rock crystal (fragment), Mauritius.	Monsieur B. de Montille, Sydney.	

APPENDIX IV—*continued.*
DONATIONS (SPECIMENS).

Museum No.	Description.
	December 3.
17,725	Stalactitic limonite, from near Cowan Creek, Berowra, Great Northern Line: J. H. Maiden, F.R.G.S., Sydney.
	December 27.
17,777	Green carbonate of copper, from near Port Macquarie. Mr. Charles Wooller; Sydney.

ECONOMIC ZOOLOGY.

February 17.

Specimens to illustrate the various processes in the manufacture of Leather. Messrs. Bevingtons & Sons, St. Thomas-street, London, S.C.

Museum No.	Description.	Museum No.	Description.
<i>Sheepskin in process of manufacture:—</i>			
14,577	Sheepskin with wool on.	14,602	Horsehide imprinted with artificial grain by brass roller. "Rolled and grained."
14,578	Sheepskin after the wool has been removed by the application of lime. "Pelt."	14,603	Horse-hide prepared with boiled linseed oil and prussian blue. "First coat."
14,579	Sheepskin after saturation in lime-water. "Limed pelt."	14,604	Horse-hide enamelled with boiled linseed oil and prussian blue. "Second coat."
14,580	Sheepskin after the superfluous flesh has been removed by working with the two-handled knife. "Fleshed."	14,605	Horse-hide varnished with boiled linseed oil, prussian blue, and lampblack. "Third coat."
14,581	Sheepskin (grain side) after splitting by machine. "Skiver."	14,606	Horse-hide softened and finished for shoemakers' use. "Enamelled horsehide."
14,582	Sheepskin (flesh side) after splitting by machine. "Lining."	<i>Goatskin in process of manufacture:—</i>	
14,583	Skiver cleansed from lime and fatty matter. "Puered."	14,607	Goatskin as imported from Switzerland.
14,584	Skiver further cleansed by immersion in fermented bran and water. "Drenched."	14,608	Goatskin unhaired after saturation in lime-water. "Unhaired."
14,585	Skiver made into leather by infusion of sumach. "Tanned skiver."	14,609	Goatskin after removal of superfluous flesh by the two-handled knife. "Fleshed."
14,586	Skiver leather partially bleached with sulphuric acid, for dyeing. "Cleared."	14,610	Goatskin cleansed from lime and fatty matters. "Puered."
14,587	Skiver dyed rose-colour with cochineal. "Dyed."	14,611	Goatskin further cleansed with fermented bran. "Drenched."
14,588	Skiver leather prepared with white of egg, for glazing. "Cleared."	14,612	Goatskin made leather by infusion of sumach. "Tanned."
14,589	Skiver leather marked with toothed boxwood roller. "Rolled."	14,613	Goat leather extended after tanning and dried in the air. "In crust."
14,590	Skiver leather glazed with finer-toothed boxwood roller. "Cut through."	14,614	Goat leather partially bleached with sulphuric acid for dyeing. "Cleared."
14,591	Skiver leather smoothed and glazed with hardwood roller. "Finished for book-binding, &c."	14,615	Goat leather dyed maroon colour with Orchilla Weed. "Dyed."
<i>Horsehide in process of manufacture:—</i>			
14,592	Horsehide as imported from South America.	14,616	Goat leather shaved and thinned with the currier's knife. "Shaved."
14,593	Horsehide with hair removed by saturation in lime-water. "Unhaired."	14,617	Morocco leather prepared with white of egg for glazing. "Seasoned."
14,594	Horsehide after removal of superfluous flesh by the two-handled knife. "Fleshed."	14,618	Morocco leather after first glazing with toothed boxwood roller. "Rolled."
14,595	Horsehide cleansed from lime and fatty matter. "Puered."	14,619	Morocco leather after second glazing with a finer toothed boxwood roller. "Cut through."
14,596	Horsehide cut down to an even substance with curriers' knife. "Bate-shaved."	14,620	Morocco leather after third glazing with smooth hardwood roller. "Dum-mied."
14,597	Horse-hide after cleansing with fermented bran and water. "Drenched."	14,621	Morocco leather grained up and finished for furniture-makers' and coach-makers' use. Coloured morocco."
14,598	Horsehide tanned with bark and terrajaponica. "Tanned."	<i>Calfskin in process of manufacture:—</i>	
14,599	Horsehide thinned to required substance with curriers' knife. "Shaved."	14,622	Calfskin as imported from Russia.
14,600	Horsehide oiled and dried in the air. "Dried out."	14,623	Calfskin with hair taken off after saturation in lime-water. "Unhaired."
14,601	Horsehide seasoned and stretched to obliterate wrinkles. "Seasoned and set."	14,624	Calfskin cleared from loose integument with the two-handled knife. "Fleshed."
		14,625	Calfskin cleansed from lime and fatty matter. "Puered."
		14,626	Calfskin further cleansed with fermented bran and water. "Drenched."

APPENDIX IV—*continued.*

DONATIONS (SPECIMENS).

Museum No.	Description.	Museum No.	Description
14,627	Calfskin made into leather with alum, salt, and flour. "Tawed."	14,632	Calf leather prepared with mordant for dyeing.
14,628	Calf leather extended and softened by rubbing on a sharpened iron. "Staked."	14,633	Calf leather dyed black with logwood and copperas. "Dyed."
14,629	Calf leather after washing in water to remove superfluous alum and salt. "Washed."	14,634	Calf leather softened and cut down to an even substance by the moon knife. "Pared."
14,630	Calf leather after saturation in yolk of egg. "Egged."	14,635	Calf leather extended and smoothed.
14,631	Calf leather rendered soft and pliable by working over a sharpened iron. "Second staking."	14,636	Calf leather oiled and finished for the use of boot and shoe makers. "Kid calf."
April 27.			
14,823	Clothing wool, very superior. Nangas, Gundagai, N.S.W. W. H. Chard, Esq. (Messrs. W. H. Chard & Co.), Sydney.	14,824	Clothing wool, superior. Near Young.
		14,825	Clothing wool, superior. Bulga, near Cobar.
May 18.			
14,907	Fine clothing wool, scoured.—J. R. Chappel, Esq., Dundee, New England (through Messrs. W. H. Chard & Co., Sydney.)		
September 3.			
16,942	A number of tubes filled with assorted coloured yarns for the loom.—Messrs. John Vicars & Co., Sydney.		
September 27.			
16,944	Hair of Angora Goat. Beefwood, near Wilcannia, N.S.W.—Mr. P. Mathers, Beefwood, near Wilcannia.		
16,945	Small bottle of Emu oil. In many parts of this country it is used as a cure for rheumatism, but more especially for bruises and sprains.—Mr. P. Mathers, Beefwood, near Wilcannia.		
October 11.			
17,010	Stud rams' wool, combing, (12 samples); Darr River Downs, Western Queensland Messrs. Williams & Co., per A. Fiskén, Melbourne.		
17,009	Stud ewes' wool (11 samples), combing; Darr River Downs.—Messrs. Williams & Co., per A. Fiskén, Melbourne.		
17,008	Flock ewes' wool, clothing (5 samples); Darr River Downs.—Messrs. Williams & Co., per A. Fiskén, Melbourne.		
17,007	Lambs' wool (3 samples); Darr River Downs.—Messrs. Williams & Co., per A. Fiskén, Melbourne.		
December 2.			
Queensland merino wools.—Messrs. A. Crombie & Co., Strathdarr, Western Queensland.			
17,716	Wool of stud ram "Jimboru," 12 years of age. 1.	17,720	Wool from 6 and 8 tooth ewes with lambs. 32-40.
17,716a	Wool of stud ram "Tasman," aged 10 years. 2.	17,717	Wool from shirled hoggets (shorn as lambs). Very superior combing. 41-47.
17,716b	Wool of stud rams, station-bred, sons of Nos. 1 and 2. 3-5.	17,717a	Wool from shirled hoggets (shorn as lambs). Combing. 49-55.
17,716c	Wool of stud rams, sons of Nos. 1 and 2; station-bred. 6-9.	17,721	Wool from ewe hoggets (stud), by stud rams; 12 months' growth. 56-58.
17,718	Wool of stud ewes, 6-tooth; 10 months' growth. 10-20.	17,717b	Wool from shirled hoggets (shorn as lambs). Clothing. 59-61.
17,718a	Wool of stud ewes, 8-tooth; 10 months' growth. 21-31.		
December 10.			
17,726	Trepang or Bêche-de-mer (Holothuria); 8½ inches long, Fiji.—Mr. A. L. Hinton, Sydney.		
December 19.			
New South Wales—C. Fetherstonhaugh, Esq., Goorianawa, Mendooran, N.S.W.			
17,735a	Flock ewes' wool, 6-tooth; very superior combing. Bred from Mudjee blood; paddocked, grass-fed; shorn in grease. The clip of 1886 "topped" the market in Sydney at 10¼d. 1-8.		
17,735b	Flock ewes' wool, 6-tooth; a fine combing wool. 9-13.		
17,735c	Flock ewes' wool, 6-tooth, showing a stronger combing sort than the above. 14-16.		
	The remarks as to breed, &c., apply to Nos. 17,735b and c, as well as No. 17,735a.		

APPENDIX IV—*continued.*

DONATIONS (SPECIMENS).

EDUCATION.

May 20.

Museum No.	Description.	Museum No.	Description.
Messrs. George Philip & Son, Caxton Buildings, Liverpool.			
14,918	Philip's Schoolroom Map of the British Empire.	14,928	Philip's Standard Map Drawing Book, No. 1.
14,919	Philip's Chart of Geographical Terms.	14,929	Faunthorpe's "British Colonies."
14,920	Philip's Geographical Illustrations—Burmese Alps.	14,930	Intermediate Class-book—Modern Geography.
14,921	Philip's Geographical Illustrations—Cologne Cathedral.	14,931	Kindergarten Drawing Books (4 types).
14,922	Philip's Geographical Illustrations—Jerusalem.	14,932	Kindergarten Script Letters.
14,923	Philip's Jubilee Atlas of the British Empire.	14,933	Martin's Euclid, Book 1.
14,924	Philip's Jubilee Atlas of the British Empire.	14,934	Alexander's Healthful Exercises for Girls.
14,925	Philip's British Empire Atlas.	14,935	Alexander's Musical Drill for Infants.
14,926	Philip's Scripture Atlas.	14,936	Hayes' Test Cards. 1 pkt. H 2.
14,927	Philip's Grammar School Atlas.	14,937	Taylor's Musical Theory Course.
		14,938	Practical Hints on Elementary School-work.
		14,939	Practical Hints—Infant School-work.
Messrs. W. & H. K. Johnston, Edina Works, Edinburgh.			
14,940	Cosmographic Atlas.	14,947	Howard Vincent Map of the British Empire.
14,941	Colonial and Indian Atlas.	14,948	Natural History Plates (8).
14,942	Small Wall-map of India.	14,949	Type of Native Hindoo.
14,943	Small Wall-map of Australia.	14,950	Type of North American Indian.
14,944	Greek History Chart (in case).	14,951-2	Copies of catalogues and specimen books.
14,945	Roman History Chart, No. 1 (in case).		
14,946	Colonial Atlas of Oceania.		

MISCELLANEOUS.

February 12.

14,576 | Japanese paper money, equal in value to two shillings. Thomas Shaw, Esq., Sydney.

March 2.

14,756 | Piece of bark stripped from a Norfolk Island pine (*Araucaria excelsa*) by lightning, Ryde, January 29, 1887. Mrs. E. F. Barlow, Wondoo, Ryde.

March 20.

14,766 | One krone of silver. Date, 1882; country, Norway and Sweden. Mr. W. H. Steadman, c/o Colonial Mutual Insurance Co.

May 4.

Herbarium specimens mounted in recessed frames and folding in book fashion. Messrs. Rabone, Feez, & Co., Sydney.

14,827 | *Castanea vesca*, Linn. (Spanish chesnut, male and female).

14,828 | *Juniperinus sabina*, Linn. (common savin).

June 6.

15,072 | Two sets of Highland bagpipes, full size; No. 1 made in 1840, No. 2 made in 1850; the former from *Lignum Vitæ* wood, the latter from Tulip wood. Made by the father of donor, Mr. George Sherar, Sydney.

June 10.

15,077 | Danish coins, current:—1 ore = $\frac{1}{4}$ d.; date, 1874.

15,078 | Danish coins, current:—2 ore = $\frac{1}{2}$ d.; date, 1874.

15,079 | Danish coins, current:—10 ore = 1 $\frac{1}{4}$ d.; date, 1857.

15,080 | German coins, current:—5 Pfennig = $\frac{1}{2}$ d.

15,081 | 1 Groschen = 1d, obsolete.

15,082 | American coin, current:—1 cent = $\frac{1}{2}$ d.

} Mr. S. L. Haurowitz, Sydney.

September 30.

16,966 | Bamboo representing one year's growth, 65 feet. Gladesville, N.S.W. Sir Alfred Roberts, Sydney.

December 2.

17,714 | Lead sinkers for line-fishing for schnapper, &c. They are cigar-shaped, and the line passes through the core. The sinker is not fixed to the line, as is usually the case, but is capable of sliding along it. Designed by the donor, Mr. John Fagan.

APPENDIX V.

LOANS:

Museum No.	Date and Description.				
February 2.					
14,566	Large iron model of a "Manhe's process" copper converter. See "Proceedings of the Association for 1886." Engineering Association of N.S.W., Sydney.				
February 21.					
14,700-1	Two breech-loading rifles, with flint-locks; one taken to pieces to show the mechanism, the other in working order. In use in the United States Navy. Made by J. H. Hall and H. Ferry in 1834. Mr. John Fagan, Sydney. Mr. Fagan, to whom the Museum has from time to time been indebted for many interesting exhibits, has furnished the following description of the above-mentioned rifles:—The barrels of the rifles are turned outside and slightly tapered towards the muzzle. They are bored in sixteen parallel grooves, which have a quarter of a turn in the entire length, which ends within a short distance of the muzzle. The fore-sight is brazed near the end of the muzzle, declining a little to one side; the backsight is dovetailed into the barrel near the breech, which can be moved or adjusted to suit the tip of the foresight. Two arms are fixed in the barrel, in which the elevating breech works; the breech itself is cut out of a solid piece of steel by rose cutters and milling tools. The diameter of bore is $\frac{9}{16}$ of an inch, tapering slightly to the muzzle. The powder chamber, the springs, and the whole of the lock are in the back part of the elevating breech. The breech opens at an angle towards the barrel, which allows room to place the bullet or cartridge. In pressing the trigger either at half or full cock the breech will close and lock itself before the hammer and flint can fall upon the cup which holds the powder, and which is cut out of the top of the breech. A lid covers the breech, and is held down by a spring, but when struck by the flint a spark can pass into the cup. There are four springs connected with the breech. The stocks are of American walnut, and the barrels are attached to them by three brands. The action of the breech is similar to that of the Martini-Henry, but reversed.				
June 8.					
15,073-76	Proof pieces of the new gold coinage, consisting of two sovereigns and two half sovereigns. The Deputy Master of the Mint.				
July 14.					
15,072a	Diploma and medal for two sets of Highland bagpipes made in 1840 and 1850 respectively. Mr. George J. Sherar, Ivy-street, Redfern.				
15,072a	Bronze medal and certificate of Honorable Mention, London Exhibition, 1851. Mr. George J. Sherar, Ivy-street, Redfern.				
November 6.					
Collection of Ancient and Mediæval Coins. Mr. Robert Whitburn, Sydney.					
17,119	Rose Crown, Charles II, 1662.				
17,120	Half-crown piece, William and Mary, 1689.				
17,121	Shilling, Edward VI.				
17,122	Shilling (3), Elizabeth, 1562.				
17,123	Sixpenny piece, Queen Anne, coined from silver captured from the Spaniards in Vigo Bay.				
17,124	Roman copper coin.				
17,125	Roman silver coin.				
November 13.					
17,131-7	Collection of English and foreign coins. Mr. Robert Whitburn, Sydney.				
Country.	Name of Coin.	Metal.	Date.	Obverse.	Reverse.
Belgium	Centime	Nickel	1862	Lion rampant : motto ...	Value : name of king.
Sardinia	Lira	Silver	1824	King's head	Coat of arms.
Rome (under the Pope)..	Bajocco	Copper	1850	Papal coat of arms	Year : value.
Prussia	Silber groschen ...	Poor silver ...	1827	King's head	Year : value.
Do	do	do	1827	do	do.
Turkey	Para	Copper .....	.....	.....	.....
New Brunswick	Halfpenny token...	do	1843	Queen's head	Man-of-war sailing vessel.
Rome (under the Pope)..	Bajocchi	Silver	1852	Papal coat of arms ...	Year : value.
Do	do	do	1858	Pope's head	do.
Dukedom Schwarzburg..	Kreutzer	Poor silver ...	1840	Coat of arms	do.
Holland (Netherlands)...	Cent	Copper	1732	.....	Obsolete.
United States of America	do	Nickel	1867	Ornamental shield	Motto : value : year.
Sweden	Ore	Silver	1865	King's head : name	Value : year.
Netherlands	Cent	Copper	1863	Crown : king's initial ...	Arms : value.
Old Netherlands	Gulden	Silver	1763	Crown : shield : value...	Ornamental.
Spain	Real	do	1774	King's head	Coat of arms.
Do	Medio	do	1785	do	do.
Peru	Dinero	do	1875	Coat of arms	Goddess of Liberty : value.
Germany	Pfennig	do	1877	do	Value : year.
United States of America	Cent	do	1834	do	Goddess of Liberty : year.
Do	Dime (10 cents) ...	do	1876	do	do.
France (Empire)	Franc	Gold	1858	Emperor's head	Value : year.
Do (Republic)	Centime	Copper	1875	Head of Liberty : year...	Value : motto.
Italy	Centesimi	do	1867	Head : name of king	Value : year.
Spain	Centime	do	1870	Coat of arms	Ornamental : year.
France (Empire)	do	do	1856	Emperor's head	Eagle : value.
Greek Empire	It is probable that the smaller one of the two coins found in Sussex is a Greek coin about 2,000 years old.				
Rome (Empire)	Antoninus Augustus, Consul for the third time; died about A.D. 160. (Found in Sussex.)				

APPENDIX V—continued.

LOANS.

Country	Name of Coin.	Metal.	Date.	Obverse.	Reverse.
England	Model penny	Silver enclosed in copper.	Model		
Do	Penny	Large copper.		Queen's head	Britannia.
Ireland	Halfpenny	Copper		King's head	Harp.
Do (base money)		Debased brass (?)	1652	Base	Base.
England	Guinea	Gold	1813	King's head	Arms in small circle.
Do	Shilling	Silver	1787	do	Crowns between shields.
Do	do	do	1787	do	do.
Do	do	do	1820	do	Arms.
Do	Sixpenny piece	do	1787	do	do.
Do	Threepenny piece.	do	1763	do	Crown over value.
Do	Penny	Copper	1797	do	Britannia.
Do	Halfpenny	do	1773	do	do.
Do	Farthing	do	1799	do	do.
Do	Lion shilling	Silver	1826	do	Lion over crown over the three emblems.
Do	Half (?) farthing	Copper	1826	do	Britannia.
Do	do	do	1826	do	do.
Do	Shilling	Silver	17—	Queen's head	Crowns over parted shields.
Do	Groat	do	1710	do	Crown over four (4) pence.
Do	Threepenny piece.	do	1713	do	Three pence.
Do	Twopenny piece	do	1713	do	Two pence.
Do	Shilling	do	1750	King's head	Shields spread: circlet in centre.
Do	do	do	1743	do	do.
Do	Sixpenny piece	do	1758	do	do., but no rose.
Do	do	do	1758	do	do.
Do	do	do	16—	Charles II head	Ornamental.
Do	do	do	1682	do	do.
Do	Halfpenny	Copper	1749	King's head	Britannia.
Do	Farthing	do	1700	do	do.

The above information has been kindly supplied by Mr. Martin P. Hansen, Sydney.

APPENDIX VI.
PURCHASES (Books).

Library No.	Title of Book.	Author.
AGRICULTURE.		
1,727	Catalogue of Dairy Show, 1886. Agricultural Hall, London	
1,792	School of Forestry in Germany	Brown
1,867	Construction and Equipment of Grain Magazines	Luther.
1,868	The Young Tea Planters' Companion	Deas.
1,898	Crown Forests in the Cape of Good Hope	Brown.
1,918	The Culture of Cotton	Mallett.
1,924	La Végétation dans les Hautes Latitudes	Tisserano.
1,928	Canadian Forests	Small.
1,933	Report on Agriculture in New Brunswick, 1884	
1,936	Report of the Canadian Minister of Agriculture, 1883	
1,963	Agricultural Pests in India	Balfour.
APPLIED SCIENCE.		
1,761	Atlas der Urproduktion Oesterreichs	Ministerial Department for Agriculture.
1,830	A Treatise on Paper	Parkinson.
1,923	A Manual of Dyeing and Receipts. 3rd edition	Napier.
1,965	Printing of Cotton Fabrics	Sansone.
1,973	Exercises in Wood Carving	Unwin.
ARCHITECTURE.		
1,530	L'Architecture Normande. Vol. IX.	Ruprich Robert.
1,833	Famous Monuments of Central India	Seppel Griffin.
1,840	L'Architecture Normande. Vol. X.	Ruprich Robert.
1,964	The Site of the New Admiralty and War Offices, Whitehall, London.	Royal Institution British Architects.
1,969	Ornamental Interiors...	Moye Smith.
1,970	Technical School and College Building	Robins.
ART.		
1,760	Torino e L'Esposizione Italiana, del 1884. Cronaca illustrata, della Esposizione Nazionale Industriale ed Artistica del 1884.	
1,831	Illuminated Ornaments selected from the Manuscripts of the Middle Ages.	Shaw.
1,848	Precious Stones, Nature, Art, and Literature	
1,953	Album of Designs found at Pompeii	
1,974	Examples of Armorial China	Griggs.
1,993	Il Tesoro di San Marco in Venezia	Ongania.

APPENDIX VI—*continued.*
PURCHASES (Books).

Library No.	Title of Book.	Author.
BOTANY.		
1,742	Plants Indigenous to the Colony of Victoria. Lithograms ...	Mueller.
1,758	Companion to the United States Pharmacopœia ...	Oldberg & Wall.
1,591	Report on the Scientific Results of the Exploring Voyage of H.M.S. "Challenger," 1873-6. Botany. Vol. II. <i>Diatomacœæ</i> , Part IV.	Murray.
1,721	American Medicinal Plants. Fascicle V. ...	Millspaugh.
1,590	Biologia Centrali Americana; or, Fauna and Flora of Mexico and Central America. Botany (<i>Cycadacœæ</i>). Vol. IV., pp. 49-144.	Hemsley.
1,648	New Commercial Plants and Drugs. No. 10 ...	Christie.
1,818	The Flora of North America arranged according to their Natural System.	Forrey & Gray.
1,819	Synoptical Flora of North America. The <i>Gamopetalae</i> ...	Gray.
1,829	Nippon Shokubrutsumeii, on Nomenclature of Japanese Plants...	Matsumura & Yatabe.
1,832	The Botanical Atlas. A Guide to the Practical Study of Plants...	M'Alpine.
1,852	Sketch of the Forests of West Africa ...	Moloney.
1,869	British Flora. 5th edition ...	Hooker.
1,870	A Synopsis of British Flora. 3rd edition ...	Lindley.
1,871	Materia Medica ...	Bentley & Redwood.
1,875	Extra Pharmacopœia ...	Martindale & Westcott.
1,876	Guide to Therapeutics ...	Farquharson.
1,877	Manual of Botany ...	Bentley.
1,879	Student's Flora ...	Hooker.
1,880	The Phytologist, 1841 to 1851 ...	Newman.
1,881	Medicinal Plants ...	Bentley & Tremen.
1,914	Trees and Shrubs of Great Britain ...	Loudon.
1,915	Manual of Botany ...	Balfour.
1,916	Medical and Economical Botany. 2nd edition ...	Lindley.
1,917	The Fibre Plants of Africa and the Colonies ...	Dickson.
1,971	Report on Gums, &c., in the Indian Museum ...	Cooke.
1,972	Biologia Centrali Americana. Part 23 ...	Hemsley.
1,976	Prolusio Floræ Japonicæ ...	Miguel.
1,992	American Medicinal Plants. Fascicle VI. ...	Millspaugh.
CHEMISTRY.		
1,701	Commercial Organic Analysis. Vol. II. ...	
1,715	Treatise on Chemistry. Vol. III, Part 3 ...	Roscoe and Schorlemmer.
1,874	Anfield's Chemistry ...	Anfield.
CYCLOPÆDIAS, &C.		
1,531	Official Year-Book of the Scientific and Learned Societies of Great Britain and Ireland, 1887.	
1,021	Ellis's Irish Educational Directory and Scholastic Guide, 1887 ...	
1,834	Statistical Atlas of United States. Scribner's ...	Scribner & Co.
1,847	Statistical Atlas of India, 1886 ...	
1,850	Phraseological Dictionary of Commercial Correspondence...	Scholl.
1,905	Dictionnaire de Commerce ...	Guillaumin & Co.
1,906	Dictionnaire Industriel ...	Lacroix.
1,907	Dictionnaire des Produits de la Nature et de l'Art...	Magnier et Dew.
1,913	The Draper's Dictionary ...	Beek.
EDUCATION.		
1,778	United States Bureau of Education, Circulars of Information, Nos. 1 and 2. 1885.	
1,792	Schools of Forestry in Germany ...	Brown.
1,828	Some National and Board School Reforms ...	Lord Brabazon.
1,934	Annual Report on New Brunswick Schools. 1885 ...	The Chief Superintendent of Education.
GEOLOGY AND MINERALOGY.		
<i>Geology, Mineralogy, &c.</i>		
1,763	Mémoires sur les terrains Crétacés et Tertiaires. Tome II... ..	Mourlon.
517	Geological Survey of Victoria. Observations on New Vegetable Fossils.	Baron Mueller.
1,780	Congrès Géologique International, Bologne. 1881. Compte rendu de la 2 ^{me} Session.	
1,794	Geological Survey of Victoria. Prodrômus of the Palæontology. Decades, 2-7.	
1,801	Annual Report of the Government Geologist, South Australia, December, 1882, to December, 1883 (with plans).	Government Geologist.
1,860	Introduction to the Study of Minerals, with a guide to the Mineral Gallery in the British Museum. Pamphlet.	

APPENDIX VI—*continued*.
PURCHASES (Books).

Library No.	Title of Book.	Author
1,862	An introduction to the study of Meteorites represented in the Collection in the British Museum.	
1,926	Exploitations Minières à la Nouvelle Calédonie	Bout.
1,929	Mineral resources of the Dominion of Canada	
MECHANICS AND ENGINEERING.		
1,521	Die Maschinen Baumaterialien und deren Bearbeitung	Wiebe.
1,521 ^a	Atlas to illustrate the above	Wiebe.
1,817	The Steam-engine	Holmes.
1,851	The Portable Engine, its Construction and Management	Wansbrough.
1,925	Discussion on Steel Rails at American Institution of Mining Engineers	Sandberg.
ZOOLOGY.		
1,725	Commercial and other Sponges	Hyatt.
1,743	Praktische Insecten Kunde	Taschenberg.
1,823	Treatise on Insects injurious to Gardeners, Foresters, and Farmers	Vincent & Köllar.
1,836	Reports of Observations on Injurious Insects	Ormerod.
1,849	Insecten und Wurmer	Taschenberg.
1,899	Insects injurious to Forest and Shade Trees	Packard.
1,961	Concours d'Animaux de Boucherie, 1849 to 1861	
1,962	Concours d'Animaux Reproducteurs, 1850 to 1861	
1,920	Uses of Animals to Man	Lankester.
1,921	Ostriches and Ostrich Farming	Moscuhall & Harting.
1,922	Ostrich Farming in South Africa	Douglas.
MISCELLANEOUS.		
1,762	Topographische Atlas von het Konigrijk der Nederlanden	
1,878	Book-keeping	Inglis.
1,816	Curiosities of Food	Simmonds.
1,904	Blue Book, 1886	
1,908	The Natural History of Commerce	Yeats.
1,909	The Technical History of Commerce	do.
1,910	Growth and Vicissitudes of Commerce	do.
1,911	Recent and Existing Commerce	do.
1,912	European Statistics	
1,919	Our Food	Lankester.
1,927	Notes on Perak	
1,930	The Province of Nova Scotia	
1,931	The Province of New Brunswick	
1,932	Temperature and Rainfall of India	Blanford.
1,956	Quinta Esposizione d'Industria	
1,957	Primo Esposizione dei Cotoni Italiani fatta a Torino, 1864	
1,985	List of Economic Products presented to the South Australian Government by the Government of Bengal.	Mukhargi.

CATALOGUES, PATENTS, &c.

1,856 | General Guide to the Natural History Museum, South Kensington, London.

British Museum, Natural History Section:—

Library No.	Title of Book.	Library No.	Title of Book.
1,857	Guide to Galleries of Reptiles and Fishes.	1,863	Guide to Galleries of Mammalia.
1,858	Guide to Galleries of Shellfish and Starfish.	1,864	Guide to the Gould Collection.
1,859	Guide to Collection of Fossil Fishes.	1,865	Guide to Department of Geology and Palæontology.
1,861	Student's Index to Collection of Minerals.		

Miscellaneous.

1,886	List of Objects in the Art and Industrial Divisions of the Edinburgh Museum of Science and Art; acquired in 1883-6.	1,956 ^a	Guidicio della Comera d'Agrie e di Commercis di Torino. 1851.
1,955	Guidicio della R. Comera d'Agrie e di Commercis di Torino. 1838.	1,782	Index to Official Journal, Patent Office. July to Dec., 1884.

APPENDIX VI—continued.

DONATIONS (Books).

PERIODICALS BOUND.

Library No.	Title of Book.	Library No.	Title of Book.
23	Wool and Textile Fabrics. Vol. VI. Jan. to June, 1885.	1,675	Imperial Gazetteer of India, in 14 vols. Vols. IX, X, XI.
264	Ironmonger. 12 vols., complete. July, 1882, to Dec., 1885.	1,747	Iron Age. 6 vols. April, 1883, to Dec., 1885.
444	Chemical Review. 2 vols. 1884 and 1885.	1,748	Textile Recorder. 2 vols. 1883, 1885.
967	Colliery Guardian. 2 vols. July, 1884, to Dec., 1885.	1,749	Paper Trade Journal. 1 vol. July to Dec., 1885.
969	Timber Trades Journal. 2 vols. July, 1885, to June, 1886.	1,750	British and Colonial Printer and Stationer. 1 vol. Oct., 1884, to June, 1885.
972	Paper-makers' Monthly Journal. 2 vols. 1884 and 1885.	1,751	Californian Architect. Vol. III, 1882; vol. IV, 1883; vol. V, 1884.
973	American Microscopical Journal. 1 vol. 1885.	1,752	American Mail. 2 vols. 1884-5.
975	Telegraphic Journal. Vols. XVI and XVII. 1885.	1,753	Printer's Register. 2 vols. 1884-5.
976	Journal of Forestry. 1884 and 1885.	1,754	Amateur Photographer. 2 vols. Oct., 1884, to Dec., 1885.
978	La Lumière Electrique. Vols. XV to XVIII. 1885.	1,755	Jeweller and Metalworker. 2 vols. 1882-3.
981	Iron. Vols. XXV and XXVI. 1885.	1,756	Stationery Trades Journal. 3 vols. 1883-5.
982	Gas and Water Review. Vols. XIII and XIV. 1885.	1,757	Horological Journal. 2 vols. 1883-5.
988	Knowledge. 1885.	1,779	Index Medicus. Vol. V. January to December, 1883.
990	Mechanics. Vol. VI. Jan. to Dec., 1885.	1,781	Journal of the American Chemical Society. 1879-80-81.
1,022	Engineering. 2 vols. Jan. to Dec., 1885.	1,786	Jeweller and Metalworker. 2 vols. 1884-5.
1,194	Sanitary Record. 1 vol. 1884-5.	1,790a	Reveu Coloniale Internationale. April, 1887.
1,232	Scientific American. 2 vols. Jan. to Dec., 1885.	1,796	Ausstellungs Zeitung Zurich. 1883.
1,242	American Artisan. Jan. to June, 1885.	1,838	Index Medicus. Vol. IV. 1882.
1,243	London Iron Trade Exchange. 2 vols. Jan. to Dec., 1885.	1,839	Index Medicus. Vol. VI. 1884.
1,292	Mechanical News. 1 vol. 1885-6.	1,841	Bulletin of Miscellaneous Information, Royal Gardens, Kew.
1,295	Stationery Gazette. 1 vol. 1885.	1,866	Journal of Indian Art, No. 19.
1,612	Journal of Indian Art. Nos. 17 and 18. 2 vols. Jan. and April, 1887.		

PROCEEDINGS OF SOCIETIES.

1,791*	Proceedings of the Linnean Society of New South Wales. Vol. I, 1875-6; vol. II, 1877; vol. III, 1878; vol. IV, 1879-80; vol. V, 1880-1; vol. VI, 1881-2; vol. VII, 1882-3; vol. VIII, 1883-4; vol. IX, 1884-5; vol. X, 1885-6.	1,872†	Journal and Transactions of the Pharmaceutical Society of Great Britain (1st and 2nd series), 1841 to 1879. 29 vols.
		1,873†	Journal and Transactions of the Pharmaceutical Society of Great Britain (3rd series), 1879 to 1882. 13 vols.

* Donation.

† Purchases

EXHIBITION LITERATURE.

1,728 | Brewers' Exhibition, London, 1886. Official Catalogue.

London International Exhibition, 1862.

1,771	Exhibition Catalogue, Brazil.	1,770	Exhibition Catalogue, descriptive of Island of Trinidad.
1,774	Do Japan.	1,772	Exhibition Catalogue, Algeria.
1,767	Do des Produits de Colonies Française.	1,775	Do New South Wales.
1,768	Exhibition Catalogue Works of Art and Industries, sent from Sweden.	1,776	Do Economic Minerals of Canada.
1,769	Exhibition Catalogue (official), United States.	1,777	Exhibition Catalogue, Natal.
		1,773	Ceremonial to be observed at the State opening, May 1, 1862.

Miscellaneous.

1,741	Cookery and Food Exhibition, London, 1886. Official Catalogue.	1,799	Kunstgeschichtliche Beiträge über die vielfarbigen Gobelin-Wirkereien und Purpurstickereien. Ausstellung des Kunstgewerbe vereins. Hanover, 1886.
1,766	Exhibition Catalogue, Antwerp, 1885. Canadian section.	1,824	Manchester Royal Jubilee Exhibition Catalogue. 1887.
1,732	Reminiscences of the Colonial and Indian Exhibition.	1,825	Newcastle-upon-Tyne Royal Mining Exhibition Catalogue. 1887.
1,797	Architectural and Building Trades Exhibition, Official Catalogue. London, 1887.	1,826	Saltaire Royal Yorkshire Exhibition Catalogue. 1887.
		1,827	Esposizione Regionale Foscana Catalogo. 1887.

APPENDIX VI—*continued.*

PURCHASES (BOOKS).

EXHIBITION LITERATURE.

Colonial and Indian Exhibition, London, 1886.

Library No.	Title of Book.	Library No.	Title of Book.
1,732	Reminiscences of the Colonial and Indian Exhibition, London, 1886. Official Catalogue.	1,948	Catalogue of Exhibits from Quebec.
1,744	Catalogue of Exhibits in the Victorian Court.	1,949	Catalogue of Geological Exhibits, New Zealand.
1,837	Report, 1887.	1,950	The Colonies and India Supplement.
1,945	Catalogue of New Zealand Exhibits.	1,951	Report of Reception Committee.
1,946	Official Guide.	1,986	Illustrated Handbook of Victoria.
1,947	Commissioners and Registrars.	1,987	Catalogue Victorian Geological Collection.
		1,991	Catalogue American Exhibits.

Miscellaneous.

1,890*	Official Catalogue of N.S.W., Exhibits.	1,941	Anvers Exhibition, 1885. List of Jury.
1,982*	Official Catalogue.	1,942	Amsterdam Exhibition, 1883. Catalogue of Exhibits from Spanish Colonies.
1,983*	Catalogue Victorian Exhibits.	1,943	Amsterdam Exhibition, 1883. Catalogue of Japanese Section.
1,984*	Catalogue Northern Territory Exhibits.	1,944	Amsterdam Exhibition, 1883. Report on Egyptian Exhibits by Cherif Pasha.
1,900	Official Catalogue Jubilee Exhibition, Liverpool, England, 1887.	1,952	Maritime Exhibition, Havre, 1887. Special Regulations of the Floating Exhibition.
1,923	Official Catalogue of Exhibits from Victoria in the London International Exhibition, 1873.	1,959	Catalogue Norwegian Exhibits. Vienna Exhibition, 1873.
1,938	Catalogue of Exhibits from Guatemala, Paris Exhib., 1878.	1,990	Catalogue of Exhibits People's Palace, 1887.
1,939	Calcutta Exhibition, 1883. Report of South Australian Commissioners.		
1,940	Official Catalogue of the Woollen Exhibits, Crystal Palace Exhibition, 1881.		

* Donations, Adelaide Jubilee Exhibition.

REPORTS.

United States Consular Reports.

1,726	Mercantile Marines of Foreign Countries, April, 1886.	1,734	Reports from January to April, 1882.
1,729	State of Labour in Europe, 1878.	1,735	Reports from November, 1883, to February, 1884.
1,733	The Cotton-Goods Trade of the World. November and December, 1881.	1,736	Report from March to June, 1884.

Reports from the Consuls of the United States.

1,765	Vol. XIX. April to September, 1886.	1,822	Vol. XXI. January to March, 1887.
1,793	„ XX. September to December, 1886.		

Reports H.M. Diplomatic and Consular Officers.

1,787	Trade and Finance, 1886. 30-32. Commercial. Pts. 1, 2, 3. 1 to 29.	1,967	Trade and Finance. 116-168.
1,788	Commercial, Japan, China, and Corea, 1884.	1,968	Do do 169-206.
1,821	Trade and Finance. 73-115.	1,789	Miscellaneous. 1 to 25.
		1,966	Do 26 to 51.

Miscellaneous.

1,790	Reports on Insects injurious to root and certain other crops in Great Britain.	1,854	Department of Mines—Annual Report, 1886.
1,814	Report on progress and condition of the Botanic Gardens, Adelaide, during year 1886.	1,935	Report on the Fisheries of Canada, year 1883.
1,815	Reports on Insects injurious to Hop Plants, Corn, and Fruit Crops.	1,958	Report of the Papal States Deputies on the Dublin Exhibition, 1865.
1,820	Report of the British Association, Birmingham, 1886.	1,960	Report of the Blind Congress in Amsterdam, 1885.

APPENDIX VII.

DONATIONS (BOOKS AND PERIODICALS).

Library No.	Title of Book.	Author.
AGRICULTURE.		
1,724	Commercial, Pastoral, and Agricultural Association of New South Wales: Its origin and purposes. Presented by the Association.	
1,883	Tropical Agriculturist (1881-87). Presented by the Honorable the Minister for Public Instruction.	
1,888	Chemico-Agricultural Tables for use of Students at the College of Agriculture, Romaha, Tokio, Japan. Presented by the Council.	Wolff.

APPENDIX VII—*continued*.
DONATIONS (BOOKS AND PERIODICALS).

Library No.	Title of Book.	Author.
ARCHITECTURE AND ART.		
1,738	Plan of the Australian Museum and its contents. Presented by the Trustees, Australian Museum.	
1,889	American Education in Fine and Industrial Art, Part I. Presented by Commissioner of Education, Washington.	Clarke.
BOTANY.		
1,979	Notes on some indigenous Sago and Tobacco from New Guinea. Presented by J. H. Maiden, F.R.G.S.	Maiden.
1,994	Führer durch die Vegetabilische Abtheilung der Kgl. Landw. Hochschule. Presented by Prof. Wittmach.	Wittmach.
1,995	The Action and Uses of Strophanthus. Presented by Messrs. Berroughs, Wellcome, & Co., Melbourne.	Fraser.
1,745	Description and Illustrations of the Myoporinous Plants of Australia: Part II. Lithograms. Presented by Government of Victoria through the Department of Public Instruction, Sydney.	Mueller.
1,746	Notes on Australian Plants (<i>Swainsonia Beasleyana</i>). Presented by the Author.	Mueller.
1,808	Iconography of Australian species of Acacia and cognate genera: 1-4 Decades. Presented by Government of Victoria through the Department of Public Instruction.	Mueller.
1,893	Woods and Forests of Tasmania; Annual Report, 1886-7, by the Conservator. Presented by G. S. Perrin, F.L.S., Conservator.	Perrin.
EDUCATION.		
1,835	Calendar of the Pharmaceutical Society of Ireland, 1887. Presented by the Secretary to the Society.	
1,788	Circulars of Information of the Board of Information, Washington: No. I, 1886. The Study of Music in Public Schools. Presented by the Superintendent of National Education, Washington.	
1,807	Report of Commissioners of Education, 1884-85: Washington, 1886. Presented by the Bureau of Education, Washington.	
1,784	No. II, 1886. Proceedings of Department of Superintendent of National Education Association at its meeting at Washington, 23 and 26 February, 1886. Presented by the Superintendent of National Education, Washington.	
1,902	Report on Technical Education: From the Government Printer...	Combes.
1,903	Report of the Minister of Public Instruction. From Government Printer.	
1,889	American Education in Fine and Industrial Art: Part I. Presented by Committee of Education, Washington.	Clarke.
1,977	Mason Science College, Birmingham: Calendar, 1887-88. Presented by the Council.	
GEOLOGY AND MINERALOGY.		
1,730	School of Mines, Ballarat, Annual Report, 1886. Presented by the Secretary for Mines.	
1,800	Report of Government Geologist, South Australia, 1883; with five lithographed plans. Presented by H. Y. L. Brown, Government Geologist, South Australia.	Government Geologist.
1,805	Notes on Geological Map of Gumeracha and Mount Crawford Gold-fields, South Australia; with map. June 22, 1886. Presented by H. Y. L. Brown, Government Geologist, South Australia.	Government Geologist.
1,811	California State Mining Bureau: Parts I and II. Sixth Annual Report of State Mineralogist. Presented by Acting Secretary, California State Mining Bureau.	Part I, Hanks. Part II, Ireland.
1,885	Gold-fields of Victoria: Report of the Mining Registrars for Quarter ending 30 June, 1887. Presented by the Honorable the Minister for Mines, Victoria.	
519	Gold-fields of Victoria. Reports of the Mining Registrars, Half-year ending 31 March, 1887. Presented by the Secretary for Mines, Victoria.	
1,938	Gold-fields of Victoria. Reports of the Mining Registrars, Quarter ending 30 September, 1887. From the Secretary for Mines.	
1,802	Report on the Geological character of Barossa and Para Wirra, South Australia; with plan. 10 December, 1885. Presented by the Government Geologist.	
1,803	Report of the Geological character of the country passed over from Port Augusta to Eucla, South Australia; with plan. Presented by the Government Geologist.	

APPENDIX VII—*continued.*

DONATIONS (BOOKS AND PERIODICALS).

Library No.	Title of Book.	Author.
<i>GEOLOGY AND MINERALOGY—continued.</i>		
1,804	Report on Ulooloo Gold-field, South Australia; with plan. Presented by the Government Geologist.	
1,806	Reports on Geology of country east of Farina and northward to latitude 23 degrees 10 minutes. South Australia, 1884. Presented by the Government Geologist.	
<i>MECHANICS AND ENGINEERING.</i>		
1,722	Drawing and Rough Sketching for Marine Engineers. Presented by the Author.	Donaldson.
1,897	The strength and elasticity of New South Wales timbers of commercial value. From the Government Printer.	Warren.
<i>ZOOLOGY.</i>		
1,737	Notes for Collectors, containing hints for the Preservation of specimens of Natural History. Presented by the Trustees, Australian Museum.	Ramsay.
1,739	Catalogue of Australian Stalk—and Sessile-eyed Crustacea. Presented by the Trustees, Australian Museum.	Haswell.
1,740	Catalogue of the Australian Birds in the Australian Museum. Presented by the Trustees, Australian Museum.	Ramsay.
1,980	Catalogue of the Medusæ of Australian waters. Presented by the Trustees, Australian Museum.	Von Lendenfeld.
<i>MISCELLANEOUS.</i>		
1,981	Naturproducte de Westlichen Südsee. Presented by the Author, Dr. O. Finch.	
1,731	Aboriginal Weapons, Implements, &c., in the Australian Museum. Presented by the Trustees, Australian Museum.	Collected by K. H. Bennett, Mossgiel, N. S. Wales.
<i>PROCEEDINGS OF SOCIETIES.</i>		
1,782 ^a	Proceedings Royal Society of Tasmania, 1886. Presented by the Council.	
1,784	Proceedings of Department of Superintendent of National Educational Association at its meeting at Washington, February 1886. No. 2, 1886. Presented by the Bureau of Education, Washington.	
1,809	Proceedings and Transactions of the Queensland Branch of the Geographical Society of Australasia, 2nd Session, 1886-7, Vol. II. Parts 1 and 2. Presented by the Council.	
1,812	Journal of the Proceedings of the Royal Society of New South Wales, Vol. XXI, part I, August, 1887. Presented by the Council.	
1,853	Royal Geographical Society of Australasia, 1886-7. Vol. II, part 2. Presented by the Council.	
1,891	Register of Papers published in the Tasmanian Journal, and the Proceedings of the Royal Society, Tasmania. Presented by the Council.	Alex. C. Morton, Librarian.
1,892	Proceedings of the Royal Society of Queensland, Vol. III. Presented by the Council.	
1,894	Transactions and Proceedings of the Royal Society, Victoria. Vol. XXIV, part I. Presented by the Council.	
1,901	Journal and Proceedings of the Royal Society, New South Wales, 1886. Presented by the Council.	
1,884	Transactions and Proceedings of the Royal Society, Victoria, vol. XXIII. Presented by the Council.	
<i>Exhibition Literature.</i>		
1,810	Adelaide Jubilee Exhibition, 1887. Forestry Exhibits, Department of Mines, Forest Branch, New South Wales. Presented by the Department of Mines, Sydney.	
<i>Reports.</i>		
1,557	Massachusetts Institute of Technology. 22nd Annual Report, Catalogue 1886-7. Presented by the Secretary of the Institute.	
1,557 ^a	Massachusetts Institute of Technology. President's Report, 8 December, 1886. Presented by the Secretary of the Institute.	
1,785	Report of the Board of Technical Education, New South Wales, 1885. Presented by the Board of Technical Education.	
1,798	17th Annual Report of the South Australian Chamber of Manufactures, Adelaide, for year ending July, 1886. Presented by the Chamber.	

APPENDIX VII—*continued.*
DONATIONS (BOOKS AND PERIODICALS).

Library No.	Title of Book.	Author.
<i>REPORTS—continued.</i>		
1,800	Report of the Government Geologist of South Australia, 1883; with 5 lithographed plans. Presented by the Government Geologist.	
1,813	Report, Queensland Museum, 1886. Presented by the Trustees.	
1,855	Liverpool School of Science. 25th Annual Report, 1885-6. Presented by the Committee of the School.	
1,882	30th Annual Report of Pharmaceutical Society of Australasia. Presented by the Council.	
1,885	Reports of Gold-mining Registrars of Victoria. Presented by the Secretary for Mines.	
1,887	Yorkshire College of Science, Leeds. 13th Annual Report. Presented by the Council.	
1,989	Report of Council of Birmingham and Midland Institute, 1886. Presented by the Council.	
1,895	Annual Report of the Secretary for Mines and Water Supply, Victoria, 1886. Presented by the Secretary.	
1,896	Mineral Statistics of Victoria, 1886. Report of Secretary for Mines. Presented by the Secretary.	
1,954	Report on the Asylum for the Blind at Lausanne (Switz.) from 1847 to 1885, with the exception of the 2nd Report (out of print). 32 vols. Presented by the Superintendent of the Asylum through Chev. Jervis.	
1,954a	Education des aveugles. Impressions de voyage par le secrétaire. Presented by the Superintendent of the Asylum through Chev. Jervis.	
1,978	Report, British and Foreign School Society. Presented by the Council.	

PERIODICALS AND MAGAZINES.

The Publishers of the following Journals have generously continued to contribute copies of their publications to the Reading-room of the Museum during the year, viz.:—

Amateur Photographer (London).	Hatters' Gazette (London).
American Mail and Export Journal (New York).	Horological Journal (London).
American Monthly Microscopical Journal (New York).	Ironmonger (London).
Bookseller (London).	Ironmonger (Supplement).
Boot and Shoe Trades Journal (London).	Iron (London).
Brewers' Guardian (London).	Iron and Steel Trade Journal.
British and Colonial Printer and Stationer (London).	Jeweller and Metal-worker (London).
British Trade Journal (London).	Manufacturer and Builder (New York).
Builders' Weekly Reporter (London).	Mechanical News (New York).
Building World (London).	Mineralogical Magazine (London).
Bullettino Telegraphico (Rome).	Oil and Colourman's Journal (London).
Burgoyne's List.	Paper-maker's Journal, and Annual Directory of Paper-makers (London).
Cabinet-maker (London).	Paper Trade Review (London).
California Architect (San Francisco).	Pharmaceutical Journal.
Canadian Magazine (Montreal).	Plumber and Decorator.
Colliery Guardian (London).	Printer's Register (London).
Cooke's Illustrations of British Fungi.	Reveu Coloniale Internationale.
Co-operative Index to Periodicals (London).	Sanitary Record (London).
Decorators' Gazette (London).	Sugarcane (Manchester).
Educational Record (London).	Stationery Trades Journal (London).
Exporter (London).	Telegraphic Journal and Electrical Review (London).
Engineering (London).	Textile Recorder (Manchester).
Fireman (London).	Therapeutic Gazette.
Forestry (Edinburgh).	Tropical Agriculturalist.
Gas and Water Review (London).	Timber Trades Journal (London).
Hardware Trade Journal (London).	

The Publishers of the following have been good enough to occasionally forward copies of their journals to the Museum:—

Australian Journal of Pharmacy.	Educational Record.
Brewers' Gazette.	Industrial Review.
British Mercantile Gazette (London).	Iron Age (New York).
Chamber of Commerce Journal.	Leather Trades Circular.
Chemical News.	Mechanical Progress.
Chemical Review (London).	Mechanical World.
Decoration.	Mineralogical Magazine.

APPENDIX VII—continued.

DONATIONS (BOOKS AND PERIODICALS).

Paper and Printing Trades Journal.	Practical Engineer.
Paper-maker's Circular (London).	Sanitary World (London).
Paper-making.	Scientific American (New York).
Phillips' Machinery Register.	Textile Manufacturer.

APPENDIX VIII.

PURCHASES (DIAGRAMS, MAPS, &C.)

February 24.	July 19.
Photographs mounted on Cardboard of:—	Hungarian Roasting Furnace.
Combing Machine.	Swedish Roasting Furnace.
Screw Gill Lap Machine.	Swedish Refining Hearth.
Gill Preparer, Nos. 1, 2, 3, and 5.	August 1.
Screw Gill Box, two heads of one delivery each.	Crucible Furnace.
Screw Gill Box, one head of one delivery.	Double Refining Hearth for Iron.
Worsted Drawing Frame (French system).	Spectacles Furnace.
Worsted Roving Frame.	Lignation Furnace.
Worsted Dandy Roving Frame.	August 23.
Worsted Spinning Frame.	Furnace for Smelting Tin Ores.
Calico Loom, with Yorkshire Tuppets (for worsted goods).	Furnace for the Manufacture of Crown Glass.
Wrought Iron and Steel Double Forge Hearth, with Reheating Furnace.	Furnace for Smelting Iron Ores.
Wrought Iron and Steel Forge Hearth, with Reheating Furnace.	September 6.
February 5.	Portfolio of Indian Art. No. 27.
Furnace for Smelting Ores. Broken section.	Portfolio of Italian Art. Parts 3 to 5.
Gooch's Link Motion.	Portfolio of Persian Art. Part 7.
Gooch's Link Motion.	Portfolio of Swedish Art. Part 5.
Large Puddling Furnace Gas Regenerator.	Photographs of Burmese and Madras Art-ware.
Oven for Wood-charcoal.	Drawing of Davis's Breeze Oven.
"Newcomen" Model.	November 15.
Glass Levelling Furnace.	Anthracite Blast Furnace.
Furnace for Making Coke.	Bessemer Converter.
July 12.	December 12.
Cupellation Furnace (German patent).	Clarke & Rowley's Map of New South Wales.
Mansfield Roasting Furnace.	

DIAGRAMS (COLOURED TO NATURE) OF NEW SOUTH WALES ECONOMIC PLANTS.

Acacia bincervata; DC. "Black-wattle." (Leguminosæ.) Use: Timber, tan, gum.	Alphananthe phillippinensis; Planch. "Elm." "Tulipwood." (Urticæ.) Use: Timber, fibre.
Acacia decurrens, glabrous var; Willd. "Black-wattle." (Leguminosæ.) Use: Tan.	Aphananthe phillippinensis; Planch. "Elm." "Tulipwood." (Urticæ.) Use: Timber, fibre.
Acacia decurrens, glabrous var; Willd. "Black-wattle." (Leguminosæ.) Use: Tan.	Baloghia lucida; Endl. "Brush bloodwood." (Euphorbiacæ.) Use: Dye, timber.
Acacia dealbata; Link. "Silver-wattle." (Leguminosæ.) Use: Timber, tan, gum.	Backhousia myrtifolia; Hook. et Harv. "Water myrtle." (Myrtacæ.) Use: Timber.
Acacia melanoxylon; R. Br. "Black-wood." "Light-wood." (Leguminosæ.) Use: Timber, tan.	Banksia integrifolia; Linn fil. "Coast honeysuckle." (Proteacæ.) Use: Timber.
Acacia pendula; Cunn. "Weeping myall." (Leguminosæ.) Use: Timber, tan.	Banksia marginata; Cav. "Honeysuckle." (Proteacæ.) Use: Timber, tan.
Acacia podalyriifolia; Cunn. A silver-wattle. (Leguminosæ.) Use: Timber, tan.	Banksia serrata; Linn fil. "Common honeysuckle." (Proteacæ.) Use: Timber, tan.
Acacia pubescens; R. Br. (Leguminosæ.) Use: Tan.	Brachychiton acerifolium; F. v. M. "Flame-tree." "Lace-bark-tree." (Sterculiacæ.) Use: Timber (poor), fibre.
Acacia penninervis; Sieb. "Blackwood." "Hickory." (Leguminosæ.) Use: Timber, tan.	Brachychiton luridum; F. v. M. "Sycamore." "Hat-tree." (Sterculiacæ.) Use: Timber, fibre.
Acacia verniciflua; Cunn. (Leguminosæ.) Use: Tan.	Callistemon salignus; DC. "River tea-tree." "Stonewood." (Myrtacæ.) Use: Timber.
Acronychia Baueri; Schott. "Brush ash." (Rutacæ.) Use: Timber.	Callicoma serratifolia; Andr. "Native beech." (Saxifragæ.) Use: Timber.
Acronychia Cunninghamii; Hook. Syn., Medicosma Cunninghamii; Hook. fil. (Rutacæ.) Use: Timber.	Cargillia Australis; R. Br. "Black plum." (Ebenacæ.) Use: Timber, food.
Aegiceras majus; Gært. "River mangrove." (Myrsinæ.) Use: Tan.	Cargillia pentamera; F. v. M. "Black myrtle." "Grey plum." (Ebenacæ.) Use: Timber, food.
Alphitonia excelsa; Reiss. "Red ash." (Rhamnæ.) Use: Timber.	Cargillia pentamera; F. v. M. "Black myrtle." "Grey plum." (Ebenacæ.) Use: Timber, food.
Alyxia ruscifolia; R. Br. (Apocynæ.) Use: Timber (small).	Castanospermum Australe; Cunn. et Fraser. (Leguminosæ.)
Angophora intermedia; DC. "Narrow-leaved apple-tree." (Myrtacæ.) Use: Timber.	Casuarina suberosa; Otto et Dietr. "Sheo-oak." (Casuarinæ.) Use: Timber.
Angophora lanceolata; Cav. "Apple-tree." "Red-gum." (Myrtacæ.) Use: Timber.	

APPENDIX VIII—continued.

PURCHASES (DIAGRAMS, MAPS, &C.).

- Casuarina glauca*; Sieb. "She-oak." "Belar." (Casuarinææ.) Use: Timber, tan.
- Ceratopetalum gummiferum*; Smith. "Christmas bush." (Saxifrageææ.) Use: Timber, ornament.
- Ceratopetalum apetalum*; D. Don. "Coachwood." "Leather-jacket." "Lightwood." (Saxifrageææ.) Use: Timber.
- Citriobatus multiflorus*; Cunn. "Orange Thorn." (Fittosporææ.) Use: Timber, food.
- Clerodendron tomentosum*; R. Br. (Verbena-cææ.) Use: Timber.
- Clerodendron tomentosum*; R. Br. (Verbena-cææ.) Use: Timber.
- Cupania nervosa*; F. v. M. A Tamarind. (Sapindacææ.) Use: Food, timber.
- Commersonia echinata*; R. et G. Forst. (Sterculiacææ.) Use: Fibre.
- Var *platyphylla*; Andr. (Sterculiacææ.)
- Dysoxylon Muelleri*; Benth. "Turnip-wood." (Incliacææ.) Use: Timber.
- Dysoxylon Fraserianum*; Benth. "Rosewood." (Incliacææ.) Use: Timber.
- Dysoxylon Fraserianum*; Benth. "Rosewood." (Incliacææ.) Use: Timber.
- Elæocarpus cyaneus*; Ait. (Tiliacææ.)
- Elæocarpus cyaneus*; Ait. "Native olive." "White boree." (Tiliacææ.) Use: Timber.
- Elæocarpus grandis*; F. v. M. "Blue fig." (Tiliacææ.) Use: Timber.
- Eucalyptus corymbosa*; Smith. "Bloodwood." (Myrtacææ.) Use: Timber, Kino.
- Eucalyptus amygdalina*; Labill. "Peppermint tree, &c." (Myrtacææ.) Use: Timber, Kino oil.
- Eucalyptus crebra*; F. v. M. (Myrtacææ.)
- Eucalyptus pilularis*; Smith. "Blackbutt." (Myrtacææ.) Use: Timber, Kino.
- Eucalyptus piperita*; Smith. "Peppermint." (Myrtacææ.) Use: Timber, Kino oil.
- Eucalyptus stricta*; Sieb. (Myrtacææ.) Use: Timber (small).
- Eucalyptus Sieberiana*; F. v. M. "Native" or "Mountain ash." (Myrtacææ.) Use: Timber, kino.
- Eugenia Smithii*; Poir. "Lillypilly." (Myrtacææ.) Use: Timber, tan, food.
- Eugenia Smithii*; Poir. "Lillypilly." (Myrtacææ.) Use: Timber, food.
- Eugenia myrtifolia*; Sims. "Brush myrtle." (Myrtacææ.) Use: Timber.
- Eugenia Ventenatii*; Benth. "Drooping myrtle." "Large-leaved water-gum." (Myrtacææ.) Use: Timber, food.
- Eupomatia laurina*; R. Br. "Balwarra." "Rose bush." (Anonacææ.) Use: Timber.
- Euphorbia pilulifera*; Linn. "Asthma herb." (Euphorbiacææ.) Use: Drug.
- Ficus scabra*; Forst. Syn., *Ficus aspera*. "Rough-leaved fig." (Urticææ.) Use: Timber (inferior).
- Ficus rubiginosa*; Desf. "Port Jackson fig." (Urticææ.) Use: Timber, resin.
- Harpullia Hillii*; F. v. M. Tulipwood. (Sapindacææ.) Use: Timber.
- Harpullia pendula*; Plonch. Tulipwood. (Sapindacææ.) Use: Timber.
- Harpullia pendula*; Plonch. Tulipwood. (Sapindacææ.) Use: Timber.
- Helicia glabriflora*; F. v. M. (Proteacææ.) Use: Food.
- Hymenosporum flavum*; F. v. M. "Wollum-Wollum (of N.S.W. Aborigs.) (Pittosporææ.) Use: Timber.
- Lagunaria Patersoni*; G. Don. "Tulip-tree." (Malvacææ.) Use: Fibre, timber.
- Lagunaria Patersoni*; G. Don. "Tulip-tree." (Malvacææ.) Use: Fibre, timber.
- Laportea photiniphylla*; Wedd. "Narrow-leaved nettle-tree." (Urticææ.) Use: Fibre, timber.
- Macadamia ternifolia*; F. v. M. "Queensland nut." (Proteacææ.) Use: Food.
- Macadamia ternifolia*; F. v. M. "Queensland nut." (Proteacææ.) Use: Food.
- Melaleuca leucadendron*; Linn. Syn., *Melaleuca minor*; Smith. A variety of this species yields Cajuput oil. (Myrtacææ.) Use: Timber, oil.
- Melaleuca nodosa*; Smith. "Swamp tea-tree." (Myrtacææ.) Use: Timber.
- Melaleuca pauciflora*; Turcz. (Myrtacææ.) Use: Timber.
- Melaleuca styphelioides*; Smith. "Prickly-leaved tea-tree." (Myrtacææ.) Use: Timber.
- Melia azedarach*; Linn. "White cedar." "Capo lilac." (Meliacææ.) Use: Timber.
- Mollinedia macrophylla*; Tulasne. Syn., *Kibara macrophylla*. (Monimicææ.) Use: Timber.
- Myoporum acuminatum*; R. Br. Syn., *Myoporum tenuifolium*; G. Forst. (Myoporinææ.) Use: Timber.
- Nephelium leiocarpum*; F. v. M. "Tamarind wood." (Sapindacææ.) Use: Food, timber.
- Nephelium leiocarpum*; F. v. M. "Tamarind wood." (Sapindacææ.) Use: Timber, food.
- Nephelium tomentosum*; F. v. M. (Sapindacææ.) Use: Food, timber.
- Nephelium Beckleri*; Benth. (Sapindacææ.) Use: Food, timber.
- Notelæa ligustrina*; Vent. "Native olive." (Jasminææ.) Use: Timber.
- Notelæa punctata*; R. Br. (Jasminææ.) Use: Timber.
- Persoonia salicina*; Pers. "Geebung." (Proteacææ.) Use: Timber.
- Phyllanthus Ferdinandi*; Muell.-Arg. Syn., *Bradleya australe*. "White beech." "Lignum vitæ." (Euphorbiacææ.) Use: Timber.
- Pisonia inermis*; G. Forst. (Nyctagineææ.) Use: Timber.
- Pittosporum phyllæroides*; DC. "Willow-bush." (Pittosporææ.) Use: Timber, forage.
- Pittosporum phyllæroides*; DC. "Willow-bush." (Pittosporææ.) Use: Timber, forage.
- Pittosporum undulatum*; Vent. "Mock orange." "Native laurel." (Pittosporææ.) Use: Timber, perfume.
- Pittosporum undulatum*; Vent. "Mock orange." "Native laurel." (Pittosporææ.) Use: Timber, perfume.
- Pithecolobium pruinatum*; Benth. (Leguminosææ.) Use: Timber.
- Pithecolobium pruinatum*; Benth. (Leguminosææ.) Use: Timber.
- Podocarpus elata*; L'Herit. "Colonial deal." "White pine." (Coniferææ.) Use: Timber.
- Podocarpus elata*; L'Herit. "Colonial deal." "White pine." (Coniferææ.) Use: Timber.
- Pseudomorus Brunoniana*; Bur. "Mail." (Urticææ.) Use: Timber.
- Rhodamnia trinervia*; Blume. "Black-eye." "Brush turpentine." (Myrtacææ.) Use: Timber.
- Rhus rhodanthema*; F. v. M. "Deep yellowwood." (Anacardiæææ.)
- Sambucus xanthocarpa*; F. v. M. "Native Elder." (Caprifoliacææ.) Use: Timber, food.
- Sideroxylon (Achras) australe*; Benth. et Hook fil. "Black plum." (Sapotacææ.) Use: Timber, food.
- Stenocarpus sinuatus*; Endl. "Silver oak." (Proteacææ.) Use: Timber.
- Stenocarpus salignus*; R. Brown. "Silver oak." (Proteacææ.) Use: Timber.

APPENDIX VIII—continued.

PURCHASES (DIAGRAMS, MAPS, &C.)

- Syncarpia laurifolia; Ten. "Turpentine-tree." (Myrtaceæ.) Use: Timber, resin.
 Syncarpia leptopetala; F. v. M. "Brush turpentine." "Myrtle." (Myrtaceæ.) Use: Timber.
 Sterculia accrifolia. (Sterculiaceæ.)
 Sterculia quadrifida; R. Brown. "Kurrajong," "Calool." (Sterculiaceæ.) Use: Timber (poor), fibre.
 Tristania conferta; Robt. Brown. "White box, Bastard box." (Myrtaceæ.) Use: Timber.
 Tristania conferta; Robt. Brown. "White box, Bastard box." (Myrtaceæ.) Use: Timber.
 Tristania laurina; Robt. Brown. "Swamp mahogany." (Myrtaceæ.) Use: Timber.
 Tristania laurina; Robt. Brown. "Swamp mahogany." (Myrtaceæ.) Use: Timber.
 Tarrietia argyrodendron; Benth. "Stavewood." (Sterculiaceæ.) Use: Timber.
 Hylomelum pyriformic; Smith. "Native" or "Wooden pear." (Proteaceæ.) Use: Timber.

APPENDIX IX.

DONATIONS.

MAPS, DRAWINGS, DIAGRAMS, &C.

- May 20.
 School-room Map, British Empire, 6' x 5'.
 Chart of Geographical Terms.
 Geographical Illustrations, Bernese Alps.
 Geographical Illustrations, Cologne Cathedral.
 Geographical Illustrations, Jerusalem.
 The above were presented by Philip & Son, Caxton Buildings, Liverpool, England.
 Small wall-map of India.
 Small wall-map of Australia.
 Howard Vincent Map of British Empire.
 Natural History, plates representing serpents, zebra, platypus, shark, kangaroo, peacocks, parrots, bats.
 Type of native Hindoo.
 Type of North American Indian.
 The above were presented by W. & A. K. Johnston, Edina Works, Edinburgh.
 June 27.
 Geological Map of South Australia, exclusive of the Northern Territory. December 31, 1886.
 Geological Map of the Barossa and western portion of the Parra Wirra Gold-field Reserves.
 Geological Map of Mount Crawford and Gummeracha Diggings, Parra Wirra, S.A.
 Geological Map of the Ulooloo Gold-fields Reserve Hundred of Hallett, S.A.
 The above were presented by the Government Geologist, S.A.
 October 21.
 Photo of a Blow-pipe. Presented by Revd. J. A. Milne Curran, Cobar.
 December 2.
 Synoptical guide for rearing silkworms. Presented by Chas. Dickins & Son, Adelaide.

APPENDIX X.

EXCHANGES (OUTWARDS).

Date.	Description of Specimens.	To whom sent.
1887		
11 Jan.	Casts of 6 nuggets	The Secretary, Free Library, Melbourne.
	Casts of 6 meteorites	
30 Sept.	50 specimens of vegetable products	The Secretary, School of Arts, Deniliquin.
	1 specimen of chalcopyrite (copper ore)	
	19 specimens of rock and minerals	The Secretary, Chamber of Commerce, Adelaide, S.A.
	33 specimens, rock and minerals	
	47 specimens, rock and minerals	The Secretary, Free Library, Melbourne. (For Technological Museum.)
	43 specimens, rock and minerals	
7 Oct.	65 specimens, rock and minerals	Dept. of Mines, Melbourne.
	46 specimens, vegetable products	
	49 specimens, rocks and minerals	
	53 specimens, vegetable products	The Registrar, School of Mines, Ballarat.
	30 specimens, wool	
11 Oct.	6 gifts of Froebel (Kindergarten)	Gt. W. Griffin, U.S. Consul, Sydney.
	1 box geometrical models	
	1 box stereometrical models	The Director, Educational Museum, Tokio, Japan.
	Diagrams, &c., illustrating the manufacture of pins, pens, needles, and paper	
	100 specimens of minerals	
	3 casts of nuggets	
	1 cast of meteorite	
	1 cast of cobaltite crystal, Tunaberg, Sweden	
	88 specimens of vegetable products	

1888.

NEW SOUTH WALES,

EDUCATION.

(AMENDED REGULATIONS UNDER THE "PUBLIC INSTRUCTION ACT OF 1880.")

Presented to Parliament, pursuant to Act 43 Vic. No. 23, sec. 37.

Department of Public Instruction, Sydney, 25th September, 1888.

PUBLIC INSTRUCTION ACT OF 1880: AMENDED REGULATIONS AS TO TRAINING, EXAMINATION, AND CLASSIFICATION OF TEACHERS.

HIS EXCELLENCY the Governor, with the advice of the Executive Council, has been pleased to approve of the following amended Regulations, in substitution for those relating to the Training, Examination, and Classification of Teachers, of date 12th February, 1886.

JAMES INGLIS.

Examination and Classification.

74. The attainments of Teachers, Students of the Training Schools, and Candidates for employment as Teachers, will be tested by written and oral examinations, and their skill in teaching will be determined by their ability to manage a school or class; and, according to such attainments and skill they will be classified in the following grades:—The First, or highest class, will have three grades, distinguished as A with Honors, A (without Honors), and B; the Second Class will have three grades, distinguished as A with Honors, A (without Honors), and B; and the Third Class will have three grades, distinguished as A, B, and C. A classification awarded to a Teacher, a Student of the Training School, or a Candidate for employment, after his first successful examination, will be provisional only, and will be confirmed at the end of three years from the date of examination if the Inspectors' reports upon his school work be fully satisfactory: Provided that the classification of any Teacher in the School Service shall be liable to reduction or cancellation for inefficiency, gross neglect of duty, or serious misconduct on the part of the person holding such classification.

Assistant teachers.

80. Assistant teachers may be appointed to schools in which the average daily attendance exceeds seventy. They may be (a) persons who have served for four years at least as a pupil-teacher, or (b) persons who have been examined and classified.

Pupil teachers.

81. Pupil-teachers may be employed to serve not less than four years in any school in which the average attendance has been not less than fifty for the three months preceding; provided that the teacher holds a classification not lower than Class II.

SUBJECTS OF EXAMINATION FOR TEACHERS AND PUPIL-TEACHERS.

84. The subjects in which teachers, students of Training Schools, and pupil-teachers shall be examined for classification are those stated hereunder.

FOR A THIRD-CLASS CERTIFICATE.

Reading—Full value, 800 marks. Prose and Poetry.

Writing—Full value, 800 marks. Specimens of Copy-setting in round hand, half-text, and small hand.

Arithmetic—Full value, 1,000 marks. Simple and Compound Rules, Reduction, Proportion, Practice, Simple and Compound Interest, Vulgar and Decimal Fractions.

Text Books—Barnard Smith's Arithmetic, or Hamblin Smith's Arithmetic.

Grammar—Full value, 1,000 marks. Including Punctuation, Paraphrasing, Parsing, Analysis of Sentences, Meanings and Applications of Words, Saxon and Latin Prefixes and Affixes, Dictation and Composition.

Text Books—M'Leod's Grammar, and Laurie's Composition.

Geography—Full value, 1,000 marks. Europe and Australia in detail. Mapping in connection with those Continents.

Text Books—Hughes' Class Book of Geography. Geography of New South Wales (Wilkins')

History—Full value, 600 marks. Outlines of British History from the Conquest to the reign of Victoria inclusive; date of Accession of each Sovereign; leading Men; and most important Events. General sketch of Australian History.

Text Books—Nelson's Royal History of England. Sutherland's History of Australia.

School Management—Full value, 800 marks. Organization, Discipline, and Instruction of Schools—in outline.

Text Books—Gladman's School Method. Public Instruction Act and Regulations.

Domestic

Domestic Economy—(Female Teachers only)—Full value, 500 marks. Plain Needlework, Food, Clothing, Household Management.

Text Book—Hassall's Domestic Economy.

Drawing—Full value, 500 marks. Black-board, Freehand.

Text Books—As prescribed in the Standard of Proficiency.

Vocal Music—Full value, 500 marks. Rudiments of Music, either notation.

Text Books—Curwen's Standard Course, or Sutton's Theory of Music.

FOR A SECOND CLASS-CERTIFICATE.

Reading—Full value, 500 marks. Prose and Poetry from any English Reading Book.

Writing—Full value, 500 marks. Specimens of Copy-lines, Letter-writing, Ornamental Writing.

Arithmetic—Full value, 1,000 marks. The full Course, with Elementary Mensuration.

Text Books—Barnard Smith's Arithmetic.

Hamblin Smith's Arithmetic.

Todhunter's Mensuration (for Males, Chap. I to XX inclusive. For Females, Chap. I to XIII inclusive.)

Grammar—Full value, 1,000 marks. Including Spelling, Punctuation, Parsing, Paraphrasing, Meaning and uses of Words, Etymology and Analysis.

Text Books—Hunter's Grammar.

Lennie's Grammar (revised).

Morell's Grammar and Analysis.

Subject for Special Study—"Julius Cæsar."—(Shakespeare.)

Geography—Full value, 800 marks. Physical Geography.

Europe, Australasia, and North America, in detail.

Mapping within these limits.

Text Books—W. Hughes' Class Book of Geography, and

Edward Hughes' Physical Geography, or

Geikie's Physical Geography.

History and English Literature—Full value, 700 marks:

History— } British History, from the Conquest to the present times.
 } Australian History.

Literature—Elizabeth to Cromwell inclusive.

Text Books—Nelson's Royal History:

Sutherland's History of Australia.

Smith's Smaller History of English Literature.

Art of Teaching—Full value, 500 marks. Organization, Discipline, Method, and Instruction of Schools, in greater detail.

Text Books—Gladman's School Method.

Public Instruction Act and Regulations.

Sanitary Science (Female Teachers only)—Full value, 500 marks.

Text Books—Wilson's Healthy Life and Healthy Dwellings.

Drawing—Full value, 500 marks. Geometrical and Model Drawing.

Text Books—Nesbit and Brown's Handbook of Model and Object Drawing:

Rawle's Practical Plane Geometry.

Vocal Music—Full value, 500 marks. Rudiments of Music, either notation, with increased proficiency.

Text Books—Curwen's Standard Course, or

Sutton's Theory of Music.

* *Alternative Groups for Males.*

Group I.

Euclid—Full value, 1,000 marks. First three Books of Euclid's Elements, with Deductions.

Algebra—Full value, 1,000 marks. To Quadratic Equations, including Surds.

Text Books—Hamblin Smith's Algebra.

Todhunter's Euclid.

Group II.

Latin—Full value, 2,000 marks. Grammar, Composition. Cæsar, De Bello Gallico. Books I to IV inclusive.

Text Books—Dr. Smith's Smaller Latin Grammar. "Principia Latina," Part I; and Hine's Latin Syntax, Part I.

* *Alternative Groups for Females.*

Group I.

French—Full value, 1,500 marks. Grammar, Composition. Translation from an easy author.

Text Books—Voltaire's Charles XII. Books I to IV inclusive.

Havet's French Class Book (complete), or

Hallard's French Grammar.

Group II.

Latin—Full value, 1,500 marks. Grammar, Composition. Cæsar, De Bello Gallico. Books I, II.

Text Books—As for Males.

Group III.

Euclid—Full value, 750 marks. Books I and II, with easy Deductions on them.

Text Books—As for Males.

Algebra—Full value, 750 marks. To Quadratics, omitting Surds.

Text Books—As for Males.

Group IV.

Any two of the following Sciences:—

Experimental Physics—Full value, 750 marks.

Text Book—Balfour Stewart's Lessons on Elementary Physics.

Chemistry—Full value, 750 marks. Inorganic.

Text Book—Roscoe's Lessons in Elementary Chemistry.

Geology—Full value, 750 marks.

Text Book—Lyell's Student's Elements of Geology.

Zoology—Full value, 750 marks.

Text Book—Huxley's Lessons in Elementary Zoology.

Botany—Full value, 750 marks.

Text Book—Oliver's Lessons in Elementary Botany.

Physiology—Full value, 750 marks.

Text Book—Huxley's Lessons in Elementary Physiology.

FOR

* *Note.*—These groups of subjects are styled Alternative, because candidates are allowed to choose from them the group in which they wish to be examined. Candidates are required to confine themselves to one group.

3

FOR A FIRST-CLASS CERTIFICATE.

- Reading*—Full value, 500 marks. Prose and Poetry from a standard author.
Writing—Full value, 500 marks. Specimens of Copy-setting and Letter-writing; Ornamental Printing; Principles of Writing.
Arithmetic—Full value, 1,000 marks. The whole theory and practice.
Text Books—Hamblin Smith's Arithmetic.
 Barnard Smith's Arithmetic.
 Colenso's Arithmetic (as revised by Hunter).
 Todhunter's Mensuration (for Males only).
Grammar—Full value, 1,000 marks. Including Orthography, Punctuation, Parsing, Paraphrasing, Analysis, Composition, Etymology, Prosody, and Style.
Text Books—Mason's English Grammar.
 Bain's Higher English Grammar.
 Meiklejohn's Book of English.
Geography—Full value, 800 marks. Physical Geography.
 Astronomical Geography.
Text Books—Geikie's Physical Geography.
 Lockyer's Astronomy.
Art of Teaching—Full value, 700 marks. Organization, Method, Discipline, with a knowledge of the Constitution of the Human Mind.
Text Books—Gladman's School Method.
 Tate's Philosophy of Education, or
 Morell's Mental Philosophy.
Sanitary Science—(Female Teachers only)—Full value, 500 marks.
Text Book—Wilson's Healthy Life and Healthy Dwellings.
Drawing—Full value, 500 marks. The full D Certificate.
Text Book—Dennis' Perspective.
Vocal Music—Full value, 500 marks. Rudiments of Music, either notation.
Text Books—Curwen's Standard Course, or Sutton's Theory of Music.
History—Full value, 700 marks. History of England in detail. History of Australia.
Text Books—Smith's Student's Home.
 Creasy on the English Constitution. Chapters 10, 11, 15, 16.
 Sutherland's History of Australia.
English Literature—Full value, 800 marks. Elizabeth to Anne.
Text Book—Morley's English Literature. Chapters VII to XI inclusive.
For Special Study—Shakespeare's "Merchant of Venice."
 Milton's "Paradise Lost." Book I.
 Addison's Essays, 12 (Clarendon edition), Nos. 3, 15, 25, 61, 105, 106, 135, 159
 165, 409, 458, 487.
 Bacon's Essays, 6, Blackie's edition, Civil and Moral.

Alternative Groups for Males.

Group I.

- Algebra*—Full value, 1,000 marks. Including the Binomial Theorem.
Text Books—Colenso's Algebra, or
 Hamblin Smith's Algebra.
Euclid—Full value, 1,000 marks. Books I to VI, with Deductions.
Text Books—Potts' Euclid, or
 Todhunter's Euclid.
Plane Trigonometry—Full value, 1,000 marks.
Text Books—Todhunter's Trigonometry for Schools and Colleges; or
 Hamblin Smith's Trigonometry.

*Group II.

- Latin*—Full value, 2,000 marks. Virgil, first two Books of *Æneid*; Livy, Book 21. Questions on Grammar. Composition.
Text Books—Dr. Smith's Larger Latin Grammar.
 Abbott's Latin Prose Composition.
 Ihne's Latin Syntax.
Greek—Full value 1,000 marks.
Text Books—Xenophon's "Anabasis." Books I and II.
 Smith's Larger Greek Grammar.
 Abbott's Greek Prose Composition.
French—Full value, 1,000 marks. Grammar, Translation, Composition.
Text Books—Souvestre's "Un Philosophe sous les Toits."
 Racine's "Athalie."
 Havet's French Grammar.
 Hallard's French Grammar.
German—Full value, 1,000 marks. Grammar, Translation, Composition.
Text Books—Schiller's "History of the Thirty Years' War." Chapters I to IV.
 Goethe's "Faust."
 Otto's German Grammar.

* NOTE. In this group at least two languages must be taken, one of them being Latin.

† Group III.

- Natural Science*—Full value, 750 marks. Experimental Physics.
Text Book—Ganot's Physics.
Chemistry—Full value, 750 marks. Inorganic.
Text Book—Roscoe's Class-book of Elementary Chemistry (Macmillan).
Geology—Full value, 750 marks.
Text Book—Jukes' or Geikie's Geology.
Zoology—Full value, 750 marks.
Text Book—Huxley's Zoology.
Botany—Full value, 750 marks.
Text Book—Oliver's Manual of Botany.
Physiology—Full value, 750 marks.
Text Book—Huxley's Physiology.
Sanitary Science—Full value, 750 marks.
Text Book—Wilson's Handbook of Hygiene.

† NOTE.—Any four of these Sciences may be taken.

Group IV.

Group IV.

Euclid—Full value, 1,000 marks. Books I to VI, with Deductions.

Text Books—As in Group I.

Algebra—Full value, 1,000 marks. Inclusive of the Binomial Theorem.

Text Books—As in Group I.

Latin—Full value, 1,000 marks. Cæsar, De Bello Gallico. First two books.

Virgil's *Æneid*. Book I.

Text Books—As in Group II.

Group V.

Euclid—Full value, 1,000 marks. Books I to VI, with Deductions.

Text Books—As in Group I.

Algebra—Full value, 1,000 marks. Inclusive of the Binomial Theorem.

Text Books—As in Group I.

And any two Sciences of the Science Group already specified in Group III. Full value 1,000-marks.

Group VI.

Latin—Full value, 2,000 marks. Virgil's *Æneid*. Books I, II.

Livy. Book XXI.

Horace's Odes. Books I, II.

Grammar and Composition.

Text Books—As in Group II.

Together with any two of the following Sciences, namely, Chemistry, Physics, Physiology, Geology.

Full value 1,000 marks.

Text Books—As in Group III.

Alternative Groups for Females.

Group I.

French—Full value, 1,500 marks. Grammar, Translation, Composition.

Text Books—Souvestre's "Un Philosophe sous les Toits."

Corneille's "Le Cid."

Racine's "Athalie."

Havet's French Grammar.

Hallard's French Grammar.

Group II.

German—Full value, 1,500 marks. Grammar, Translation, Composition.

Text Books—As for Males.

Group III.

Latin—Full value, 1,500 marks. Grammar, Translation, Composition.

Text Books—As for Males.

Group IV.

Euclid—Full value, 800 marks. Books I to IV, with Deductions.

Text Books—As for Males.

Algebra—Full value, 700 marks. To Quadratic Equations inclusive.

Text Books—As for Males.

Group V.

Any three of the following Sciences :—

Experimental Physics—Full value, 500 marks.

Chemistry—Full value, 500 marks.

Geology—Full value, 500 marks.

Zoology—Full value, 500 marks.

Botany—Full value, 500 marks.

Physiology—Full value, 500 marks.

Text Books—As for Males of First Class.

NOTE.—In lieu of the Alternative Subjects of examination herein prescribed for a Second-class or a First-class Certificate, the subjects of the Sydney University Arts' Course (as set forth in the by-laws and annually published in the Calendar) will be taken up in the Training Schools by those students who have passed the University Matriculation examination and who may desire to compete, in subsequent University examinations, for the special privilege of remaining a third year in Training and proceeding to the final examination for the B.A. degree.

SUBJECTS OF STUDY FOR PUPIL-TEACHERS.

Before Appointment—Candidates.

Reading—Full value, 50 marks. To Read an advanced Class Book, sanctioned by the Minister, with ease, fluency, and expression, to Spell well, and to understand the meaning of the passage read.

Writing—Full value, 50 marks. To write from Dictation, in a neat hand, a simple Prose Narrative, with correct spelling and punctuation.

Dictation—Full value, 100 marks.

Arithmetic—Full value, 100 marks. To know the Arithmetical Tables, and to work the rules in Vulgar Fractions, Proportion and Practice, as in Barnard Smith's Arithmetic.

Grammar—Full value, 100 marks. To Parse and Analyse correctly a passage taken from an ordinary Class-book; to know the Elements of Grammar.

Geography—Full value 100 marks. To understand the Geographical Terms, to be acquainted with the Map of the World, and to have a knowledge of the Geography of Australia.

Drawing—Full value, 50 marks. Freehand Tests, as prescribed for a Third Class in the Standard of Proficiency.

Vocal Music—Full value, 50 marks. As prescribed for a Third Class in the Standard of Proficiency.

Skill in Teaching—To Teach a Junior Class in the presence of an Inspector.

Pupil-teachers—Class IV.

Reading—Full value, 50 marks. To Read the Fifth Reading Book, sanctioned by the Minister, with fluency and expression, give synonymous words and phrases, and answer upon the subject matter; to repeat from memory fifty lines of Poetry.

Writing—Full value, 50 marks. To write neatly and correctly from Dictation or from Memory.

Dictation—Full value, 50 marks.

Arithmetic—Full value, 100 marks. To work Questions in Proportion, Vulgar and Decimal Fractions, and Practice.

Text Book—Barnard Smith's Arithmetic.

Grammar—Full value, 100 marks. To Parse, Paraphrase, and Analyse a Passage; Meanings of Words; Etymology.

Text Books—Lennie's Grammar (revised).

Laurie's Spelling and

Dictation Class Book.

Geography—

Geography—Full value, 80 marks. New South Wales, in detail; Europe. The Physical Features and Chief Towns in each Country.

Text Books—Wilkins' Geography of New South Wales.
Hughes' Class Book of Geography.

History—Full value, 70 marks. English History to William I.

Text Book—Nelson's Royal History of England.
Australian History—Sutherland's. Chaps. I to V.

Drawing—Full value, 50 marks. Black-board Practice.

Vocal Music—Full value, 50 marks. Stimpson's Singing Class Book, Chaps. I to VIII.

Geometry (for Males)—Full value, 100 marks. Euclid. Book I. Propositions I to XXVI.

Text Book—Todhunter's Geometry.

Algebra (for Males)—Full value, 100 marks. Hamblin Smith's Algebra. Chaps. I to V inclusive.

Latin (for Males)—Full value, 100 marks. Smith's "Principia Latina" to Exercise XXIV inclusive.

**French* (for Females)—Full value, 100 marks. De Fivas' "Grammaire des Grammaires," to Exercise XXX inclusive.

School Management—Full value, 50 marks. The Kindergarten Principle (Lyschinska). Gladman's School Method.

Needlework (for Females)—Full value, 50 marks.

Pupil-teachers—Class III.

Reading—Full value, 50 marks. To read with improved intonation and expression.

Writing—Full value, 50 marks. Specimens of Penmanship; three hands.

Arithmetic—Full value, 100 marks. Compound Interest, Profit and Loss, and Square Root—as in Barnard Smith's Arithmetic.

Grammar—Full value, 100 marks. Parsing of Difficult Sentences, with a good knowledge of Syntax, and the Analysis of Sentences; Meanings of Words; Force of Affixes; Latin Roots; Composition.

Text Book—Lennie's Grammar (revised).

Geography—Full value, 80 marks. Australia; Polynesia.

Mapping, confined within these limits.

Text Books—Collins' Geography of Australia and Pacific Ocean.
Collins' Australian and Primary Atlas.

History—Full value, 70 marks. English History: William I to Richard III inclusive.

Australian History—Sutherland's. Chaps. VI to X.

Text Books—Nelson's Royal History of England.
Sutherland's History of Australia.

Drawing—Full value, 50 marks. Freehand Drawing.

Vocal Music—Full value, 50 marks. Stimpson's Singing Class Book, Chaps. IX to XII inclusive.

Geometry—Full value, 100 marks. Euclid. Book I.

Algebra—Full value, 100 marks. Fractions and Simple Equations, to Chap. XIV inclusive.

Latin—Full value, 100 marks. Smith's "Principia Latina," to Exercise XXXIII.

French (for Females)—Full value, 150 marks. "Grammaire des Grammaires, to Exercise LX. (See note*, Fourth Class Pupil-teachers.)

School Management—Full value, 50 marks. Gladman's School Method. The Kindergarten Principle (Lyschinska).

Needlework (for Females)—Full value, 50 marks.

Pupil-teachers—Class II.

Reading—Full value, 50 marks. A standard author, with correct intonation and emphasis.

Writing—Full value, 50 marks. Specimen of Penmanship; three hands, with increased skill.

Arithmetic—Full value, 100 marks. Cube Root, Discount, Stocks, Proportional Parts—as in Barnard Smith's Arithmetic, or Hamblin Smith's Arithmetic.

Grammar—Full value, 100 marks. Increased skill in Parsing, Paraphrasing, and in the Analysis of Sentences; Meanings of Words; Affixes; Roots; Composition.

Text Book—Hunter's Grammar.

Geography—Full value, 80 marks. Asia: Physical Features and Chief Towns of each Country of Asia and North America.

Physical Geography: Waves, Tides, Currents.

History—Full value, 70 marks. English History: Henry VII to Anne, inclusive.

Australian History—Sutherland's. Chapters XI to XVI.

Drawing—Full value, 50 marks. Model Drawing.

Vocal Music—Full value, 50 marks. Stimpson's Class Book, Chaps. XIII to XV inclusive.

Geometry—Full value, 100 marks. Books I and II, with Deductions in Book I.

Algebra—Full value, 100 marks. Simple Equations and Surds, to Chapter XXIV inclusive.

Latin—Full value, 100 marks. Smith's "Principia Latina," to Exercise XLVIII.

French (for Females)—Full value, 150 marks. "Grammaire des Grammaires," to Exercise XC. (See note*, Fourth Class Pupil-teachers.)

School Management—Full value, 50 marks. Gladman's School Method. The Kindergarten Principle (Lyschinska).

Needlework (for Females)—Full value, 50 marks.

Pupil-teachers—Class I.

Reading—Full value, 50 marks. To read with ease and expression from a standard author.

Writing—Full value, 50 marks. Specimen of Penmanship; three hands, with increased skill.

Arithmetic—Full value, 100 marks. Application of Rules and Principles. Mensuration of Surfaces.

Text Books—Barnard Smith's Arithmetic.
Todhunter's Mensuration.

Grammar—Full value, 100 marks. Parsing, Paraphrasing, Prosody, Analysis of Sentences, Meanings of Words, Formation of Words, Derivations, Composition.

Text Book—Hunter's Grammar.

Geography—Full value, 80 marks. Physical Geography. Physical Features and Chief Towns of each of the Countries of Africa and South America.

Mapping within these limits.

History—Full value, 70 marks. English History: George I to present time. Australian History—Sutherland's. Chapters XVII to XXII.

Drawing—Full value, 50 marks. Advanced proficiency expected in the three sections.

Vocal Music—Full value, 50 marks. Stimpson's Class Book, Chaps. XVI to end.

Geometry—Full value, 100 marks. Books I and II, with Deductions.

Algebra—Full value, 100 marks. Quadratic Equations, with Surds, to Chap. XXVI, inclusive.

Latin—Full value, 100 marks. Smith's "Principia Latina," to end. Cæsar, De Bello Gallico. Chaps. I to III. Easy translations.

**French* (for Females)—Full value, 150 marks. "Grammaire des Grammaires," to the end. (See note*, Fourth Class Pupil-teachers.)

School Management—Full value, 50 marks. Gladman's School Method. The Kindergarten Principle (Lyschinska).

Needlework (for Females)—Full value, 50 marks.

*NOTE.—From female pupil-teachers in country districts the following will be accepted in lieu of French, where it can be shown that the examinee has no means of acquiring a knowledge of the language in question :—

Latin, or
Euclid and
Algebra. } As for Males.

NOTE.—The course herein prescribed is for all pupil-teachers alike. It is recommended, however, that the Sydney University Matriculation subjects (as set forth in the by-laws and annually published in the Calendar) be also studied by those pupil-teachers who may desire or intend, after admission to the Training School, to present themselves at the Matriculation examination and to compete, in subsequent University examinations, for the privilege of remaining three years in training and proceeding to the final examination for the B.A. degree.

Examinations.

85. Examinations of teachers will be held yearly in each Inspector's District. Teachers who desire to be examined, with a view to a higher certificate, must at least one month before the date of examination apprise the Inspector of their wish, and furnish him with a list of the alternative subjects upon which they are prepared for examination.

Eligibility of Teachers for appointment to certain Schools.

90. Teachers who have gained their classifications by examination, or by promotion under Regulation 86, shall be eligible for appointment to any school or department, in accordance with the following Schedule :—

Class of Schools or Department.	Teacher's Classification.
I	I. A. with Honors, or I. A.
II	I. B.
III	II. A. with Honors.
IV	II. A.
V	II. B.
VI	II. B.
VII	III. A.
VIII	III. B.
IX	III. C.
X	III. C.

TRAINING SCHOOLS.

Classes of Candidates.

97. The Minister may authorise to be received into the Training Schools, annually, three classes of candidates, namely, *First Class, or Scholarship Candidates*—Thirty Pupil-teachers whose term of service has expired and who have obtained the highest marks among those passing the entrance examination successfully; *Second Class, or Half-scholarship Candidates*—Twenty Pupil-teachers whose term of service has expired and who have obtained, after the first 30, the next highest marks among those passing the entrance examination successfully, and are prepared to pay half the cost of their maintenance while in training; *Third Class, or Non-scholarship Candidates*—Other Pupil-teachers whose term of service has expired, untrained teachers who have had charge of schools, and persons entering the Teaching profession for the first time, who have passed the entrance examination successfully and are prepared to pay the whole cost of their maintenance while in training.

Conditions of Admission.

99. Before admission, every candidate must make a declaration that he intends, in good faith, to follow the profession of a teacher in schools under the Minister, and that he will accept a situation in any district, as the Minister may see fit. He must also procure a guarantee from two responsible persons that the whole expense of his training defrayed by the State will be refunded, if, from any cause whatever, he shall not enter the service of the Minister, or shall leave it in less than a period to be agreed upon at the time of his admission to training.

Term of Training.

100. Entrance examinations will be held yearly, in December; and the period of training will be one year, two years, or three years, as may be found expedient.

Allowances during Training.

101. The following allowances may be made to students who satisfy the aforementioned conditions and pass successfully the prescribed examinations :—To Scholarship Students, £6 per month; and to Half-scholarship Students, £3 per month. When the school is prepared to receive students into residence, these allowances are not paid; board and lodging being provided instead.

Examinations.

103. Oral examinations of the students will be held periodically to test their attention and progress; and written examinations will take place yearly, in December—when classifications will be awarded according to attainments and teaching skill to students who have completed their course. No certificate will be given until the Inspector's Report shows that the student is successful in the management of a school.

1888.

NEW SOUTH WALES.

LANDS FOR PUBLIC PURPOSES ACQUISITION ACT.

(RESUMPTION OF LAND UNDER FOR PUBLIC SCHOOL PURPOSES AT VARIOUS PLACES) :—

Balgownie.
Beggan Beggan.
Boggumbil.
Eurimbla.

Middle Falbrook.
Paddington.
Pennant Hills.
Robbinsville.

Tumut.
Wagra.
Woolwich.

Presented to Parliament, pursuant to Act 44 Vic. No. 16, sec. 6.

BALGOWNIE.

[Gazette, 28th August, 1888.]

NOTIFICATION OF RESUMPTION OF LAND UNDER
44 VICTORIA No. 16.

NEW SOUTH WALES, } By His Excellency The Right Honourable
to wit. } CHARLES ROBERT, BARON CARRINGTON,
a Member of Her Majesty's Most
(L.S.) Honourable Privy Council, Knight
CARRINGTON, Grand Cross of the Most Distinguished
Governor. Order of Saint Michael and Saint
George, Governor and Commander-in-
Chief of the Colony of New South
Wales and its Dependencies.

WHEREAS the parcel of land hereinafter described is required for the purpose of the erection thereon of a Public School and of buildings to be used in connection therewith: And whereas I, as such Governor as aforesaid, with the advice of the Executive Council of the said Colony, have sanctioned the acquisition of the said land for a site for a Public School: Now, therefore, I, CHARLES ROBERT, BARON CARRINGTON, the Governor aforesaid, with the advice of the said Executive Council, in pursuance of the power and authority given to or vested in me by "The Lands for Public Purposes Acquisition Act," by this notification, published in the Gazette, and a newspaper circulated in the Police District wherein the said land is situated, that is to say, in the "Illawarra Mercury" newspaper, declare that the parcel of land hereinafter particularly described has been resumed for the purpose of the erection thereon of a Public School and of buildings in connection therewith: And that the said land hereinafter described is resumed with the intent that by the publication in the Government Gazette, and in a newspaper circulated in the Police District of Wollongong, of this notification of the said land being so resumed, the said land shall forthwith become and be vested in the Minister of Public Instruction of the said Colony and his successors, on behalf of Her Majesty, for the purposes of the said Act, for an estate of inheritance in fee simple in possession, freed and discharged from all trusts, obligations, estates, interests, contracts, charges, rights-of-way, or other easements whatsoever; and that the legal estate therein, together with all powers incident thereto or conferred by the said Act, shall be vested in the Minister of Public Instruction as a Trustee, as in the said Act is provided: And I declare that the following is the parcel of land herebefore referred to as resumed by this notification, that is to say:—

All that piece or parcel of land, being allotments 1 to 6 and 13 and 14 of section C of the Hillborough Subdivision, which originally formed part of John Buckland's 1,920 acres grant, situated at Balgownie, parish of Wonona, county of Camden, containing by admeasurement 1 acre 3 roods 38 $\frac{3}{4}$ perches: Commencing on the north side of a 50-link road, at its inter-

section with the east side of a road left in the original subdivision of John Buckland's 1,920 acres grant aforesaid, being a point bearing north and distant 50 links from a post marked A over B at the north-west corner of lot 27 of that subdivision; and bounded thence on the south by the north side of the 50-link road aforesaid bearing south 89 degrees 48 minutes east 4 chains 99 $\frac{1}{10}$ links; thence on the east by the west side of a street one chain wide bearing north 0 degrees 12 minutes east 3 chains 97 links; thence on the north by the south boundary of allotments 7 and 15, section C, bearing north 89 degrees 30 minutes west 5 chains 1 $\frac{1}{10}$ links; and thence on the west by a fenced line, being the east side of the road left in the original subdivision aforesaid, bearing south 3 chains 99 $\frac{1}{10}$ links, to the point of commencement.

In testimony whereof I have hereunto set my Hand, and caused the Great Seal of the Colony to be hereto affixed, at Government House, Sydney, this twenty-third day of August, in the year of our Lord one thousand eight hundred and eighty-eight, and in the fifty-second year of Her Majesty's Reign.

By His Excellency's Command,

JAMES INGLIS.

GOD SAVE THE QUEEN!

BEGGAN BEGGAN.

[Gazette, 18th September, 1888.]

NOTIFICATION OF RESUMPTION OF LAND UNDER
44 VICTORIA No. 16.

NEW SOUTH WALES, } By His Excellency The Right Honourable
to wit. } CHARLES ROBERT, BARON CARRINGTON,
a Member of Her Majesty's Most
(L.S.) Honourable Privy Council, Knight
CARRINGTON, Grand Cross of the Most Distinguished
Governor. Order of Saint Michael and Saint
George, Governor and Commander-in-
Chief of the Colony of New South
Wales and its Dependencies.

WHEREAS the parcel of land hereinafter described is required for the purpose of the erection thereon of a Public School and of buildings to be used in connection therewith: And whereas I, as such Governor as aforesaid, with the advice of the Executive Council of the said Colony, have sanctioned the acquisition of the said land for a site for a Public School: Now, therefore, I, CHARLES ROBERT, BARON CARRINGTON, the Governor aforesaid, with the advice of the said Executive Council, in pursuance of the power and authority given to or vested in me by the "Lands for Public Purposes Acquisition Act," by this notification, published in the Gazette and a newspaper circulated in the Police District wherein the said land is situated, that is to say, in the "Murrumburrah Signal" newspaper, declare that the parcel of land herein-

after particularly described has been resumed for the purpose of the erection thereon of a Public School and of buildings in connection therewith: And that the said land hereinafter described is resumed with the intent that by the publication in the Government Gazette, and in a newspaper circulated in the Police District of Young, of this notification of the said land being so resumed, the said land shall forthwith become and be vested in the Minister of Public Instruction of the said Colony and his successors, on behalf of Her Majesty, for the purposes of the said Act, for an estate of inheritance in fee simple in possession, freed and discharged from all trusts, obligations, estates, interests, contracts, charges, rights-of-way, or other easements whatsoever; and that the legal estate therein, together with all powers incident thereto or conferred by the said Act, shall be vested in the Minister of Public Instruction as a Trustee, as in the said Act is provided: And I declare that the following is the parcel of land hereinbefore referred to as resumed by this notification, that is to say:—

All that piece or parcel of land forming part of F. W. Bolland's (now J. S. Futter's) conditional purchase portion 365 of 80 acres, situated at Beggan Beggan, parish of Beggan Beggan, county of Harden, being portion 381 (amended), containing 2 acres 1 rood 15 perches: Commencing on the east boundary of portion 365, at its intersection with the south side of a reserved road 150 links wide leading from Murrumburrah to Jugiong; and bounded thence on the north by that side of that road bearing west 2 chains 75 links; thence on the west by a line bearing south 7 chains 28 links or thereabouts to the left bank of Cooney's Creek; thence by that creek downwards to its intersection with the south-east boundary of portion 365 aforesaid; and thence by the south-east and part of the east boundary of that portion, forming the north-west and west sides of the Murrumburrah to Jugiong Road aforesaid, bearing north 33 degrees 33 minutes east 2 chains or thereabouts and north 7 chains 90 links, to the point of commencement.

In testimony whereof I have hereunto set my Hand, and caused the Great Seal of the Colony to be hereto affixed, at Government House, Sydney, this fourteenth day of September, in the year of our Lord one thousand eight hundred and eighty-eight, and in the fifty-second year of Her Majesty's Reign.

By His Excellency's Command,
JAMES INGLIS.

GOD SAVE THE QUEEN!

BOGGUMBIL.

[Gazette, 24th August, 1888.]

NOTIFICATION OF RESUMPTION OF LAND UNDER
44 VICTORIA No. 16.

NEW SOUTH WALES, } By His Excellency The Right Honourable
to wit. } CHARLES ROBERT, BARON CARRINGTON,
a Member of Her Majesty's Most
Honourable Privy Council, Knight
Grand Cross of the Most Distinguished
Order of Saint Michael and Saint
George, Governor and Commander-in-
Chief of the Colony of New South
Wales and its Dependencies.

(L.S.)
CARRINGTON,
Governor.

WHEREAS the parcel of land hereinafter described is required for the purpose of the erection thereon of a Public School and of buildings to be used in connection therewith: And whereas I, as such Governor as aforesaid, with the advice of the Executive Council of the said Colony, have sanctioned the acquisition of the said land for a site for a Public School: Now, therefore, I, CHARLES ROBERT, BARON CARRINGTON, the Governor aforesaid, with the advice of the said Executive Council, in pursuance of the power and authority given to or vested in me by "The Lands for Public Purposes Acquisition Act," by this notification published in the Gazette, and a newspaper circulated in the Police District wherein the said land is situated, that is to say, in the "Lismore Chronicle" newspaper, declare that the parcel of land hereinafter particularly described has been resumed for the purpose of the erection thereon of a Public School and of buildings in connection therewith: And that the said land hereinafter described is resumed with the intent that by the publication in the Government Gazette, and in a newspaper circulated in the Police District of Richmond River, of this notification of the said land being so resumed, the said land shall forthwith become and be vested in the Minister of Public Instruction of the said Colony and his successors, on behalf of Her Majesty, for the purposes of the said Act, for an estate of inheritance in fee simple, in possession, freed and discharged from all trusts, obligations, estates, interests, contracts, charges, rights-of-way, or other easements whatsoever, and that the legal estate therein, together with all powers incident thereto or conferred by the said Act, shall be vested in the Minister of Public Instruction as a Trustee, as in the said Act is provided: And I declare that the following is the parcel of land hereinbefore referred to as resumed by this notification, that is to say:—

All that piece or parcel of land situate at Boggumbil, parish of Tunstall, county of Rous, containing 2 acres, and forming

part of A. Shybil's portion 88 of 40 acres: Commencing on the south-western side of the main road from Lismore to Jiggi at the south-east corner of portion 88 aforesaid; and bounded thence on the north-east by that side of that road bearing north 39 degrees 30 minutes west 517 links; thence on the north by a line bearing south 89 degrees 45 minutes west 500 links; thence on the south-west by a line bearing south 39 degrees 30 minutes east 517 links to a road 1 chain wide forming the southern boundary of portion 88 aforesaid; and thence on the south by a part of that boundary bearing north 89 degrees 45 minutes east 500 links, to the point of commencement.

In testimony whereof I have hereunto set my Hand, and caused the Great Seal of the Colony to be hereto affixed, at Government House, Sydney, this twentieth day of August, in the year of our Lord one thousand eight hundred and eighty-eight, and in the fifty-second year of Her Majesty's Reign.

By His Excellency's Command,
J. F. BURNS.

GOD SAVE THE QUEEN!

EURIMBLA.

[Gazette, 12th October, 1888.]

NOTIFICATION OF RESUMPTION OF LAND UNDER
44 VICTORIA No. 16.

NEW SOUTH WALES, } By His Excellency The Right Honourable
to wit. } CHARLES ROBERT, BARON CARRINGTON,
a Member of Her Majesty's Most
Honourable Privy Council, Knight
Grand Cross of the Most Distinguished
Order of Saint Michael and Saint
George, Governor and Commander-in-
Chief of the Colony of New South
Wales and its Dependencies.

(L.S.)
CARRINGTON,
Governor.

WHEREAS the parcel of land hereinafter described is required for the purpose of the erection thereon of a Public School and of buildings to be used in connection therewith: And whereas I, as such Governor as aforesaid, with the advice of the Executive Council of the said Colony, have sanctioned the acquisition of the said land for a site for a Public School: Now, therefore, I, CHARLES ROBERT, BARON CARRINGTON, the Governor aforesaid, with the advice of the said Executive Council, in pursuance of the power and authority given to or vested in me by "The Lands for Public Purposes Acquisition Act," by this notification published in the Gazette and a newspaper circulated in the Police District wherein the said land is situated, that is to say, in the "Molong Express" newspaper, declare that the parcel of land hereinafter particularly described has been resumed for the purpose of the erection thereon of a Public School and of buildings in connection therewith: And that the said land hereinafter described is resumed with the intent that, by the publication in the Government Gazette and in a newspaper circulated in the Police District of Molong, of this notification of the said land being so resumed, the said land shall forthwith become and be vested in the Minister of Public Instruction of the said Colony and his successors, on behalf of Her Majesty, for the purposes of the said Act, for an estate of inheritance in fee simple in possession, freed and discharged from all trusts, obligations, estates, interests, contracts, charges, rights-of-way, or other easements whatsoever; and that the legal estate therein, together with all powers incident thereto or conferred by the said Act, shall be vested in the Minister of Public Instruction as a Trustee, as in the said Act is provided: And I declare that the following is the parcel of land hereinbefore referred to as resumed by this notification, that is to say:—

All that piece or parcel of land situated at Eurimbla, parish of Catombal, county of Gordon, being measured portion P. S., containing an area of 2 acres, and forming part of portion 19, C. G. Gant's conditional purchase No. 77-45 of 120 acres: Commencing on the south boundary of portion 19, at a point bearing east 9 chains 22 links from the south-west corner of that portion; and bounded thence on the west by a line bearing north 5 chains; thence on the north by a line bearing east 4 chains; thence on the east by a line bearing south 5 chains to a point 1 chain west of the north-west corner of portion 18; and thence on the south by a line forming part of the south boundary of portion 19 aforesaid bearing west 4 chains, to the point of commencement,—shown on plan catalogued Ms. 42 o.e., D. S. O., Orange.

In testimony whereof, I have hereunto set my Hand and caused the Great Seal of the Colony to be hereto affixed, at Government House, Sydney, this sixth day of October, in the year of our Lord one thousand eight hundred and eighty-eight, and in the fifty-second year of Her Majesty's Reign.

By His Excellency's Command,
JAMES INGLIS.

GOD SAVE THE QUEEN!

MIDDLE FALBROOK.

[Gazette, 28th September, 1888.]

NOTIFICATION OF RESUMPTION OF LAND UNDER
44 VICTORIA No. 16.

NEW SOUTH WALES, } By His Excellency The Right Honourable
to wit. } CHARLES ROBERT, BARON CARRINGTON,
a Member of Her Majesty's Most
Honourable Privy Council, Knight
(L.S.) Grand Cross of the Most Distinguished
CARRINGTON, Order of Saint Michael and Saint
Governor. George, Governor and Commander-in-
Chief of the Colony of New South
Wales and its Dependencies.

WHEREAS the parcel of land hereinafter described is required for the purpose of the erection thereon of a Public School and of buildings to be used in connection therewith: And whereas I, as such Governor as aforesaid, with the advice of the Executive Council of the said Colony, have sanctioned the acquisition of the said land for a site for a Public School: Now, therefore, I, CHARLES ROBERT, BARON CARRINGTON, the Governor aforesaid, with the advice of the said Executive Council, in pursuance of the power and authority given to or vested in me by "The Lands for Public Purposes Acquisition Act," by this notification published in the Gazette and a newspaper circulated in the Police District wherein the said land is situated, that is to say, in the "Singleton Argus," newspaper, declare that the parcel of land hereinafter particularly described has been resumed for the purpose of the erection thereon of a Public School and of buildings in connection therewith, and that the said land hereinafter described is resumed with the intent that by the publication in the Government Gazette, and in a newspaper circulated in the Police District of Patrick's Plains, of this notification of the said land being so resumed the said land shall forthwith become and be vested in the Minister of Public Instruction of the said Colony and his successors, on behalf of Her Majesty, for the purposes of the said Act, for an estate of inheritance in fee simple in possession, freed and discharged from all trusts, obligations, estates, interests, contracts, charges, rights-of-way, or other easements whatsoever, and that the legal estate therein, together with all powers incident thereto or conferred by the said Act, shall be vested in the Minister of Public Instruction as a Trustee as in the said Act is provided: And I declare that the following is the parcel of land hereinbefore referred to as resumed by this notification, that is to say:—

All that piece or parcel of land forming part of portion 52 conditional purchase of 50 acres, situated at Middle Falbrook, parish of Vane, county of Durham, being portion 56, containing 2 acres: Commencing at a point bearing north 85 degrees 49 minutes west and distant 13 chains 75 links from the south-east corner of portion 52, at an angle on the north-east side of a reserved road 1 chain wide passing through that portion; and bounded thence on the south-west by that side of that road bearing north 16 degrees 13 minutes west 4 chains 16½ links; on the north by a line bearing east 5 chains 58 links; on the east by a line bearing south 4 chains; and on the south by the north side of the reserved road aforesaid, bearing west 4 chains 42 links, to the point of commencement.

In testimony whereof I have hereunto set my Hand, and caused the Great Seal of the Colony to be hereto affixed, at Government House, Sydney, this twenty-sixth day of September, in the year of our Lord one thousand eight hundred and eighty-eight, and in the fifty-second year of Her Majesty's Reign.

By His Excellency's Command,

JAMES INGLIS.

GOD SAVE THE QUEEN!

PADDINGTON.

[Gazette, 12th October, 1888.]

NOTIFICATION OF RESUMPTION OF LAND UNDER
44 VICTORIA No. 16.

NEW SOUTH WALES, } By His Excellency The Right Honourable
to wit. } CHARLES ROBERT, BARON CARRINGTON,
a Member of Her Majesty's Most
Honourable Privy Council, Knight
(L.S.) Grand Cross of the Most Distinguished
CARRINGTON, Order of Saint Michael and Saint
Governor. George, Governor and Commander-in-
Chief of the Colony of New South
Wales and its Dependencies.

WHEREAS the parcel of land hereinafter described is required for the purpose of the erection thereon of a Public School and of buildings to be used in connection therewith: And whereas I, as such Governor as aforesaid, with the advice of the Executive Council of the said Colony, have sanctioned the acquisition of the said land for a site for a Public School: Now, therefore, I, CHARLES ROBERT, BARON CARRINGTON, the Governor aforesaid, with the advice of the said Executive Council, in pursuance of the power and authority given to or vested in me by "The Lands for Public Purposes Acquisition Act," by this notification published in the Gazette

and a newspaper circulated in the Police District wherein the said land is situated, that is to say, in the "Sydney Morning Herald" newspaper, declare that the parcel of land hereinafter particularly described has been resumed for the purpose of the erection thereon of a Public School and of buildings in connection therewith: And that the said land hereinafter described is resumed with the intent that by the publication in the Government Gazette and in a newspaper circulated in the Metropolitan Police District of this notification of the said land being so resumed the said land shall forthwith become and be vested in the Minister of Public Instruction of the said Colony and his successors, on behalf of Her Majesty, for the purposes of the said Act, for an estate of inheritance in fee simple in possession, freed and discharged from all trusts, obligations, estates, interests, contracts, charges, rights-of-way, or other easements whatsoever, and that the legal estate therein, together with all powers incident thereto or conferred by said Act, shall be vested in the Minister of Public Instruction as a Trustee, as in the said Act is provided: And I declare that the following is the parcel of land hereinbefore referred to as resumed by this notification, that is to say:—

All that piece or parcel of land forming part of grants for Wesleyan Methodist Chapel, School, and Manse, situated at Paddington, parish of Alexandria, county of Cumberland, containing by admeasurement 1 rood 2 perches: Commencing on the south-west side of Oxford-street, at a point bearing north 61 degrees 8 minutes west and distant 193 $\frac{2}{10}$ links from its intersection with the north-west side of Elizabeth-street south; and bounded thence on the south-east by a fenced line forming the north-west boundary of the National School grant (now Public School) bearing south 28 degrees 6 minutes west 418½ links; thence on part of the south-west by the north-east side of Gordon-street bearing north 54 degrees 46 minutes 30 seconds west 37 $\frac{1}{10}$ links; thence on part of the north-west by a line bearing north 28 degrees 6 minutes east 136 $\frac{9}{10}$ links; thence on the remainder of the south-west by a line bearing north 61 degrees 8 minutes west 38 $\frac{2}{10}$ links; thence on the remainder of the north-west by a line bearing north 28 degrees 6 minutes east 277 $\frac{3}{10}$ links; and thence on the north-east by the south-west side of Oxford-street aforesaid bearing south 61 degrees 8 minutes east 75 $\frac{15}{100}$ links, to the point of commencement.

In testimony whereof, I have hereunto set my Hand and caused the Great Seal of the Colony to be hereto affixed, at Government House, Sydney, this sixth day of October, in the year of our Lord one thousand eight hundred and eighty-eight, and in the fifty-second year of Her Majesty's Reign.

By His Excellency's Command,

JAMES INGLIS.

GOD SAVE THE QUEEN!

PENNANT HILLS.

[Gazette, 18th September, 1888.]

NOTIFICATION OF RESUMPTION OF LAND UNDER
44 VICTORIA No. 16.

NEW SOUTH WALES, } By His Excellency The Right Honourable
to wit. } CHARLES ROBERT, BARON CARRINGTON,
a Member of Her Majesty's Most
Honourable Privy Council, Knight
(L.S.) Grand Cross of the Most Distinguished
CARRINGTON, Order of Saint Michael and Saint
Governor. George, Governor and Commander-in-
Chief of the Colony of New South
Wales and its Dependencies.

WHEREAS the parcel of land hereinafter described is required for the purpose of the erection thereon of a Public School and of buildings to be used in connection therewith: And whereas I, as such Governor as aforesaid, with the advice of the Executive Council of the said Colony, have sanctioned the acquisition of the said land for a site for a Public School: Now, therefore, I, CHARLES ROBERT, BARON CARRINGTON, the Governor aforesaid, with the advice of the said Executive Council, in pursuance of the power and authority given to or vested in me by "The Lands for Public Purposes Acquisition Act," by this notification published in the Gazette and a newspaper circulated in the Police District wherein the said land is situated, that is to say, in the "Cumberland Mercury" newspaper, declare that the parcel of land hereinafter particularly described has been resumed for the purpose of the erection thereon of a Public School and of buildings in connection therewith, and that the said land hereinafter described is resumed with the intent that by the publication in the Government Gazette, and in a newspaper circulated in the Police District of Parramatta, of this notification of the said land being so resumed, the said land shall forthwith become and be vested in the Minister of Public Instruction of the said Colony and his successors, on behalf of Her Majesty, for the purposes of the said Act, for an estate of inheritance in

fee simple in possession, freed and discharged from all trusts, obligations, estates, interests, contracts, charges, rights-of-way, or other easements whatsoever, and that the legal estate therein, together with all powers incident thereto or conferred by the said Act, shall be vested in the Minister of Public Instruction, as a Trustee as in the said Act is provided: And I declare that the following is the parcel of land hereinbefore referred to as resumed by this notification, that is to say:—

All that piece or parcel of land forming part of James Shepherd's grant of 100 acres and John Savage's grant of 290 acres, situated at Pennant Hills, parish of South Colah, county of Cumberland, containing by admeasurement 2 acres 0 roods 33 $\frac{3}{4}$ perches: Commencing on the eastern side of the road from Parramatta to Wiseman's, &c., at the south-west corner of the present Public School land of 2 roods 4 perches; and bounded thence on part of the north-west by the south-east boundary of that land, as fenced, bearing north 75 degrees 50 minutes east 1 chain 71 $\frac{1}{2}$ links; thence on part of the south-west by part of the north-eastern boundary of that land bearing north 11 degrees 30 minutes west 2 chains 31 $\frac{3}{4}$ links; thence on the remainder of the north-west by the southern side of Church-street bearing north 79 degrees 21 minutes east 4 chains 31 $\frac{3}{4}$ links; thence on the north-east by the south-west boundary of allotment 10 of section 3, being a subdivision of part of John Savage's grant of 290 acres aforesaid, bearing south 10 degrees 38 minutes 30 seconds east 3 chains 57 $\frac{3}{4}$ links; thence on the south-east by lines bearing south 63 degrees 5 minutes west 4 chains 30 $\frac{3}{4}$ links, and south 64 degrees 20 minutes west 1 chain 58 $\frac{3}{4}$ links; and thence on the remainder of the south-west by the north-eastern side of the road from Parramatta to Wiseman's, &c., aforesaid bearing north 17 degrees 22 minutes west 2 chains 78 $\frac{3}{4}$ links, to the point of commencement.

All bearings to true meridian.

In testimony whereof I have hereunto set my Hand, and caused the Great Seal of the Colony to be hereto affixed, at Government House, Sydney, this fourteenth day of September, in the year of our Lord one thousand eight hundred and eighty-eight, and in the fifty-second year of Her Majesty's Reign.

By His Excellency's Command,

JAMES INGLIS.

GOD SAVE THE QUEEN!

ROBBINSVILLE.

[Gazette, 28th August, 1888.]

NOTIFICATION OF RESUMPTION OF LAND UNDER
44 VICTORIA No. 16.

NEW SOUTH WALES, } By His Excellency The Right Honourable
to wit. } CHARLES ROBERT, BARON CARRINGTON,
a Member of Her Majesty's Most
(L.S.) Honourable Privy Council, Knight
CARRINGTON, } Grand Cross of the Most Distinguished
Governor. } Order of Saint Michael and Saint
George, Governor and Commander-in-
Chief of the Colony of New South
Wales and its Dependencies.

WHEREAS the parcel of land hereinafter described is required for the purpose of the erection thereon of a Public School and of buildings to be used in connection therewith: And whereas I, as such Governor as aforesaid, with the advice of the Executive Council of the said Colony, have sanctioned the acquisition of the said land for a site for a Public School: Now, therefore, I, CHARLES ROBERT, BARON CARRINGTON, the Governor aforesaid, with the advice of the said Executive Council, in pursuance of the power and authority given to or vested in me by "The Lands for Public Purposes Acquisition Act," by this notification, published in the Gazette, and a newspaper circulated in the Police District wherein the said land is situated, that is to say, in the "Bulli and Clifton Times," newspaper, declare that the parcel of land hereinafter particularly described has been resumed for the purpose of the erection thereon of a Public School and of buildings in connection therewith: And that the said land hereinafter described is resumed with the intent that by the publication in the Government Gazette, and in a newspaper circulated in the Police District of Wollongong, of this notification of the said land being so resumed, the said land shall forthwith become and be vested in the Minister of Public Instruction of the said Colony and his successors, on behalf of Her Majesty, for the purposes of the said Act, for an estate of inheritance in fee simple in possession, freed and discharged from all trusts, obligations, estates, interests, contracts, charges, rights-of-way, or other easements whatsoever, and that the legal estate therein, together with all powers incident thereto or conferred by the said Act, shall be vested in the Minister of Public Instruction as a Trustee, as in the said Act is provided: And I declare that the following is the parcel of land hereinbefore referred to as resumed by this notification, that is to say:—

All that piece or parcel of land said to form part of Jane Rose's 60 acres grant, portion 4 (on map), now the property of F. Robbins, situated at Robbinsville, parish of Southend, county

of Cumberland, containing by admeasurement 1 acre: Commencing on the east side of a one-chain road separating that portion from portion 26 (on map), Samuel M'Auley's 104 acres 2 roods, being a point bearing north 0 degrees 51 minutes east and distant 12 chains 54 $\frac{1}{2}$ links from the south-west corner of the first-mentioned portion; and bounded thence on the west by that side of that road bearing north 0 degrees 51 minutes east 2 chains 50 links; thence on the north by a fenced line bearing north 86 degrees 13 minutes east 4 chains 1 $\frac{1}{2}$ links; thence on the east by a line bearing south 0 degrees 51 minutes west 2 chains 50 links; and thence on the south by a line bearing south 86 degrees 13 minutes west 4 chains 1 $\frac{1}{2}$ links, to the point of commencement.

In testimony whereof I have hereunto set my Hand, and caused the Great Seal of the Colony to be hereto affixed, at Government House, Sydney, this twenty-third day of August, in the year of our Lord one thousand eight hundred and eighty-eight, and in the fifty-second year of Her Majesty's Reign.

By His Excellency's Command,

JAMES INGLIS.

GOD SAVE THE QUEEN!

TUMUT.

[Gazette, 24th August, 1888.]

NOTIFICATION OF RESUMPTION OF LAND UNDER
44 VICTORIA No. 16.

NEW SOUTH WALES, } By His Excellency The Right Honourable
to wit. } CHARLES ROBERT, BARON CARRINGTON,
a Member of Her Majesty's Most
(L.S.) Honourable Privy Council, Knight
CARRINGTON, } Grand Cross of the Most Distinguished
Governor. } Order of Saint Michael and Saint
George, Governor and Commander-in-
Chief of the Colony of New South
Wales and its Dependencies.

WHEREAS the parcel of land hereinafter described is required for the purpose of the erection thereon of Public School, and of buildings to be used in connection therewith: And whereas I, as such Governor as aforesaid, with the advice of the Executive Council of the said Colony, have sanctioned the acquisition of the said land for a site for a Public School: Now, therefore, I, CHARLES ROBERT, BARON CARRINGTON, the Governor aforesaid, with the advice of the said Executive Council, in pursuance of the power and authority given to or vested in me by "The Lands for Public Purposes Acquisition Act," by this notification, published in the Gazette, and a newspaper circulated in the Police District wherein the said land is situated, that is to say, in the "Tumut Times" newspaper, declare that the parcel of land hereinafter particularly described has been resumed for the purpose of the erection thereon of a Public School and of buildings in connection therewith: And that the said land hereinafter described is resumed with the intent that, by the publication in the Government Gazette, and in a newspaper circulated in the Police District of Tumut of this notification of the said land being so resumed, the said land shall forthwith become and be vested in the Minister of Public Instruction of the said Colony and his successors, on behalf of Her Majesty, for the purposes of the said Act, for an estate of inheritance in fee simple in possession, freed and discharged from all trusts, obligations, estates, interests, contracts, charges, rights-of-way, or other easements whatsoever, and that the legal estate therein, together with all powers incident thereto or conferred by the said Act, shall be vested in the Minister of Public Instruction as a Trustee, as in the said Act is provided: And I declare that the following is the parcel of land hereinbefore referred to as resumed by this notification, that is to say:—

All that piece or parcel of land being allotment 7 of section 9 of the town of Tumut, parish of Tumut, county of Wynyard, containing by admeasurement 2 roods: Commencing on the north-east side of Fitzroy-street, at the south corner of allotment 6, section 9; and bounded thence on the north-west by the south-east boundary of that allotment bearing north 53 degrees east 5 chains; thence on the north-east by the south-west boundary of allotment 12 bearing south 37 degrees east 1 chain; thence on the south-east by the north-west boundaries of allotments 9 and 8 bearing south 53 degrees west 5 chains; and thence on the south-west by the north-east side of Fitzroy-street aforesaid, bearing north 37 degrees west 1 chain, to the point of commencement.

In testimony whereof, I have hereunto set my Hand, and caused the Great Seal of the Colony to be hereto affixed, at Government House, Sydney, this twentieth day of August, in the year of our Lord one thousand eight hundred and eighty-eight, and in the fifty-second year of Her Majesty's Reign.

By His Excellency's Command,

J. F. BURNS.

GOD SAVE THE QUEEN!

WAGRA.

[Gazette, 24th August, 1888.]

NOTIFICATION OF RESUMPTION OF LAND UNDER
44 VICTORIA No. 16.

NEW SOUTH WALES, } By His Excellency The Right Honourable
to wit. } CHARLES ROBERT, BARON CARRINGTON,
a Member of Her Majesty's Most
Honourable Privy Council, Knight
(L.S.) Grand Cross of the Most Distinguished
CARRINGTON, Order of Saint Michael and Saint
Governor. George, Governor and Commander-in-
Chief of the Colony of New South
Wales and its Dependencies.

WHEREAS the parcel of land hereinafter described is required for the purpose of the erection thereon of a Public School, and of buildings to be used in connection therewith: And whereas I, as such Governor as aforesaid, with the advice of the Executive Council of the said Colony, have sanctioned the acquisition of the said land for a site for a Public School: Now, therefore, I, CHARLES ROBERT, BARON CARRINGTON, the Governor aforesaid; with the advice of the said Executive Council, in pursuance of the power and authority given to or vested in me by "The Lands for Public Purposes Acquisition Act," by this notification, published in the Gazette and a newspaper circulated in the Police District wherein the said land is situated, that is to say, in the "Albury Banner" newspaper, declare that the parcel of land hereinafter particularly described has been resumed for the purpose of the erection thereon of a Public School and of buildings in connection therewith: And that the said land hereinafter described is resumed with the intent that by the publication in the Government Gazette, and in a newspaper circulated in the Police District of Albury, of this notification of the said land being so resumed, the said land shall forthwith become and be vested in the Minister of Public Instruction of the said Colony and his successors, on behalf of Her Majesty, for the purposes of the said Act, for an estate of inheritance in fee simple, in possession, freed and discharged from all trusts, obligations, estates, interests, contracts, charges, rights-of-way, or other easements whatsoever; and that the legal estate therein, together with all powers incident thereto or conferred by the said Act, shall be vested in the Minister of Public Instruction as a Trustee as in the said Act is provided: And I declare that the following is the parcel of land hereinbefore referred to as resumed by this notification, that is to say:—

All that piece or parcel of land situate at Wagra, parish of Wagra, county of Goulburn, being portion 172, containing 2 acres, and forming part of Baker Vincent's portion 16 of 40 acres: Commencing at the intersection of the north-east side of the road as fenced, leading from Albury to Upper Murray with the north boundary of portion 16 aforesaid, being a point bearing west 24 chains 92 links from the north-east corner of that portion; and bounded thence on the north by part of that boundary bearing east 5 chains 52 links; thence on the east by a line bearing south 5 chains; thence on the south by a line bearing west 2 chains 48½ links to the north-eastern side of the road from Albury to Upper Murray aforesaid; and thence on the south-west by that side of that road bearing north 31 degrees 14 minutes west 5 chains 85 links, to the point of commencement.

In testimony whereof, I have hereunto set my Hand, and caused the Great Seal of the Colony to be hereto affixed, at Government House, Sydney, this twentieth day of August, in the year of our Lord one thousand eight hundred and eighty-eight, and in the fifty-second year of Her Majesty's Reign.

By His Excellency's Command,

J. F. BURNS.

GOD SAVE THE QUEEN!

WOOLWICH.

[Gazette, 28th August, 1888.]

NOTIFICATION OF RESUMPTION OF LAND UNDER
44 VICTORIA No. 16.

NEW SOUTH WALES, } By His Excellency The Right Honourable
to wit. } CHARLES ROBERT, BARON CARRINGTON,
a Member of Her Majesty's Most
Honourable Privy Council, Knight
(L.S.) Grand Cross of the Most Distinguished
CARRINGTON, Order of Saint Michael and Saint
Governor. George, Governor and Commander-in-
Chief of the Colony of New South
Wales and its Dependencies.

WHEREAS the parcel of land hereinafter described is required for the purpose of the erection thereon of a Public School and of buildings to be used in connection therewith: And whereas I, as such Governor as aforesaid, with the advice of the Executive Council of the said Colony, have sanctioned the acquisition of the said land for a site for a Public School: Now, therefore, I, CHARLES ROBERT, BARON CARRINGTON, the Governor aforesaid, with the advice of the said Executive Council, in pursuance of the power and authority given to or vested in me by "The Lands for Public Purposes Acquisition Act," by this notification published in the Gazette and a newspaper circulated in the Police District wherein the said land is situated, that is to say, in the "Sydney Morning Herald" newspaper, declare that the parcel of land hereinafter particularly described has been resumed for the purpose of the erection thereon of a Public School and of buildings in connection therewith: And that the said land hereinafter described is resumed with the intent that by the publication in the Government Gazette, and in a newspaper circulated in the Police District of Parramatta, of this notification of the said land being so resumed, the said land shall forthwith become and be vested in the Minister of Public Instruction of the said Colony and his successors, on behalf of Her Majesty, for the purposes of the said Act, for an estate of inheritance in fee simple in possession, freed and discharged from all trusts, obligations, estates, interests, contracts, charges, rights-of-way, or other easements whatsoever, and that the legal estate therein, together with all powers incident thereto or conferred by the said Act, shall be vested in the Minister of Public Instruction as a Trustee, as in the said Act is provided: And I declare that the following is the parcel of land hereinbefore referred to, as resumed by this notification, that is to say:—

All that piece or parcel of land, being allotments 1 to 5 of section E of Sunnyside North Subdivision, and allotment 1 of the village of Woolwich, parish of Hunter's Hill, county of Cumberland, originally forming part of T. D. Edwards' 8 acres and 5½ acres grants, containing by admeasurement 1 acre 1 rood 39½ perches: Commencing at the intersection of the eastern side of Gladstone Avenue with the north side of the main road from Hunter's Hill to Woolwich or Onion's Point; and bounded thence on the south by that side of that road, being lines bearing east 304 $\frac{3}{10}$ links and south 86 degrees 52 minutes east 59 $\frac{1}{10}$ links; thence on the east by a line bearing north 535 $\frac{1}{10}$ links; thence on part of the north by the southern side of a reserve extending 100 feet from high-water mark of the Lane Cove River bearing westerly to the east boundary of allotment 4 of section B of Sunnyside North Subdivision aforesaid; thence on part of the west by part of that boundary and the easterly termination of North Parade bearing south 136 $\frac{1}{10}$ links; thence on the remainder of the north by the southern side of that Parade, being lines bearing south 87 degrees 30 minutes west 230 $\frac{1}{10}$ links and north 82 degrees 31 minutes west 42 $\frac{1}{10}$ links; and thence on the remainder of the west by the east side of Gladstone Avenue aforesaid bearing south 374 $\frac{1}{10}$ links, to the point of commencement.

In testimony whereof I have hereunto set my Hand, and caused the Great Seal of the Colony to be hereto affixed, at Government House, Sydney, this twenty-third day of August, in the year of our Lord one thousand eight hundred and eighty-eight, and in the fifty-second year of Her Majesty's Reign.

By His Excellency's Command,

JAMES INGLIS.

GOD SAVE THE QUEEN!

1888.

NEW SOUTH WALES.

LANDS FOR PUBLIC PURPOSES ACQUISITION ACT.

(RESUMPTION OF LAND UNDER FOR PUBLIC SCHOOL PURPOSES AT)—

Casino South (2)—Cowlong—Mosquito Island.

Presented to Parliament, pursuant to Act 44 Vic. No. 16, sec. 6.

CASINO SOUTH.

[Gazette, 2nd November, 1888.]

NOTIFICATION OF RESUMPTION OF LAND UNDER
44 VICTORIA No. 16.

NEW SOUTH WALES, } By His Excellency The Right Honourable
to wit. } CHARLES ROBERT, BARON CARRINGTON,
a Member of Her Majesty's Most
Honourable Privy Council, Knight
(L.S.) Grand Cross of the Most Distinguished
CARRINGTON, Order of Saint Michael and Saint
Governor George, Governor and Commander-in-
Chief of the Colony of New South
Wales and its Dependencies.

WHEREAS the parcel of land hereinafter described is required for the purpose of the erection thereon of a Public School and of buildings to be used in connection therewith: And whereas I, as such Governor as aforesaid, with the advice of the Executive Council of the said Colony, have sanctioned the acquisition of the said land for a site for a Public School: Now, therefore, I, CHARLES ROBERT, BARON CARRINGTON, the Governor aforesaid, with the advice of the said Executive Council, in pursuance of the power and authority given to or vested in me by "The Lands for Public Purposes Acquisition Act," by this notification, published in the Gazette, and a newspaper circulated in the Police District wherein the said land is situated, that is to say, in the "Richmond River Express," newspaper, declare that the parcel of land hereinafter particularly described has been resumed for the purpose of the erection thereon of a Public School and of buildings in connection therewith: And that the said land hereinafter described is resumed with the intent that by the publication in the Government Gazette, and in a newspaper circulated in the Police District of Richmond River, of this notification of the said land being so resumed, the said land shall forthwith become and be vested in the Minister of Public Instruction of the said Colony and his successors, on behalf of Her Majesty, for the purposes of the said Act, for an estate of inheritance in fee simple in possession, freed and discharged from all trusts, obligations, estates, interests, contracts, charges, rights-of-way, or other easements whatsoever, and that the legal estate therein, together with all powers incident thereto or conferred by the said Act, shall be vested in the Minister of Public Instruction as a Trustee, as in the said Act is provided: And I declare that the following is the parcel of land hereinbefore referred to as resumed by this notification, that is to say:—

All that piece or parcel of land situated at Casino South, parish of East Casino, county of Richmond, containing 3 roods 10 perches, being the road adjoining the east and part of the south boundary of portion 54: Commencing at the north-east corner of portion 54 (as originally measured); and bounded thence on part of the north by a line bearing east 1 chain; thence on the east by the west boundary of portion 82 bearing south 6 chains; thence on the south by a north boundary of portion 59 bearing west 3 chains 14 links; thence on part of

the west by a line bearing north 1 chain; thence on the remainder of the north by part of the south boundary of portion 54 aforesaid bearing east 2 chains 14 links; and thence on the remainder of the west by the east boundary of portion 54 bearing north 5 chains, to the point of commencement.

In testimony whereof I have hereunto set my Hand, and caused the Great Seal of the Colony to be hereto affixed, at Government House, Sydney, this thirty-first day of October, in the year of our Lord one thousand eight hundred and eighty-eight, and in the fifty-second year of Her Majesty's Reign.

By His Excellency's Command,

JAMES INGLIS.

GOD SAVE THE QUEEN!

CASINO SOUTH.

[Gazette, 2nd November, 1888.]

NOTIFICATION OF RESUMPTION OF LAND UNDER
44 VICTORIA No. 16.

NEW SOUTH WALES, } By His Excellency The Right Honourable
to wit. } CHARLES ROBERT, BARON CARRINGTON,
a Member of Her Majesty's Most
(L.S.) Honourable Privy Council, Knight
CARRINGTON, Grand Cross of the Most Distinguished
Governor Order of Saint Michael and Saint
George, Governor and Commander-in-
Chief of the Colony of New South
Wales and its Dependencies.

WHEREAS the parcel of land hereinafter described is required for the purpose of the erection thereon of a Public School and of buildings to be used in connection therewith: And whereas I, as such Governor as aforesaid, with the advice of the Executive Council of the said Colony, have sanctioned the acquisition of the said land for a site for a Public School: Now, therefore, I, CHARLES ROBERT, BARON CARRINGTON, the Governor aforesaid, with the advice of the said Executive Council, in pursuance of the power and authority given to or vested in me by "The Lands for Public Purposes Acquisition Act," by this notification, published in the Gazette, and a newspaper circulated in the Police District wherein the said land is situated, that is to say, in the "Richmond River Express" newspaper, declare that the parcel of land hereinafter particularly described has been resumed for the purpose of the erection thereon of a Public School and of buildings in connection therewith: And that the said land hereinafter described is resumed with the intent that by the publication in the Government Gazette, and in a newspaper circulated in the Police District of Richmond River, of this notification of the said land being so resumed, the said land shall forthwith become and

be vested in the Minister of Public Instruction of the said Colony and his successors, on behalf of Her Majesty, for the purposes of the said Act, for an estate of inheritance in fee simple in possession, freed and discharged from all trusts, obligations, estates, interests, contracts, charges, rights-of-way, or other easements whatsoever; and that the legal estate therein, together with all powers incident thereto or conferred by the said Act, shall be vested in the Minister of Public Instruction as a Trustee, as in the said Act is provided: And I declare that the following is the parcel of land hereinbefore referred to as resumed by this notification, that is to say:—

All that piece or parcel of land situated at Casino South, parish of East Casino, county of Richmond, containing 2 roods 17 perches, and forming part of Messrs. W. and F. Fanning's portion 59 of 50 acres: Commencing at the north-east corner of portion 82; and bounded thence on the north by part of the north boundary of portion 59 bearing east 1 chain 1 link; thence on the east by a line bearing south 6 chains; thence on the south by a line bearing west 1 chain 1 link; and thence on the west by the east boundary of portion 82 aforesaid bearing north 6 chains, to the point of commencement.

In testimony whereof I have hereunto set my Hand, and caused the Great Seal of the Colony to be hereto affixed, at Government House, Sydney, this thirty-first day of October, in the year of our Lord one thousand eight hundred and eighty-eight, and in the fifty-second year of Her Majesty's Reign.

By His Excellency's Command,
JAMES INGLIS.

GOD SAVE THE QUEEN!

COWLONG.

[Gazette, 2nd November, 1888.]

NOTIFICATION OF RESUMPTION OF LAND UNDER
44 VICTORIA No. 16.

NEW SOUTH WALES, } By His Excellency The Right Honourable
to wit. } CHARLES ROBERT, BARON CARRINGTON,
a Member of Her Majesty's Most
Honourable Privy Council, Knight
(L.S.) Grand Cross of the Most Distinguished
CARRINGTON, Order of Saint Michael and Saint
Governor. George, Governor and Commander-in-
Chief of the Colony of New South
Wales and its Dependencies.

WHEREAS the parcel of land hereinafter described is required for the purpose of the erection thereon of a Public School and of buildings to be used in connection therewith: And whereas I, as such Governor as aforesaid, with the advice of the Executive Council of the said Colony, have sanctioned the acquisition of the said land for a site for a Public School: Now, therefore, I, CHARLES ROBERT, BARON CARRINGTON, the Governor aforesaid, with the advice of the said Executive Council, in pursuance of the power and authority given to or vested in me by "The Lands for Public Purposes Acquisition Act," by this notification, published in the Gazette and a newspaper circulated in the Police District wherein the said land is situated, that is to say, in the "Northern Star" newspaper, declare that the parcel of land hereinafter particularly described has been resumed for the purpose of the erection thereon of a Public School and of buildings in connection therewith: And that the said land hereinafter described is resumed with the intent that by the publication in the Government Gazette, and in a newspaper circulated in the Police District of Richmond River, of this notification of the said land being so resumed, the said land shall forthwith become and be vested in the Minister of Public Instruction of the said Colony and his successors, on behalf of Her Majesty, for the purposes of the said Act, for an estate of inheritance in fee simple in possession, freed and discharged from all trusts, obligations, estates, interests, contracts, charges, rights-of-way, or other easements whatsoever; and that the legal estate therein, together with all powers incident thereto or conferred by the said Act, shall be vested in the Minister of Public Instruction as a Trustee, as in the said Act is provided: And I declare that the following is the parcel of land hereinbefore referred to as resumed by this notification, that is to say:—

All that piece or parcel of land situated at Cowlong, parish of Lismore, county of Rous, containing 1 acre, being portion 115, and forming part of William Alexander's additional conditional purchase 80-55, portion 253 of 40 acres: Commencing at the south-west corner of portion 253; and bounded thence on the west by the east side of a one-chain road, forming the

west boundary of that portion, bearing north 2 chains 50 links; thence on the north by a line bearing east 4 chains; thence on the east by a line bearing south 2 chains 50 links; and thence on the south by a line forming part of the south boundary of portion 253 aforesaid bearing west 4 chains, to the point of commencement.

In testimony whereof I have hereunto set my Hand, and caused the Great Seal of the Colony to be hereto affixed, at Government House, Sydney, this thirty-first day of October, in the year of our Lord one thousand eight hundred and eighty-eight, and in the fifty-second year of Her Majesty's Reign.

By His Excellency's Command,
JAMES INGLIS.

GOD SAVE THE QUEEN!

MOSQUITO ISLAND.

[Gazette, 2nd November, 1888.]

NOTIFICATION OF RESUMPTION OF LAND UNDER
44 VICTORIA No. 16.

NEW SOUTH WALES, } By His Excellency The Right Honourable
to wit. } CHARLES ROBERT, BARON CARRINGTON,
a Member of Her Majesty's Most
Honourable Privy Council, Knight
(L.S.) Grand Cross of the Most Distinguished
CARRINGTON, Order of Saint Michael and Saint
Governor. George, Governor and Commander-in-
Chief of the Colony of New South
Wales and its Dependencies.

WHEREAS the parcel of land hereinafter described is required for the purpose of the erection thereon of a Public School, and of buildings to be used in connection therewith: And whereas I, as such Governor as aforesaid, with the advice of the Executive Council of the said Colony, have sanctioned the acquisition of the said land for a site for a Public School: Now, therefore, I, CHARLES ROBERT, BARON CARRINGTON, the Governor aforesaid, with the advice of the said Executive Council, in pursuance of the power and authority given to or vested in me by "The Lands for Public Purposes Acquisition Act," by this notification, published in the Gazette, and a newspaper circulated in the Police District wherein the said land is situated, that is to say, in the "Newcastle Herald" newspaper, declare that the parcel of land hereinafter particularly described has been resumed for the purpose of the erection thereon of a Public School and of buildings in connection therewith: And that the said land hereinafter described is resumed with the intent that, by the publication in the Government Gazette, and in a newspaper circulated in the Police District of Newcastle, of this notification of the said land being so resumed, the said land shall forthwith become and be vested in the Minister of Public Instruction of the said Colony and his successors, on behalf of Her Majesty, for the purposes of the said Act, for an estate of inheritance in fee simple in possession, freed and discharged from all trusts, obligations, estates, interests, contracts, charges, rights-of-way, or other easements whatsoever, and that the legal estate therein, together with all powers incident thereto or conferred by the said Act, shall be vested in the Minister of Public Instruction as a Trustee, as in the said Act is provided: And I declare that the following is the parcel of land hereinbefore referred to as resumed by this notification, that is to say:—

All that piece or parcel of land situated at Mosquito Island, parish of Newcastle, county of Northumberland, containing 1 acre 2 roods, and forming part of S. Walter's (now W. Moseley's) portion No. 6 of 11 acres: Commencing at the north-east corner of the present Public School ground, being a point bearing east and distant 2 chains 50 links from the south-west corner of W. T. George's portion 7 of 12 acres; and bounded thence on part of the north by part of the south boundary of that portion bearing east 2 chains 50 links; thence on the east by a line bearing south 4 chains; thence on the south by a line bearing west 5 chains; thence on part of the west by the east side of a road 50 links wide bearing north 2 chains; thence again on the north by the south boundary of the Public School ground aforesaid bearing east 2 chains 50 links; and thence on the remainder of the west by the east boundary of the school ground bearing north 2 chains, to the point of commencement.

In testimony whereof, I have hereunto set my Hand, and caused the Great Seal of the Colony to be hereto affixed, at Government House, Sydney, this thirty-first day of October, in the year of our Lord one thousand eight hundred and eighty-eight, and in the fifty-second year of Her Majesty's Reign.

By His Excellency's Command,
JAMES INGLIS.

GOD SAVE THE QUEEN!

1888.

NEW SOUTH WALES.

LANDS FOR PUBLIC PURPOSES ACQUISITION ACT.

(RESUMPTION OF LAND UNDER FOR PUBLIC SCHOOL PURPOSES AT ARAMAGONG AND KEMPSEY WEST.)

Presented to Parliament, pursuant to Act 44 Vic. No. 16, sec. 6.

KEMPSEY, WEST.

[Gazette, 11th December, 1888.]

NOTIFICATION OF RESUMPTION OF LAND UNDER
44 VICTORIA No. 16.

NEW SOUTH WALES, } By His Excellency The Right Honourable
to wit. } CHARLES ROBERT, BARON CARRINGTON,
a Member of Her Majesty's Most
Honourable Privy Council, Knight
(L.S.) Grand Cross of the Most Distinguished
CARRINGTON, Order of Saint Michael and Saint
Governor. George, Governor and Commander-in-
Chief of the Colony of New South
Wales and its Dependencies.

WHEREAS the parcel of land hereinafter described is required for the purpose of the erection thereon of a Public School and of buildings to be used in connection therewith: And whereas I, as such Governor as aforesaid, with the advice of the Executive Council of the said Colony, have sanctioned the acquisition of the said land for a site for a Public School: Now, therefore, I, CHARLES ROBERT, BARON CARRINGTON, the Governor aforesaid, with the advice of the said Executive Council, in pursuance of the power and authority given to or vested in me by "The Lands for Public Purposes Acquisition Act," by this notification published in the Gazette, and a newspaper circulated in the Police District wherein the said land is situated, that is to say, in the "Macleay Herald" newspaper, declare that the parcel of land hereinafter particularly described has been resumed for the purpose of the erection thereon of a Public School and of buildings in connection therewith: And that the said land hereinafter described is resumed with the intent that by the publication in the Government Gazette, and in a newspaper circulated in the Police District of Macleay River, of this notification of the said land being so resumed, the said land shall forthwith become and be vested in the Minister of Public Instruction of the said Colony and his successors, on behalf of Her Majesty, for the purposes of the said Act, for an estate of inheritance in fee simple, in possession, freed and discharged from all trusts, obligations, estates, interests, contracts, charges, rights-of-way, or other easements whatsoever, and that the legal estate therein, together with all powers incident thereto or conferred by the said Act, shall be vested in the Minister of Public Instruction as a Trustee, as in the said Act is provided: And I declare that the following is the parcel of land hereinbefore referred to as resumed by this notification, that is to say:—

All that piece or parcel of land, being allotment 26 of section 6a, in the town of West Kempsey, parish of Yarravel, county of Dudley, containing an area of 2 roods 8 perches: Commencing on the north-west side of Elbow-street, at the east

corner of allotment 25, being a point bearing north 55 degrees 5 minutes east 9 chains 18 $\frac{4}{10}$ links from an alignment-post situated at the intersection of the building line of the north-west side of Elbow-street with the kerb-line of the north-east side of Tozer-street; and bounded thence on the south-west by the north-east boundary of allotment 25 aforesaid bearing north 35 degrees west 5 chains 50 links; thence on the north-west by the south-east boundary of allotment 7 bearing north 55 degrees 5 minutes east 1 chain; thence on the north-east by the south-west boundary of the present Public School site bearing south 35 degrees east 5 chains 50 links; and thence on the south-east by the north-west side of Elbow-street aforesaid bearing south 55 degrees 5 minutes west 1 chain, to the point of commencement.

In testimony whereof I have hereunto set my Hand, and caused the Great Seal of the Colony to be hereto affixed, at Government House, Sydney, this fifth day of December, in the year of our Lord one thousand eight hundred and eighty-eight, and in the fifty-second year of Her Majesty's Reign.

By His Excellency's Command,

JAMES INGLIS.

GOD SAVE THE QUEEN!

ARAMAGONG.

[Gazette, 23rd November, 1888.]

NOTIFICATION OF RESUMPTION OF LAND UNDER
44 VICTORIA No. 16.

NEW SOUTH WALES, } By His Excellency The Right Honourable
to wit. } CHARLES ROBERT, BARON CARRINGTON,
a Member of Her Majesty's Most
Honourable Privy Council, Knight
(L.S.) Grand Cross of the Most Distinguished
CARRINGTON, Order of Saint Michael and Saint
Governor. George, Governor and Commander-in-
Chief of the Colony of New South
Wales and its Dependencies.

WHEREAS the parcel of land hereinafter described is required for the purpose of the erection thereon of a Public School and of buildings to be used in connection therewith: And whereas I, as such Governor as aforesaid, with the advice of the Executive Council of the said Colony, have sanctioned the acquisition of the said land for a site for a Public School: Now, therefore, I, CHARLES ROBERT, BARON CARRINGTON, the Governor aforesaid, with the advice of the said Executive Council, in pursuance of the power and authority given to or vested in me by "The Lands for Public Purposes Acquisition Act," by this notification, published in the Gazette, and a newspaper circulated in the Police District wherein the said land is situated, that is to say, in the "Grenfell Mining Record" newspaper, declare that the parcel of land hereinafter particularly described has been resumed for the purpose of the erection thereon of a Public School and

of buildings in connection therewith: And that the said land hereinafter described is resumed with the intent that by the publication in the Government Gazette, and in a newspaper circulated in the Police District of Grenfell, of this notification of the said land being so resumed, the said land shall forthwith become and be vested in the Minister of Public Instruction of the said Colony and his successors, on behalf of Her Majesty, for the purposes of the said Act, for an estate of inheritance in fee simple in possession, freed and discharged from all trusts, obligations, estates, interests, contracts, charges, rights-of-way, or other easements whatsoever, and that the legal estate therein, together with all powers incident thereto or conferred by the said Act, shall be vested in the Minister of Public Instruction as a Trustee, as in the said Act is provided: And I declare that the following is the parcel of land hereinbefore-referred-to as resumed by this notification, that is to say:—

All that piece or parcel of land situate at Aramagong, parish of Brundah, county of Montegale, containing 2 acres, being portion 941, and forming part of Kenneth M'Kenzie's conditional purchase portion 223: Commencing at the intersection of the west side of the road, as fenced, from Grenfell to

Morangarell with the north side of a road 1 chain 50 links wide forming the south boundary of portion 223; and bounded thence on the south by that side of that last-mentioned road bearing south 89 degrees 52 minutes west 5 chains 13½ links; thence on the west by a line bearing north 4 chains 1 link; thence on the north by a line bearing east 4 chains 84½ links; and thence on the east by the west side of the road first above-mentioned bearing south 4 degrees 10 minutes east 4 chains 1 link, to the point of commencement.

In testimony whereof I have hereunto set my Hand, and caused the Great Seal of the Colony to be hereto affixed, at Government House, Sydney, this nineteenth day of November, in the year of our Lord one thousand eight hundred and eighty-eight, and in the fifty-second year of Her Majesty's Reign.

By His Excellency's Command,

JAMES INGLIS.

GOD SAVE THE QUEEN!

1888.

NEW SOUTH WALES.

UNIVERSITY OF SYDNEY.

ADDITIONAL BY-LAWS—ADOPTED BY THE SENATE AT A MEETING HELD ON MONDAY, THE 17TH OF SEPTEMBER, AT THE ROOMS OF THE ROYAL SOCIETY.)

Presented to Parliament, pursuant to Act 14 Vic. No. 31, sec. 21.

To stand as By-law 8, Chapter XI.

NOTWITHSTANDING the provisions of By-laws 6 and 7, matriculated students who are students in a training institution for teachers organised under the Department of Public Instruction may be admitted to the First-year Examination in the Faculty of Arts, without having attended the University lectures, upon presenting a certificate from the Under Secretary for Public Instruction to the effect that they have attended the course of instruction in such training institution for one year after matriculating. Students of a training institution who have passed the First-year Examination may be admitted to the Second-year Examination in the Faculty of Arts without having attended the University lectures of the second year upon presenting a similar certificate to the effect that they have attended a second course of instruction in such training institution for one year after passing their First-year Examination. All such students, having passed the Second-year Examination, shall have the status of students, commencing the third year in the Faculty of Arts.

To stand as By-law 1, Chapter XXV.

All appointments of Public Teachers of the University other than Professors shall be terminable by a notice of not less than six calendar months, which may be given by the Senate or by the Teacher at any time. This By-law shall not apply to any case in which the Senate shall direct that the appointment shall be for a limited period.

W. M. MANNING, Chancellor.
H. E. BARFF, Registrar.

Laid before the Executive Council on the 11th October, 1888.—Min. 88-48.—ALEX. C. BUDGE, Clerk of the Council. CARRINGTON.

1888.

NEW SOUTH WALES.

PARLIAMENTARY STANDING COMMITTEE ON
PUBLIC WORKS.

REPORT

TOGETHER WITH

MINUTES OF EVIDENCE

AND

APPENDIX

ON

NEW CENTRAL POLICE COURT.

Presented to Parliament in accordance with the provisions of the Public Works Act,
51 Vic. No. 37, section 8.

SYDNEY : CHARLES POTTER, GOVERNMENT PRINTER.

1944

MEMORANDUM FOR THE RECORD

TO DIRECTOR, FEDERAL BUREAU OF INVESTIGATION

FROM SAC, [illegible]

SUBJECT: [illegible]

REFERENCE IS MADE TO [illegible]

IT IS THE POLICY OF THE BUREAU [illegible]

TO MAINTAIN THE CONFIDENTIALITY OF [illegible]

INFORMATION RECEIVED FROM [illegible]

AND TO DISCLOSE SUCH INFORMATION [illegible]

VERY TRULY YOURS,

[illegible]

NAMES OF THE MEMBERS OF THE COMMITTEE.

LEGISLATIVE COUNCIL.

The Honorable JOHN LACKEY, Chairman.
 The Honorable GEORGE CAMPBELL.
 The Honorable WILLIAM HENRY SUTTON.
 The Honorable JAMES WATSON.
 The Honorable FREDERICK THOMAS HUMPHERY.

LEGISLATIVE ASSEMBLY.

JOSEPH PALMER ABBOTT, Esquire, Vice-Chairman.
 JAMES NIXON BRUNKER, Esquire.
 HENRY COPELAND, Esquire.
 ALEXANDER KETHEL, Esquire.
 JOHN RENDELL STREET, Esquire.
 THOMAS MICHAEL SLATTERY, Esquire.
 JACOB GARRARD, Esquire.
 SYDNEY SMITH, Esquire.

[James Nixon Bruncker, Esquire, by reason of his accepting the office of Minister for Lands, did not take his seat as a member of the Committee.]

LIST OF WITNESSES.

	PAGE.
Joseph Barling, Esq., Under Secretary for Public Works	1
Archibald C. Fraser, Esq., Under Secretary for Justice	1-2
James Barnet, Esq., Colonial Architect	2-4
George Read, Esq., Acting Inspector-General of Police	4-5
Cornelius Delohery, Esq., Clerk of Petty Sessions and Acting Stipendiary Magistrate	5

APPENDIX.

Ground Plan showing the proposed New Central Police Court, as it was submitted to the Committee.

PARLIAMENTARY STANDING COMMITTEE ON PUBLIC WORKS.

NEW CENTRAL POLICE COURT.

REPORT.

THE PARLIAMENTARY STANDING COMMITTEE ON PUBLIC WORKS, appointed during the last Session of Parliament, under the Public Works Act of 1888, 51 Vic. No. 37, to whom was referred the duty of considering and reporting upon "the expediency of erecting a new Central Police Court," have, after due inquiry, resolved that it is expedient the work should be carried out; and, in accordance with the provisions of sub-section IV of clause 13 of the Public Works Act, report their resolution to the Legislative Assembly:—

The new building is intended to take the place of the old Central Police Court in George-street, and the site on which it is proposed to erect the building is that formerly occupied by a tannery, and, more recently, by what is known as Hardie's mill, having a frontage to Liverpool-street of 72 feet, running back 78 feet, and opening into a square of 206 feet by 182 feet, with a frontage of 90 feet to Union-lane, and 161 feet to a right-of-way, 10 feet wide, off Union-lane, with another right-of-way into George-street. The accommodation to be provided will be more extensive and, it appears from the evidence, much more convenient, than that afforded in the old Central Police Court, and in other important respects the new building and the arrangements in connection with it should prove very beneficial. The cost of the work is estimated at £48,000.

The proposal to purchase a suitable site for a new Central Police Court appears to have occupied the attention of Ministers presiding over the Department of Justice for the past ten years, during which period the matter has been under consideration at various times and from different points of view. In 1878 the attention of the Department was called to the inadequate accommodation and the general unsuitableness of the present building, and on many subsequent occasions the desirableness of either rebuilding on the present site or erecting a new Court elsewhere was urged. The latter course appears to have been regarded as the wiser plan, and in 1885 the site in Liverpool-street was purchased by the Government of the late Sir Alexander Stuart for £32,000.

The Committee, in their inquiry concerning this matter, did not examine many witnesses, but at the same time no evidence bearing upon the case and likely to assist the Committee in coming to a right conclusion was omitted.

The witnesses who were examined numbered five, and their evidence appeared so complete and convincing that further testimony was not considered necessary. Mr. Barling, Under Secretary for Works, gave a short general statement of the subject; Mr. A. C. Fraser, Under Secretary of Justice, narrated the circumstances connected with the proposal to build a new Court, from official documents; Mr. Barnett, Colonial Architect, explained what had been done in regard to the preparation of plans, and described the proposed new building in detail; and Mr. George Read, Acting Inspector-General of Police, and Mr. C. Delohery, Clerk of Petty Sessions

Sessions and Acting Stipendiary Magistrate, were examined for the purpose of ascertaining how far the proposal before the Committee met with the approval of the police authorities and the magistrates.

The principal points upon which the Committee elicited information, and which will be found prominent in the evidence, were :—

- (1.) The condition of the present building, and why it has been decided to abandon it and the site upon which it stands ;
- (2.) The reasons for the choice of the proposed new site ;
- (3.) The accommodation to be provided in the new building ;
- (4.) The extent to which the proposed change of site and accommodation in the new building are approved by those immediately interested in the business of the Court.

Numerous complaints, Mr. A. C. Fraser states, have from time to time been made, "not only by the Bench, but by Members of Parliament, the police, the legal profession, and the general public, respecting the unhealthiness of the present premises"; and, referring to the reasons for obtaining a new site, he says, "The reasons advanced for removing from the present position are the general decay of the buildings, the unhealthiness occasioned by too close proximity to the markets (30 feet), its insufficient accommodation, its unsightly appearance, the bad smells arising from the adjoining water-closets and urinals, the noise occasioned by outside traffic, and the proposal to utilize the site for other public purposes." In 1881 the Colonial Architect reported that the building was in a dilapidated and dangerous state, and recommended that no further expenditure should be incurred in making alterations and additions to it; and about the same time it was condemned by the City authorities as "in part unfit for human habitation or accommodation of the occupants." At present, the Colonial Architect states in his evidence (*questions* 27, and 28), "it is in a disreputable condition," and not worth repairing or spending money upon.

The proposed site is one of several which at different times have been under the consideration of Ministers of Justice, and it was decided upon because, after inspection, it was found to be suitable, from its central position and its extent, and from the reasonableness of the price asked for it. The Colonial Architect describes it as "central, removed from noise of traffic, of large area, without street-frontage, and therefore not requiring an expensive style of building." The Acting Inspector-General of Police considers the site to be "fairly central," and Mr. Delohery, though according to his evidence he does not like the position as well as the present one, admits (*questions* 75, and 76) that it is infinitely superior as far as relates to noise from the streets and the presence of loiterers.

As to the accommodation which will be provided in the proposed new building, it will, the evidence shows, be sufficient for all requirements. Everything has been planned upon a scale larger than that of the accommodation afforded by the old building; and several important and desirable improvements have been introduced. One of these is the erection of barracks for the accommodation of fifty foot police, who, by this means, will be available at all times for any emergency that may arise. The new building, in the opinion of the Acting Inspector-General of Police, will afford ample accommodation; and the evidence of Mr. Delohery is to the same effect.

The fourth point of importance upon which the witnesses were examined—the extent to which the proposal and plans submitted to the Committee meet with the approval of those chiefly interested in the business of the Central Police Court—is dealt with in what has already been stated. From that it will be seen that both the change of site and the accommodation to be provided in the new building are approved by those immediately concerned in the business of the Court; and further testimony on this point may be obtained from the answers given to questions 15, 18, 22, 59, and 63.

The

The Committee, on the evidence, consider it desirable that the new building should be proceeded with; and on Thursday, 13th September, they agreed to the following resolution, which was moved by Mr. Humphery and seconded by Mr. Watson :—

“That the Committee consider it expedient that the new Central Police Court should be erected as proposed on the plans and explained in the evidence before the Committee.”

JOHN LACKEY,
Chairman.

Office of the Parliamentary Standing Committee on Public Works,
Sydney, 22nd October, 1888.

PARLIAMENTARY STANDING COMMITTEE ON PUBLIC WORKS.

MINUTES OF EVIDENCE.

NEW CENTRAL POLICE COURT.

THURSDAY, 13 SEPTEMBER, 1888.

Present:—

JOSEPH PALMER ABBOTT, Esq. (VICE-CHAIRMAN).

The Hon. WILLIAM HENRY SUTOR.

The Hon. JAMES WATSON.

The Hon. FREDERICK THOMAS HUMPHERY,

ALEXANDER KETHEL, Esq.

JOHN RENDELL STREET, Esq.

JACOB GARRARD, Esq.

SYDNEY SMITH, Esq.

The Committee proceeded to consider the subject of the proposed new Central Police Court.

Joseph Barling, Esq., Under Secretary for Public Works, sworn and examined:—

1. *Vice-Chairman.*] Are you the Under Secretary for Public Works? Yes.
 2. Do you know anything concerning the new Central Police Court? Yes. The site on which it is proposed to erect the building is that formerly occupied as a tannery, and more recently known as Hardie's Mill. It has a frontage to Liverpool-street of 72 feet, running back 78 feet, and opening into a square of 206 feet by 182 feet, with a frontage of 90 feet to Union-lane, and 161 feet to a right-of-way, 10 feet wide, off Union-lane, with another right-of-way into George-street. The buildings comprise:—Charge, Summons, and Occasional Courts; hall for public and witnesses in waiting; quarters for caretaker; closets, urinals, &c., for each department; lockup, with necessary cells for men and women; yards, closets, &c. In connection with the lockup will also be charge-room, office, sergeants' rooms, and strong and store rooms for stolen articles, superintendent's office, doctor's room, waiting-room for police, &c.; police barracks, with usual accommodation for fifty men, are proposed as well. A complete system of drainage has been arranged for connecting with the sewer in Liverpool-street. The cost of the work, including barracks, is estimated at £49,000. Mr. Fraser, the Under Secretary for Justice, is here, and will give you a statement of the circumstances which have led to the proposal for the new building; Mr. Barnet, the Colonial Architect, will describe the plans; Mr. Read, the Acting Inspector-General of Police, will show the necessity for the new Court; and Mr. Delohery, one of the Stipendiary Magistrates, is also present to give evidence.

J. Barling,
Esq.

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Archibald C. Fraser, Esq., Under Secretary of Justice, sworn and examined:—

3. *Vice-Chairman.*] Are you the Under Secretary for the Department of Justice? Yes.
 4. Have you been connected with that Department for a number of years? I have been connected with the Department of Justice as Under Secretary for 18 months, and with the Crown Law Offices for many years.
 5. Do you know anything of the proposal to build a new Central Police Court? Yes. My knowledge of the matter is gained from the official documents. The proposal to purchase an eligible site for the erection of a new Police Court, in lieu of the one now used, has occupied much attention on the part of several Ministers for years past. In 1878, Mr. Crane, then Acting Police Magistrate at the Central Police Office, first called the attention of the Department to the inadequate accommodation and the general unsuitability of the building. Numerous complaints, from time to time, have since been made, not only by the Bench, but by Members of Parliament, the police, the legal profession, and the general public, respecting the unhealthiness of the present premises, and urging the desirableness of either rebuilding on the same site, and resuming the ground now used as Public Markets, or erecting a new building elsewhere. The latter proposal appears to have been generally considered the wiser course. Much difficulty, however, was experienced in procuring an eligible site, as the several positions offered to the Government for this purpose were reported upon as unsuitable, either because the title was imperfect, or the area too small. In a minute, dated 5th September, 1883, the Colonial Architect reported that, for the purpose of erecting a commodious building, at least 3,920 square yards (or more than three-quarters of an acre) were required. In September, 1883, Mr. Abigail, M.P., first suggested to Mr. Cohen, then Minister of Justice, the Liverpool-street site, which, after inspection, was found to be suitable, from its central position and extent, and the price asked for same being considered reasonable. In a minute, dated 22nd September, 1884, Sir Alexander Stuart, then Colonial Secretary, authorized the purchase of the land referred to from Messrs. Milson and Bennett, on behalf of the Government,

A. C. Fraser,
Esq.

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A. C. Fraser, Esq.,
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for the sum of £32,000, which purchase was duly completed on the 19th January, 1885. On the 9th December following, Mr. Garvan, then Minister of Justice, wrote a minute, setting forth certain reasons in favour of erecting the new Police Office on the site of the old building, and suggested that the Immigration Barracks might be temporarily used for the conduct of business whilst the new building was being erected. The Cabinet approved of this suggestion, but nothing further appears to have been done in the matter pending further inquiry as to what funds were then actually available. Attention having been called by certain Members of Parliament in the House, and the metropolitan Press, to the delay in proceeding with the work, for which at various times the sum in all of £75,000 had been voted, Mr. Garvan, then Minister of Justice, in December, 1886, instructed the Colonial Architect to prepare an estimate of the building proposed to be erected on the site of the present Police Court in George-street. The following is a copy of his report:—"Two-storey building, in stone, £55,000; ditto, in brick and cement, £42,000. Three-storey building, in stone, £70,000; ditto, in brick and cement, £58,000.—J.B. Colonial Architect's Office, 10th December, 1886." Mr. Barnet reported that the estimated cost of the foundation in Liverpool-street would be about £11,900. It was explained that in consequence of the site having been formerly used as a tannery it was necessary for the foundations to be sunk much deeper than they otherwise would have been. The Colonial Architect suggested that tenders should be at once called for the work, but as the ground had been purchased subject to existing leases further delay ensued, pending negotiations for the purchase of leasehold interests. On the 17th October, 1887, Mr. Clarke directed the Crown Solicitor to take steps for the immediate resumption of the leases referred to, but afterwards employed Messrs. Mills & Co., of King-street, to negotiate for a surrender of these leases. On the 23rd November, 1887, Mr. Mills submitted a report. The total amount claimed by the lessees was £7,447 6s. 8d.; the amount offered by Mr. Clarke, and accepted by the lessees (Duesbury, Troedel, and Slade) was £3,950. Mr. Slade's interest (£1,250) is now being dealt with by the Crown Solicitor, and it is expected will shortly be got in, but the deed requires to be sent to England for completion. Mr. Troedel's interest (£2,000) is also in a similar position, the papers having to be sent to England before the property can be vested in the Crown. At the present time there are only two Crown tenants in occupation of portions of the ground, one of whom (Twiss) pays a weekly rental of 10s., and the other (Slade) a monthly rental of £9. 3s. 4d. From this it would appear as if the Government could resume the tenancies in question at a month's notice. It has been estimated that the cost of the new Police Court buildings (exclusive of the purchase money, £32,000, paid for the site, and £3,950 value of leasehold interest) would be about £37,000 if constructed of brick and cement, and £44,000 if built with a stone front. The reasons advanced for removing from the present position are the general decay of the buildings, the unhealthiness occasioned by too close proximity to the markets (30 feet); its insufficient accommodation, its unsightly appearance, the bad smells arising from the adjoining water-closets and urinals, the noise occasioned by outside traffic, and the proposal to utilize the site for other public purposes. Sir George Innes and Mr. Suttor (Ministers of Justice) both concurred that the place was wholly unsuited for the purpose for which it was used; and the latter, in his minute of 26th July, 1880, thought that the present building ought to be pulled down, and gave instructions to Mr. Crane "to look out for a suitable building for immediate occupation," but no suitable building could be obtained at the time. The Colonial Architect, in a minute of 20th January, 1881, reported that the building was in a dilapidated and dangerous state, and recommended that no further expenditure should be incurred in making alterations and additions to the old building. The Mayor (Mr. Harris), the City Health Officer (Dr. Dansey), the City Building Surveyor (Mr. Sapsford), the Inspector of Nuisances (Mr. Seymour), all reported that the buildings "were in part unfit for human habitation or accommodation of the occupants," and notice was served on Sir George Innes (then Minister of Justice) to make certain alterations and improvements within seven days from the 31st January, 1881, but the Attorney-General gave it as his opinion that the Mayor was acting *ultra vires*, and no further action was taken in the matter. The reasons advanced in favour of the Liverpool-street site appear amongst others to be chiefly because it was a better site, inasmuch as the position was a central one, the locality was quiet and healthy, and commodious premises could be erected on a site less valuable than that situated in George-street. There is nothing to disclose in the papers as to what has actually been done towards the erection of the new offices in Liverpool-street; but the Minister of Justice has lately given instructions to sell at an early date the balance of machinery, &c., and the building material of any tenement not actually occupied on the land resumed in Liverpool-street. Instructions have also been given for the demolition and sale on 10th October next of the building material of the present Central Police Court, and Messrs. Hardie & Gorman have been informed to this effect. In the meantime, Mr. Clarke, in a minute of 25th February, 1888, has approved of the renting of the ground floor and first floor of a building numbered 342A, Castlereagh-street, Sydney, and known as the Oddfellows' Hall, for the term of two years from 1st March, 1888, at a yearly rental of £500, payable quarterly. It has been ascertained from the Colonial Architect that the plans and specifications of the proposed new building in Liverpool-street have been prepared, and are now with the Public Works Inquiry Committee for their approval, prior to the work being proceeded with. The following is a statement of votes taken at various times for the purchase of a site and the erection of new Police Court buildings:—
"1882.—The sum of £25,000 was provided from surplus revenue, but was subsequently written off.
1884.—Further sum, surplus revenue, since written off, £10,000. 1884.—Revote of 1882, since written off, £25,000. 1884.—Under Loans Act, 43 Vic. No. 26, £40,000, from which there is a balance amounting to £8,800. 1888.—Under Loans Act, 52 Vic. No. 17, £30,000, or a balance available of £38,934."
6. Mr. Garrard.] If the title of the new site is not yet complete, how can you go into occupation of the land without a certain amount of risk to the Crown;—have you not just stated that it is necessary to send Home some of the conveyances to get them signed? The freehold of the land is conveyed to the Government, and it only now requires a surrender of leases, and these are the deeds sent to England for signature.

James Barnet, Esq., Colonial Architect, sworn and examined:—

J. Barnet,
Esq.,
13 Sept., 1888.

7. Vice-Chairman.] Have you, as Colonial Architect, been instructed to prepare plans and specifications for a new Central Police Court? Yes; since 1880, I think. In 1880 the necessity for the building was brought forward, and at the request of the then Minister for Justice (Sir J. G. L. Innes), the Colonial Architect, in January, 1881, reported upon a store in York-street, owned by Mr. Solomon, proposed to be

be used as a temporary Police Office. The report was to the effect that the building was not suitable for the purpose required. Later on in the same month, leasehold land, between Park and Market Streets, facing Elizabeth-street, was offered by Mr. Long for a temporary building, for which an estimate was prepared, amounting to £2,200. No further instructions were received until August, 1881, when the Minister for Justice asked for an estimate of cost for additional accommodation to the present building, which was furnished with plan, the estimate being £3,000. This was approved, and the amount included in draft Estimates for 1882. It was, however, omitted from the printed Estimates placed before Parliament, and a sum of £25,000, since written off, was voted for the erection of a new building, without reference to the Colonial Architect, who had received no instructions in the matter. This sum of £25,000 having been voted for a new building, the Colonial Architect asked by letter to the Works Department, of 9th March, 1882, if the site had been decided; and, if so, that particulars of accommodation required in the building might be furnished, to enable him to prepare plans for the work. The matter then stood over until September, 1883, when the Minister for Justice asked the Colonial Architect for a report, in conjunction with Mr. Dillon; S.M., and the Inspector-General of Police, as to a suitable site for a new building. Three sites were inspected, viz.: Vacant land on the east side of Pitt-street, between Goulburn and Campbell Streets; land in Pitt-street, between Bathurst and Liverpool Streets, on which stands St. Andrew's School; and land between George and Pitt Streets, off Liverpool-street, formerly used as a tannery. The last-named was reported as the most suitable, being central, removed from noise of traffic, and being of large area, without street frontage; therefore not requiring an expensive style of building. Sketch plans suitable for each site were submitted to the Minister for Justice, who stated he could not see why the building should not be erected on the site at the corner of Pitt and Liverpool Streets which had recently been purchased by the Government. In the following month—October, 1883—the Colonial Architect was requested to prepare plans to suit the site at the corner of Pitt and Liverpool Streets, before referred to, the particulars of accommodation required being furnished by the Departments concerned. The plans were completed and submitted in March following, with report that the site being so limited it was found necessary to place two Courts on the first floor, and that, for the same reason, there would be no space for witnesses but the passages; and it would therefore be doubtful whether a building on this site would give more accommodation than was provided by the old building. The building for this site, as planned, was estimated at £36,000 with brick and cement front, or £44,000 for stone front. Nothing further was done until October, 1885, when, in accordance with instructions, sketch plans were prepared and submitted to suit the site of the old tannery in Liverpool-street, before referred to; but the matter remained in abeyance until September, 1886, when the Colonial Architect, as instructed, reported on utilizing the old Immigrant Barrack for Police Court purposes, estimating cost of alterations at £4,000; and at the same time estimating cost of erecting new Police Court on the site of the present building, in accordance with plans submitted, at £55,000 for a two-storey building, and £70,000 for a three-storey building; and for erecting a building on the before-named Liverpool-street site, including Coroner's Court, at £43,500. In October, 1886, plans were, in accordance with instructions, prepared for alterations to the Immigration Barrack, to suit the building for a temporary Police Court, but the work was not carried out; and in December following the then Minister for Justice, Mr. Garvan, recommended as the most suitable site for new Police Court buildings that on which the present buildings stand, and that temporary accommodation for the Police Court should be provided in the Immigration Barrack. This was approved by the Cabinet, but the matter was deferred for want of funds. In March, 1887, the Cabinet approved of the Immigration Barrack being altered for a Police Court, at a cost of £2,000; the Minister for Justice, at the same time, asking for a report on land in York-street, next the Wesleyan Chapel; which the Colonial Architect reported as too small, and again recommended the land in Liverpool-street. Plans for alterations to Immigrant Barrack were then prepared and submitted with form of notice inviting tenders for the work, but it was now decided by the Minister for Justice that the barrack should be added to and utilized for Supreme Court purposes instead of Police Courts. In September following, the Inspector-General of Police pointed out the necessity for the purchase of a site on which to erect a barrack for fifty men, but the Minister for Justice considered this barrack should form an addition to the plan for proposed new Police Courts. A plan was prepared accordingly, the additional cost for the barrack being estimated at £4,500. On 11th October, 1887, the Colonial Architect submitted a plan for the foundation of a building to be erected on the site of the old tannery, Liverpool-street, before alluded to, as part of the scheme to give work to the unemployed, with form of notice inviting tenders for the work, which was approved by the Minister, and notice sent to the *Gazette*. It was, however, afterwards withdrawn, and papers in accordance with instructions forwarded for consideration of the Minister for Justice, who instructed the Crown Solicitor to take steps for the resumption of leases held by tenants of portions of the land referred to. No further instructions have been received by the Colonial Architect; but on the 27th April, 1888, he submitted a letter to the Works Department respecting funds that would be required to meet the cost of proposed Central Police Court. £30,000 was therefore included in the Loans Estimate for this year, in addition to which there is a balance of £8,934, remaining from Loans 1884; making the total sum of £38,934 now available towards erection of the proposed new Police Courts.

8. How many Court-rooms will there be in the new building? Three—two Courts and an occasional Court.

9. Will that afford as much accommodation as was given in the old Central Police Court? There is just the same number of Court-rooms.

10. Are the new court-rooms the same size as those in the Central Police Court, or are they larger? They are all larger.

11. Is the accommodation altogether larger? Yes; everything is on a larger scale.

12. Have you provided much accommodation for the public—that is, the idling public—in those Court-rooms? No, not much. There are no galleries. There is room for about three dozen people in each Court. There is an entrance to the Magistrates' rooms from George-street. The police-station plans are incomplete.

13. Will there be as much prison accommodation as there is now at the old Central Police Court? There will be more. The prisoners will come down the stairs shown on the plan, and under the Court.

14. *Mr. Kethel.* Have you made provision to prevent such an occurrence as recently took place at the Central Police Court, by having the prisoners more under the supervision of the police? It is contemplated to construct iron bars on one side of the cells, so that the constable-in-charge can see into the cells. I may say that I received a letter recently from Mr. Fosbery, who visited the new municipal buildings.

J. Barnet,
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- J. Barnet, Esq.
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- buildings at Glasgow, which I have seen. They have cells there with open bars in front. In Greenock lock-up, which I have seen, there are about twenty-five cells, and they have an elevator to bring up the prisoners; and they have the Court so arranged that if a prisoner is discharged he goes out without being seen by the public in the Court. The London lock-ups are very poor.
15. *Mr. Suttor.*] Would it not be better if the prisoners' dock were nearer the Bench instead of being across the room, and behind the lawyers' table? That matter rests with the Magistrates. We always try to meet the wishes of the Magistrates.
16. *Mr. Kethel.*] Have you submitted these plans and the details of the fitting up of the Courts to the Department of Justice before finally deciding upon them? This building is under two Departments—the Colonial Secretary for the lock-up, and the Minister of Justice for the Court. It first goes from me to the Minister.
17. Do you submit the plans for their approval? I submit them to the Secretary for Public Works. He sends them to the Minister of Justice and the Colonial Secretary, and they approve.
18. Do they make such alterations as they desire? There is seldom anything of that kind, because we always consult the officers beforehand.
19. Have these plans been finally approved of by the Department? No; they have been submitted. The question of accommodation for fifty police is under consideration.
20. Does the estimate of cost which you have given us include the cost of cells and police barracks? Yes.
21. *Vice-Chairman.*] Does the sum of £40,000 which you have mentioned include the cost of foundations? Yes; the foundations are very costly here.
22. Where do you gather information to enable you to prepare accommodation—from the Magistrates and the officials? As far as the Court-rooms are concerned, we get it from the Magistrates—principally Mr. Delohery.
23. *Mr. Garrard.*] Has he had long experience at the Central Police Court? Yes.
24. *Vice-Chairman.*] Will the accommodation for fifty police be placed over the Court? No; the Court will be a one-storey building. One plan made provision for a room upstairs for the Coroner, but that has since been provided elsewhere.
25. *Mr. Kethel.*] Will the walls be constructed strong enough to allow of another storey being added? They will be strong enough; but if another storey were added there would not be much light in the Court. There will be a gate entrance from George-street. The front elevation stands back from Liverpool-street about 70 feet. Only the front is intended to be constructed with stone. It will be sandstone. There will be no basement. We have only an underground passage for prisoners.
26. *Mr. Suttor.*] Have you inspected the old Central Police Court building? Yes.
27. In what condition is it? It is in a disreputable condition.
28. Is it worth repairing or spending money upon it? No; it is very damp, and the old buildings are rotten.
29. *Mr. Watson.*] What is the estimated cost of the proposed new buildings complete? £48,000.
30. And that includes the foundations? Yes.
31. *Vice-Chairman.*] Do you think it can be done for that sum? Yes.
32. *Mr. Garrard.*] Do you not think that it is a very great waste to erect a one-storey building on valuable ground like this site? It is much more convenient for the public. There is a great objection to having Courts upstairs. That is the objection to the other site.
33. *Mr. Watson.*] When can you begin this work? We could begin to-morrow, if we had the land.
34. When will it be completed? In eighteen months or two years.

George Read, Esq., Acting Inspector-General of Police, sworn and examined:—

- G. Read, Esq.
13 Sept., 1888.
35. *Vice-Chairman.*] Are you the Acting Inspector-General of Police? Yes.
36. Have you been a long time in the Police Force stationed in Sydney? Thirty-three years.
37. Do you know the old Central Police Court? Yes.
38. Are you intimately acquainted with it and the lock-up? I have known them during the whole period I have been in the Colony.
39. Are they suitable for the purposes for which they are used? No.
40. Why? The Court does not contain sufficient accommodation, and the situation, owing to the constant noise of the traffic in George and York Streets, is unsuitable. The lock-up is also deficient in accommodation; and for sanitary reasons it is unsuitable for the purpose.
41. Is the noise a great disadvantage in the conduct of Court business? Yes.
42. Have you seen the plans of the proposed new Central Police Court in Liverpool-street? Yes.
43. What do you think of that site for a Central Police Court and lock-up? I think it is fairly central. I know the district thoroughly, as it is my own.
44. Is it more central than the present site? No; I do not think it is, because the greater number of arrests are made in the centre of the city—about the theatres and principal hotels and the neighbourhood adjacent to Darling Harbour.
45. Have you given attention to the plans of the Court-house? I have looked at them. I have not gone very carefully into the plans of the Court.
46. Do you see on the plans before the Committee the accommodation proposed to be provided for three Courts? Yes.
47. Do you think that they afford sufficient accommodation for the purposes for which they are intended? I think so. The tendency now is to afford the near suburbs the convenience of a Court, which has the effect of diminishing the business in the city. I think therefore that these buildings will afford ample accommodation.
48. Do you more particularly direct your attention to the accommodation for prisoners? Yes.
49. What do you think of the accommodation provided for that purpose in these plans? I think it is very good and ample.
50. The Colonial Architect has told us that it is proposed to erect barracks there to accommodate fifty police;—is that something new? It is in Sydney; but it is the practice in most large towns to have a barrack in the centre of the city, so as to have a number of men available on the shortest notice for any emergency which might arise.
51. Would those men live there constantly? Yes.
52. Are they unmarried men? Yes, all of them.
53. At present, where are those men kept? They provide themselves with accommodation wherever they can get it.

- 54. If they are suddenly required, have you to look for them? Yes; we have to send to their homes to G. Read, Esq. get them.
- 55. Do you know the accommodation proposed to be given to those fifty men? Yes; I have had ^{13 Sept., 1888.} conversation with the Colonial Architect on the subject.
- 56. Will they be foot police? Yes, all foot police.
- 57. Would it be a great convenience to the Police Force and the administration to be able to keep those fifty men in one place? Yes, and a public benefit. For instance, in the event of any serious disturbance at an election, or the occurrence of a riot, it would be a very great advantage to know where to go to get a considerable body of men in a very short time.
- 58. *Mr. Street.*] Have you sufficiently examined the plans to be able to say that the accommodation meets with your approval, and that it will provide all that is necessary for some time to come; have you had sufficient time to examine the plans? Yes, I think so; I saw them some time ago, and thought them complete.
- 59. Were you consulted with regard to the accommodation required? Yes; and I think the accommodation will be ample for all the future in that part of the city. We have a commodious lock-up at the north end of the city, and it is in contemplation to have another lock-up at the south end. We have one fairly good one there already; but it is thought that it might be in a better situation. As the land on which it stands is exceedingly valuable, the proceeds of the sale of that land would be more than sufficient to provide another lock-up in a better situation.

Cornelius Delohery, Esq., Clerk of Petty Sessions and Acting Stipendiary Magistrate, sworn and examined:—

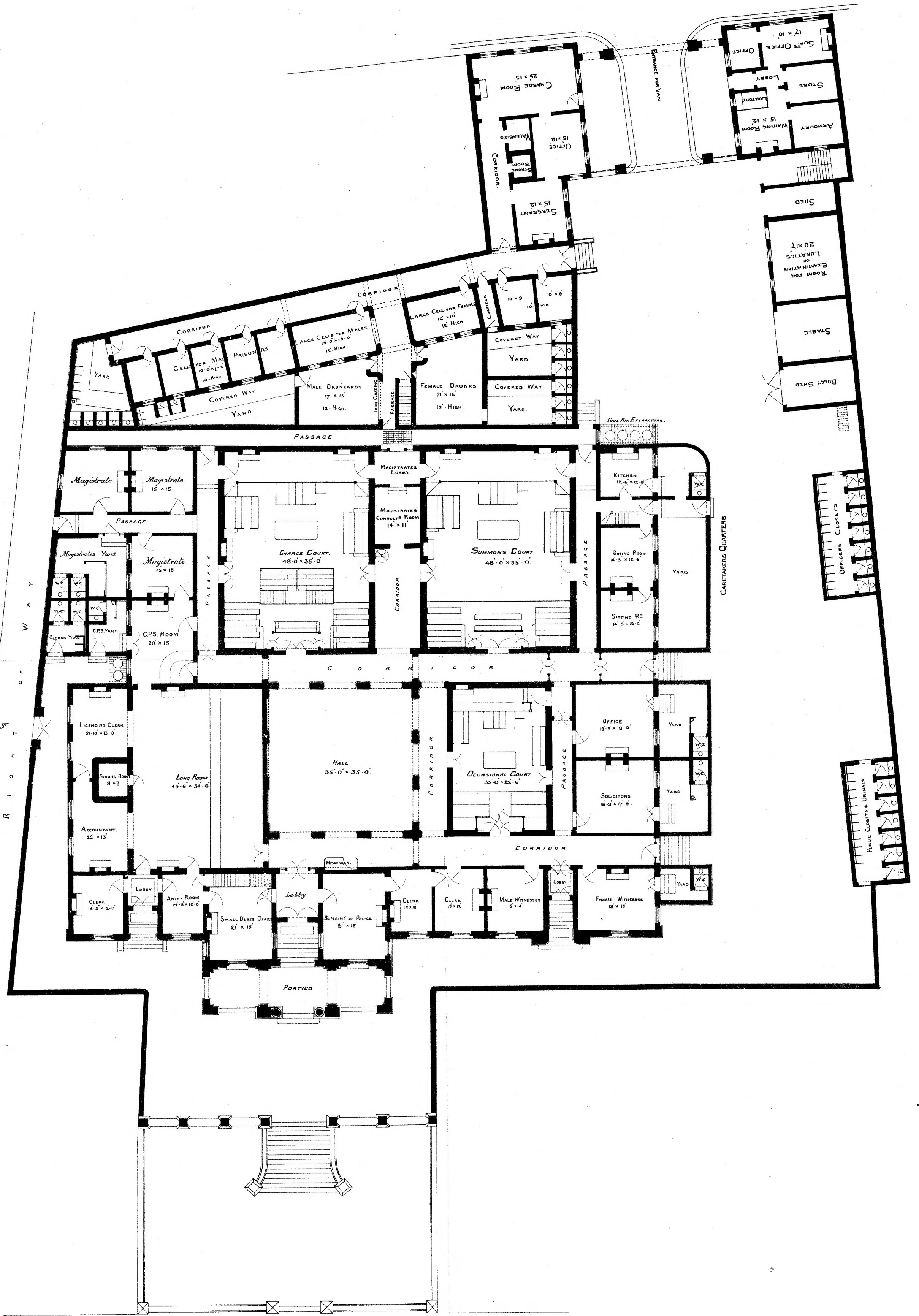
- 60. *Vice-Chairman.*] Are you Clerk of Petty Sessions and Acting Stipendiary Magistrate at the Central Police Court? Yes. C. Delohery, Esq. ^{13 Sept., 1888.}
- 61. How long have you been there? Thirty years. I was in Maitland for twelve years.
- 62. Have you examined the plans of the proposed new Central Police Court? Yes.
- 63. Have you been consulted at all? Yes. I suggested nearly all the first plan.
- 64. What is your opinion as to the accommodation proposed;—will it be sufficient for the requirements of the Central Police Court? Quite.
- 65. Will the Court accommodation be as extensive as it is at present? It will be more extensive.
- 66. Does that also apply to the offices? Yes.
- 67. Have you now sufficient office room at the Central Police Court? No.
- 68. Are the present buildings suitable for the Central Police Court? No, they are not; principally because of the situation. The noise in both streets interferes with the business very much, and there is a great stench from the markets.
- 69. What is your opinion as to the position of the Liverpool street site;—is it sufficiently central? I do not like the position altogether. The present position is more central. You could not have a better position than that.
- 70. Except for the lock-up, will it not be central enough for the public? It will do; but it would be better in its present position.
- 71. Is not the city extending southwards? That does not matter. Our district only extends to Cleveland street, and therefore it does not matter how far south the city goes.
- 72. Is not the Court at one end of the district now? Yes; but the population is there.
- 73. Has not the population increased enormously in the south during the last ten years? I do not think so, because all the land is occupied, and there is no more land to occupy. The city is increasing beyond that, but it is in other districts.
- 74. *Mr. Kethel.*] Have not the residents' dwellings which used to be so numerous in the northern part of that district become stores and warehouses, and, consequently, the population is shifting? That is the case.
- 75. *Vice-Chairman.*] Is not the proposed new site infinitely superior to the old site, so far as noise from the streets is concerned? Yes. It is surrounded by buildings, and there will be no noise.
- 76. Will it not be an advantage to have the Court off the street, so that loiterers may not so easily stroll in? Yes.
- 77. Is there not a little too much accommodation provided for the Magistrates in the plan of the new building. What does each Magistrate want a room for? I do not think there is too much accommodation. The Magistrates each have a room in the Water Police Court.
- 78. I am not asking you what they have at the Water Police Court. Would not every clerk like to have a room to himself? Of course we could make one room do.
- 79. There is no private work to be transacted there; it is all public business, is it not? Of course they could do with one room. We are using one room now.
- 80. Are the new Courts as large as the old ones? I think they are not quite as large.
- 81. That is not a disadvantage? I do not think it is. The others are too large, and allow too many people to be in at one time. The new ones are of a nice workable size.
- 82. Is it generally admitted that there is an absolute necessity for new Courts? Yes; everyone admits that. The present building is a disgrace to the city.
- 83. *Mr. Suttor.*] Have you examined the arrangements in the different Courts—the position of the witness-box, the position of the Magistrates, and so on? Yes.
- 84. Do you think that what is now proposed is a good arrangement? Yes. We have had a great many alterations in the plans.
- 85. According to this arrangement the prisoner and the witness will be over 20 feet apart? Yes, quite that distance.
- 86. Do you not think it would be better to have the witness and the prisoner closer together, so that the prisoner could hear every word? That might be done. Very often prisoners, if they are hard of hearing, are brought out of the dock, so as to be closer to the witness. The dock might certainly be brought a little closer.
- 87. Would it not be more convenient to have the dock where the reporters' table now is? It is not advisable to have the prisoner at the side. In Sydney the dock is always placed in the centre.

[One Plan.]

CENTRAL POLICE COURTS

LIVERPOOL STREET

UNION LANE



LIVERPOOL STREET

(312/15-)

GROUND FLOOR PLAN

PHOTO-LITHOGRAPHED AT THE GOVT. PRINTING OFFICE, SYDNEY, NEW SOUTH WALES

James Vernet
Architect



1888.

LEGISLATIVE ASSEMBLY,
NEW SOUTH WALES.

SYDNEY CENTRAL POLICE COURT BILL.

(MESSAGE No. 10.)

Ordered by the Legislative Assembly to be printed, 6 December, 1888.

CARRINGTON,

Governor.

Message No. 10.

In accordance with the provisions contained in the 54th section of the Constitution Act, the Governor recommends, for the consideration of the Legislative Assembly, the expediency of making provision to meet the requisite expenses in connection with a Bill to sanction the construction of a new Central Police Court in the City of Sydney.

Government House,

Sydney, 30th November, 1888.

1. The first part of the document
 discusses the general principles
 of the theory.

2. The second part of the document
 discusses the specific applications
 of the theory.

3. The third part of the document
 discusses the conclusions of the
 study.

1888.

LEGISLATIVE ASSEMBLY.
NEW SOUTH WALES.

POLICEMEN IN PLAIN CLOTHES AT BURWOOD.

(PAPERS RELATING TO MAN FIRED AT BY FOUR.)

Ordered by the Legislative Assembly to be printed, 20 November, 1888.

RETURN to an *Order* made by the Honorable the Legislative Assembly of New South Wales, dated 7th November, 1888, That there be laid upon the Table of this House,—

“Copies of papers relating to the case of the man who was fired at by four policemen in plain clothes at Burwood.”

(*Mr. Walker.*)

Inspector Larkin to Inspector Anderson.

Sir,

No. 5 Police Station, 17 July, 1888.

I have the honor to report for your information an occurrence that took place this morning, between our plain-clothes constables and three men who were driving along the Parramatta Road towards Sydney in a light spring-cart.

Owing to some burglaries recently perpetrated in the western suburbs, I thought it advisable to employ some of the most efficient and the most trustworthy men in the subdivision to perform plain-clothes duty, with the view of bringing the offenders to justice. I was possessed of information that the burglars used a light spring-cart, consequently I directed the men to be on the alert for anything of that description found about at unseasonable hours.

About 1 o'clock this morning, Senior-constable Skinner and Constable M'Kee saw three men in a spring-cart on the Parramatta Road, driving at a very rapid pace in the direction of Burwood. Skinner called on them to stand, but instead of doing so they increased their speed until they were lost sight of by the police.

About 3:20 a.m. the senior-constable, in company with three other constables in plain clothes, saw a van containing three men corresponding with the one above mentioned coming from the direction of Burwood. The senior-constable called on the driver to pull up, and at the same time said, “I am a police-constable.” The driver took no notice of the challenge, but seemed to increase his speed, when the senior-constable fired a shot in the air from a small pocket-revolver, with the view of intimidating the occupants of the van.

The police subsequently succeeded in overtaking the van, but not before one of its occupants who carried a parcel escaped. We concluded that parcel contained the property which was stolen from the residence of Mr. Willis, at Burwood, about an hour and a half previous.

I since saw the vanman, and from what he told me I concluded the two men that he promiscuously picked up on the road were the persons who robbed Mr. Willis' dwelling.

The revolver used by Senior-constable Skinner was his own private property, and carried by him without my knowledge; and although I considered it my duty to report the whole of the facts for your information, I am quite satisfied the senior-constable fired the revolver in the air.

I have, &c.,

N. LARKIN, Inspector.

1888-9.

LEGISLATIVE ASSEMBLY.
NEW SOUTH WALES.

PURCHASE OF SITE FOR POLICE BUILDINGS, PARRAMATTA.
(CORRESPONDENCE RESPECTING.)

Ordered by the Legislative Assembly to be printed, 15 January, 1889.

The Colonial Architect to The Under Secretary for Public Works.

Department of Public Works,
Colonial Architect's Office, Sydney, 11 June, 1887.

Sir,
I do myself the honor to report that, in accordance with verbal instructions from the Colonial Secretary, I have inspected the property at Parramatta known as the "Woolpack Inn," with the view of ascertaining its value and adaptability for Court-house purposes.

2. The ground upon which the buildings are erected has (according to accompanying plan*) ^a *Appendix A. frontage of, say, 157 feet to George-street, by a depth of 398 feet to Marsden-street; it is of sufficient area and suitable for a Court-house, but the buildings, which are old and not in good condition, could not be utilized, except the stables, which might answer for police purposes, if required.

3. The probable value of the property I consider may be given as follows:—

157 feet frontage to George-street, with depth of 150 feet to Marsden-street,	£2,826
at per foot, £18	1,984
248 feet remaining frontage to Marsden-street, at per foot, £8	400
Value of old buildings, say	£5,210
Total	£5,210

Or, in round numbers, £5,200.

This valuation is based on such information as could be gained on the spot; but having only indirect and superficial means of ascertaining the value of country properties, it may perhaps be considered desirable to obtain another opinion in the matter.

I have, &c.,
JAMES BARNET,
Colonial Architect.

The Principal Under Secretary.—J.R., B.C., 14/6/87. Submitted, 14/6/87.

The Colonial Secretary to Mr. John Taylor.

Parliament House, Sydney, 23 June, 1887.

My dear Mr. Taylor,
I have arranged with the Manager of the City Bank for you to make a valuation of the Woolpack property, George-street, Parramatta. This is to be done for the Government, and without any reference to the City Bank; but the Bank is to pay your charge.

I should be glad if you would examine the property and report to me not later than Saturday.

Yours, &c.,
HENRY PARKES.

The Principal Under Secretary to Messrs. Hardie & Gorman.

Appendix A.

Gentlemen,

Colonial Secretary's Office, Sydney, 24 June, 1887.

In transmitting to you the accompanying plan of the premises known as the Woolpack Inn, Parramatta, I am directed by the Colonial Secretary to request that you will be good enough to favour me with a report as to the value of the property in question.

2. The ground upon which the buildings are erected has, according to the plan, a frontage of, say, 157 feet to George-street, by a depth of 398 feet to Marsden-street.

I have, &c.,

CRITCHETT WALKER,

Principal Under Secretary.

Mr. John Taylor to The Colonial Secretary.

Sir,

Real Property Sale Rooms, Church-street, Parramatta, 25 June, 1887.

In accordance with your letter of instruction of the 23rd instant, requesting me to examine the property at Parramatta, known as the Woolpack Hotel, and to make a valuation of the property for the Government, and report same to you, I beg to state I am thoroughly conversant with the particulars of the property, and did this day fully examine the buildings and land, and have the honor to report as follows:—

The situation of the property is at the north side of George-street, at its intersection with Marsden-street, a very central and convenient site for a family hotel or a public institution, and, although George-street is one of the main streets of the town, that portion west of Church-street, where the Woolpack property is situated, is not considered of the same importance for business purposes as the portion east side of Church-street. The ground frontage of the Woolpack property to Marsden-street does not occupy a commanding position for either business or private residences.

The building upon the land, used as the hotel accommodation, is very commodious, and has been built many years. The principal walls appear sound, but, as a whole, it is very much out of repair. The out-buildings are in very bad order, excepting the stone-built extensive stable, lofts, and covered-way, which are all good, and a solid structure.

I have made a separate estimate of value of the buildings and land, showing the buildings at their present estimated value, and the land as a subdivision to make the highest possible price.

I have also considered the value of the property as a whole for an investment, and I may here mention that the municipal assessment for this year was at a rental of £700 per year, and the agent for the property appealed to the Appeal Court for a reduction of assessment, and the Court reduced the amount to £400 per year. I am of opinion the sum should not have been less than £500 per year, a rental easily obtained.

My estimate of the present value of the property is £7,000, compiled as follows, viz.:—

The main building (hotel), with outbuildings and offices	£1,700
Stone-built stables and covered way	650
Ground frontage to George-street, 158 feet 4 inches by 125 feet deep, at £18 per foot	2,850
200 feet frontage to Marsden-street (opposite the hospital), by a full depth of the land from that street, at £9 per foot	1,800
Total value	<u>£7,000</u>

I declare the above amount to be a full value of the property.

JOHN TAYLOR,

Auctioneer and Valuator.

Messrs. Hardie & Gorman to The Colonial Secretary.

Sir,

Sale Rooms, 133, Pitt-street, Sydney, 28 June, 1887.

In accordance with the Principal Under Secretary's instructions of the 24th instant, we yesterday inspected the property known as the "Woolpack Inn," situated at Parramatta. The land has a frontage of about 157 feet to George-street, and a frontage along Marsden-street of 398 feet.

The hotel erected on the land is two stories high, and of brick. The stables at rear are of cut stone, and other out-buildings of wood.

We value the property at £9,500 (nine thousand five hundred pounds).

We return plan lent us.

We have, &c.,

HARDIE & GORMAN.

The Principal Under Secretary to Mr. John Taylor.

Sir,

Colonial Secretary's Office, Sydney, 2 August, 1887.

I am directed by the Colonial Secretary to request that you will be so good as to make a careful examination and valuation of the following properties, viz.:—

1. The present Court-house, land, and buildings, corner of George and Church Streets.
2. The site on the Sydney Road purchased a short time ago for Court-house.
3. The property—land and buildings—known as the Police Barracks, Macquarie-street.

2. I am desired to inquire what each of the foregoing properties would realise in the market at the present time, and in each case whether there is a prospect of increasing value.

I have, &c.,

CRITCHETT WALKER,

Principal Under Secretary.

Mr.

Mr. John Taylor to The Colonial Secretary.

Sir, Real Property Sale Rooms, Church-street, Parramatta, 9 August, 1887.

In compliance with your letter of instruction, dated 2nd August (instant), requesting me to make a careful examination and valuation of the following properties situate in the Town of Parramatta, viz. :—

1. The present Court-house, land, and buildings at the corner of Church and George Streets.
2. The site in Church-street (called Sydney Road) purchased a short time since for a Court-house.*
3. The property, land, and buildings known as the Police Barracks, Macquarie-street, and to report the value of each of the properties, together with my opinion in each case whether there is a prospect of increasing value.

I have the honor to report that I have inspected the properties and given careful consideration to their respective values in the present real property market, and beg to state as follows :—

1. The building and land known as the Court-house and Police Office, situated at the corner of Church and George Streets.—The buildings are of stone, substantial, and in good order and repair, but to be used for any other business purposes than what they are now occupied for their value would be considerably lessened. The land has a frontage to Church-street of 144 feet 5 inches, and to George-street of 142 feet 8 inches, and my estimate of the value of the whole property is £8,000.
2. The vacant land situate near the Railway Station on the south side having a ground frontage to* Church-street of 277 feet by depths from that street of 150 feet on the north boundary, and 184 feet on the south boundary, and my estimate of the value of this land is £3,000. With respect to this vacant land, I am aware that the Government, through the Hon. Henry E. Cohen (then Minister for Justice), paid a considerable higher price for the property than the amount I now value it at, and in justice to my present valuation, I must beg to state that the price paid by the Government was far in excess of the value obtainable for the land from any other source at the time of purchase.
3. The land and buildings known as the Police Barracks.—The buildings are brick built, very old, and much out of order.

The land comprises an area of about 4 acres, and the highest results for price would be best obtainable by a subdivision, and I have enclosed a sketch* of a proposed subdivision which I have used, together with a calculation, as a whole, to appraise the land, and my estimate of the value of this property is £2,700. * Appendix B.

The total value of the three properties referred to I estimate at £13,700.

With reference to a prospect of increasing value, from my experience of land and real property sales in Parramatta—over a period of thirty years—say, even during the past ten years, and judging from the present demand for investment in real property, I am inclined to the opinion that between the present time and the end of this year either of the particular properties herein valued is likely to command as high a price or value by public competition as may be expected for several years to come.

I have, &c.,

JOHN TAYLOR,

Auctioneer and Land Valuator.

Minute by The Colonial Secretary.

It is proposed to purchase the property in Parramatta known as the "Woolpack," for £8,500. Some time ago a site for a new Court-house was purchased by Mr. H. E. Cohen (then Minister of Justice) for, I believe, £5,000; but this site is out of the way, being on the Sydney Road, and the erection of a new Court-house upon it would give much dissatisfaction. It is now proposed to sell this piece of ground, the present Court-house at the corner of George and Church Streets, and the land in Macquarie-street now occupied by the police. The buildings on this latter piece of land are in so decayed a state that they ought to be pulled down. It is believed that these three properties would sell for a sum not less than £15,000. They have been valued by Mr. John Taylor, a cautious valuator, at £13,700. He only sets £3,000 upon Mr. Cohen's purchase.

The Woolpack property is in one of the best positions in the town. A new Court-house might be erected upon the property fronting the main street (George-street); and the hotel buildings would supply quarters for the police and all other Government officials; and the total cost would not exceed the estimated proceeds from the sale of the other properties.

Hardie & Gorman's valuation of the Woolpack property is £9,500. I recommend the purchase.

HENRY PARKES,

11/8/87.

Cabinet approve of purchase of Woolpack property; the question relating to Court-house to be reconsidered.—H.P., 11/8/87.

The Manager of the City Bank to The Colonial Secretary.

My dear Sir Henry,

I agree to the purchase, by the Government, of the Woolpack, at £8,500, the cost to be made on approval of the title by the Crown Solicitor, and completion of the conveyance by the Bank, and wait your further advice on the subject.

I remain, &c.,

W. NEILL,

Manager.

The

* The correspondence relating to this property was laid upon the Table of the Legislative Assembly on the 18th May, 1886.

The Principal Under Secretary to The Manager of the City Bank.

Sir, Colonial Secretary's Office, Sydney, 13 August, 1887.
 In reply to your letter of the 12th instant, I am directed by the Colonial Secretary to inform you that the Government agree to purchase the property known as "The Woolpack Hotel," Parramatta, for the sum of eight thousand five hundred pounds (£8,500), and to inquire when possession can be given, as it is desired, as soon as practicable, to remove the police to the building.

2. I am to request that you will communicate with the Crown Solicitor regarding the title of the property.

I have, &c.,

CRITCHETT WALKER,
 Principal Under Secretary.

The Assistant Manager of the City Bank to The Colonial Secretary.

Sir, The City Bank, Sydney, 13 August, 1887.
 I am instructed by the Manager to say that possession of "The Woolpack," Parramatta, purchased by the Government, may be had at once, and on your signifying the name of the official to take possession an order for that purpose in his favour will be at once prepared and forwarded to you.

The Manager will put himself into immediate communication with the Crown Solicitor as to the title.

I have, &c.,

J. HENDERSON,
 Assistant Manager.

Minute by The Colonial Secretary.

It is intended to sell the land in Macquarie-street, Parramatta, on which the old barrack buildings remain in a decayed condition, and I want Mr. Fosbery to go up to Parramatta and look at the "Woolpack," with a view to the police taking up their quarters there without loss of time. If he could arrange to take possession on behalf of the Government on Wednesday next, I think I could arrange to inspect the premises at the same time.

Write to Mr. John Taylor, and ask him to advise as to the disposal of the Macquarie-street land.

H.P., 13/8/87.

The Inspector-General of Police, B.C., 12 August, 1887.—C.W., P.U.S. Very urgent.

The Inspector-General of Police to The Principal Under Secretary.

Sir, Police Department, Inspector-General's Office,
 Sydney, 15 August, 1887.
 In compliance with the Colonial Secretary's desire, I have the honor to report for his information that I have inspected the site and premises of the "Woolpack Inn," at Parramatta. If it be intended to erect a new Court-house in that town, the site is central and suitable; but I conclude that a portion of the present premises would have to be removed, to afford sufficient space for the new building, as the inn is only about 75 feet from the main frontage. The buildings contain extensive accommodation, far in excess of any requirement of this Department, but are considerably out of repair. The stabling, however, is very good.

The present Police Barracks are in need of such considerable repairs that I am inclined to think the cost would be greater than that of erecting new premises. The Lock-up, adjacent to the Court-house, is a new building, with good quarters for the keeper, and centrally situated, answering all our requirements in that regard.

The site purchased near the Railway Station, for a new Court-house, is not, in my judgment, an eligible one.

It might be worthy of the consideration of the Government whether the land in Macquarie-street, forming part of the Police Reserve, would not be a good site for a new Court-house, as the old hospital buildings opposite thereto will probably have to be taken down before long.

I have, &c.,

EDMUND FOSBERY,
 Inspector-General of Police.

Seen.—H. P., 17/8/87.

Minute by The Inspector-General of Police.

Police Department, Inspector-General's Office, Sydney, 15 August, 1887.
 Noted and returned.
 I have instructed Sub-Inspector Latimer, of Parramatta, to attend on Wednesday to take possession of the premises known as the "Woolpack Inn," on behalf of the Government.
 If the Colonial Secretary desires that I should meet him there on Wednesday, will he be good enough to let me know what train he will leave Sydney by?

I visited Parramatta yesterday, and inspected all the buildings, and have already reported thereon.

EDMUND FOSBERY,
 I.G.P.

The Principal Under Secretary to Mr. John Taylor.

Sir, Colonial Secretary's Office, Sydney, 15 August, 1887.
 I am directed by the Colonial Secretary to request that you will be so kind as to advise as to the disposal of the Macquarie-street land, Parramatta, referred to in my letter of the 2nd instant.

I have, &c.,

CRITCHETT WALKER,
 Principal Under Secretary.

Mr.

Mr. John Taylor to The Colonial Secretary.

Sir,

Real Property Sale Rooms, Church-street, Parramatta, 16 August, 1887.

I have the pleasure of replying to your letter of the 15th instant, requesting me to advise as to the disposal of the Macquarie-street land, Parramatta, and referred to in your letter of the 2nd instant.

I beg to state that I am of opinion that the highest possible value to be obtained for the land is to make a subdivision into allotments of about $\frac{1}{4}$ acre each. In some instances the lots would have to be a little larger or smaller, according to the present formation of the whole, and the land upon which the buildings stand should be regarded in the subdivision so as to preserve the whole of each building if possible in a lot; and I would advise a sale by public auction at Parramatta about the month of October next, upon the same terms as the Government now offer for sales of Crown lands.

I have, &c.,

JOHN TAYLOR,

Auctioneer and Land Valuator.

The Crown Solicitor to The Principal Under Secretary.

Sir,

Crown Solicitor's Office, Sydney, 18 August, 1887.

I have the honor to inform you that Mr. Neill, Manager of the City Bank, has handed to me this morning a bundle of documents said to relate to premises at Parramatta, known as the "Woolpack Hotel," recently agreed to be purchased by the Colonial Secretary, but of course there has not been sufficient time to investigate the Title.

I notice that it is stated in to-day's paper that possession of the premises is to be taken to-day. I think, therefore, that Mr. Neill should be requested to state that the fact of possession being taken shall not operate as a waiver of the right of the Crown to require a good title to the land to be shown, or if he fails to do so, that possession of the premises should not be taken until the title has been approved of.

I have, &c.,

JOHN WILLIAMS,

Crown Solicitor.

Submitted, 18/8/87. Approved.—H.P., 18/8/87.

The Principal Under Secretary to The Manager of the City Bank.

Sir,

Colonial Secretary's Office, Sydney, 18 August, 1887.

Referring to my letter of the 13th instant, regarding the purchase by the Government of the property known as the "Woolpack Hotel," Parramatta, I am directed by the Colonial Secretary to request that you will be good enough to state that the fact of possession being taken shall not operate as a waiver of the right of the Crown to require a good title to the property to be shown.

I have, &c.,

CRITCHETT WALKER,

Principal Under Secretary.

The Manager of the City Bank to The Principal Under Secretary.

Sir,

The City Bank, Sydney, 19 August, 1887.

In reply to your letter of the 18th instant, I beg to state that the fact of the Government having taken possession of the property known as the "Woolpack Hotel," Parramatta, purchased by them from the Bank, will not in any way operate as waiving the right of the Crown to require a good title to the property in the Bank to be shown.

I have, &c.,

WILLIAM NEILL,

Manager.

The Crown Solicitor to The Under Secretary of Justice.

Sir,

Crown Solicitor's Office, Sydney, 11 November, 1887.

In reference to the purchase of the "Woolpack Hotel" at Parramatta, from the City Bank, I have the honor to request that I may be informed whether possession of the premises has been taken on behalf of the Crown, as I am about to complete the purchase.

I have, &c.,

JOHN WILLIAMS,

Crown Solicitor.

Urgent. Forwarded to Works Department with reference to previous papers, and for favour of report. The Under Secretary for Public Works.—A.F., B.C., 14 Nov., 1887. Principal Under Secretary.—J.R., B.C., 21/11/87. Will Mr. Fosbery kindly say whether possession has been taken of the premises.—C.W., B.C., 2/12/87. Yes.—E.F., B.C., 2/12/87. The Crown Solicitor.—C.W., P.U.S., B.C., 2 Dec., 1887.

The Crown Solicitor to The Principal Under Secretary.

Sir,

Crown Solicitor's Office, Sydney, 5 December, 1887.

"Woolpack Hotel," Parramatta.—The City Bank to the Queen.

I have the honor to inform you that this matter has been completed, and to forward herewith voucher for payment of the purchase money, the amount of which may be paid to the City Bank, as is therein authorized, as the Government are in possession of the land.

I have, &c.,

JOHN WILLIAMS.

The Principal Under Secretary to The Under Secretary for Finance and Trade.

Sir,

Colonial Secretary's Office, Sydney, 6 December, 1887.

In transmitting to you the accompanying claim in favour of the City Bank, the amount of the purchase money for premises at Parramatta, known as the "Woolpack Hotel," amounting to £8,500 (eight thousand five hundred pounds), I am directed to state that the Colonial Secretary approves of the payment of the amount in question, and to request that you will invite the Colonial Treasurer to have the goodness to cause the same to be paid from the Advance Account, and provision to be made on Further Supplementary Estimates.

I have, &c.,

CRITCHETT WALKER,
Principal Under Secretary.

[Enclosure.]

NEW SOUTH WALES.

Pay Voucher.

Claimant, The City Bank, Sydney.

Department of Colonial Secretary.

Directors—
JOHN LYONS,
JAS. EWAN,
JOHN ALGER,
E. WRENCH.

1887.
2 NovemberTo amount of purchase money for premises at Parramatta, known as the "Wool-
pack Hotel"

Amount.

£	s.	d.
8,500	0	0

For the City Bank,
J. HENDERSON,
Assist. Manager.

I hereby authorize the amount of the above certificate in my favour to be paid on my behalf to the City Bank,
Sydney.

JOHN LYONS.
JAS. EWAN.
JOHN ALGER.
E. WRENCH.

For the City Bank,
J. HENDERSON,
Assist. Manager.

Approved.—H.P., 6/12/87.

The Crown Solicitor to The Principal Under Secretary.

"Woolpack Hotel," Parramatta.—The City Bank to the Queen.

Sir,

Crown Solicitor's Office, Sydney, 5 December, 1887.

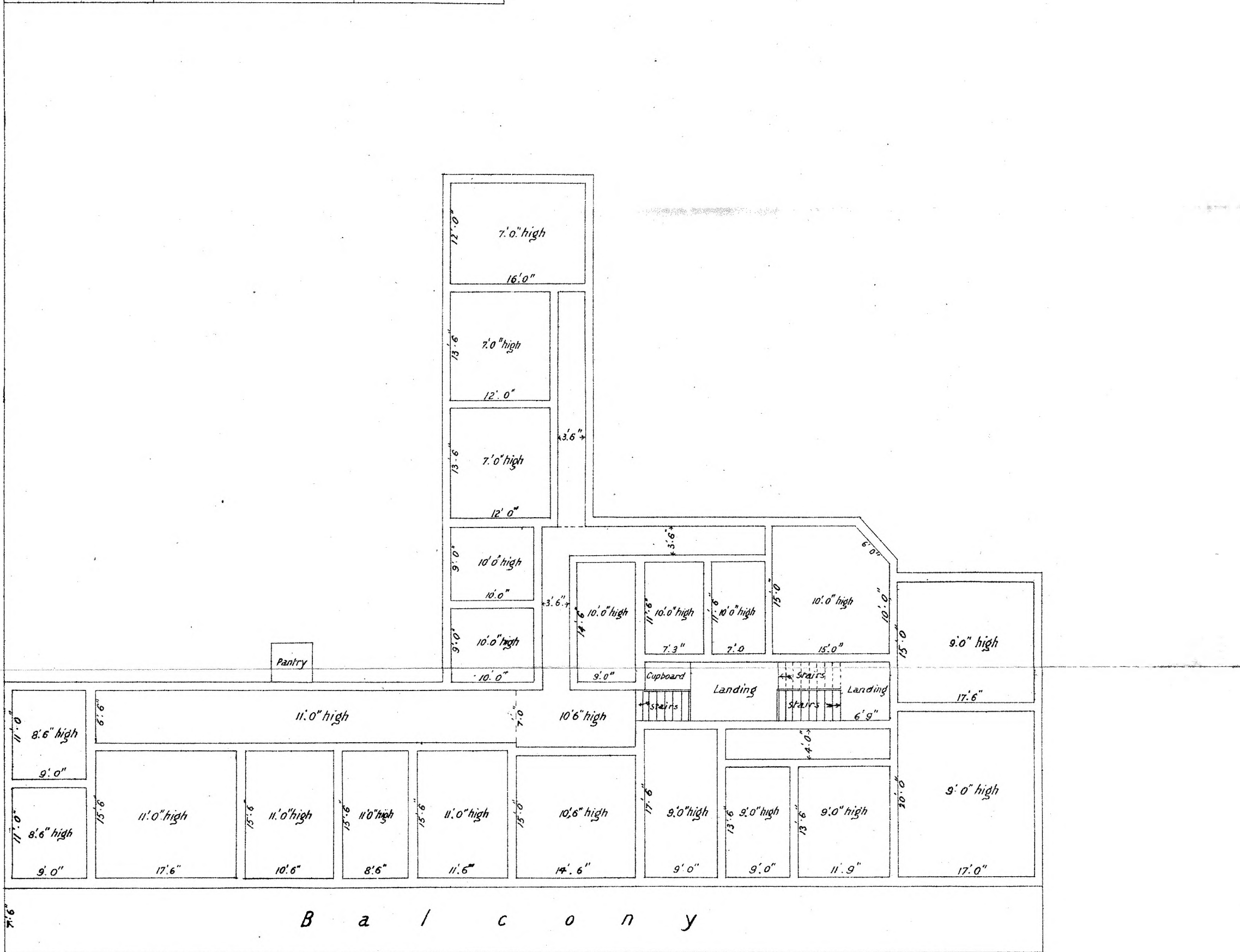
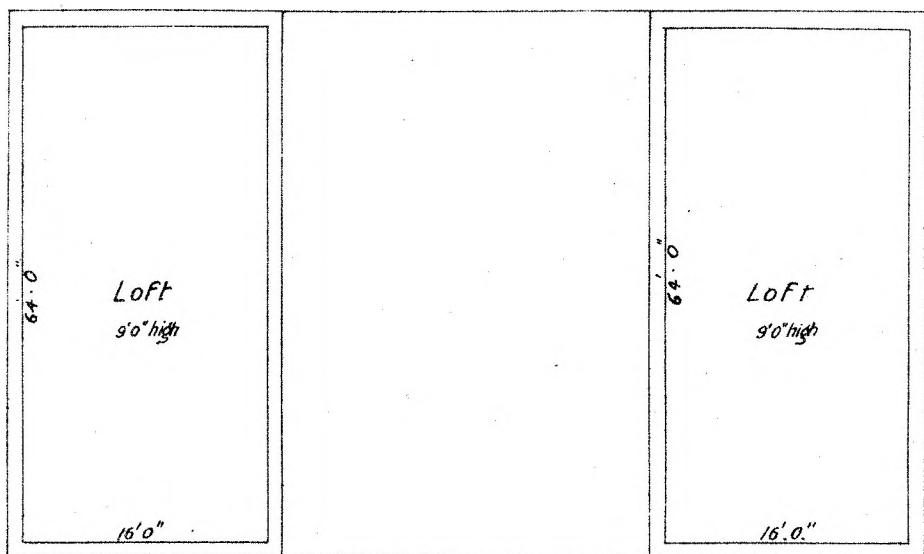
I have the honor to inform you that this matter has been completed, and to return herewith the papers herein.

I have, &c.,

JOHN WILLIAMS,
Crown Solicitor.

[Three Plans.]

WOOLPACK HOTEL. PARRAMATTA.



FIRST FLOOR PLAN.

APPENDIX B



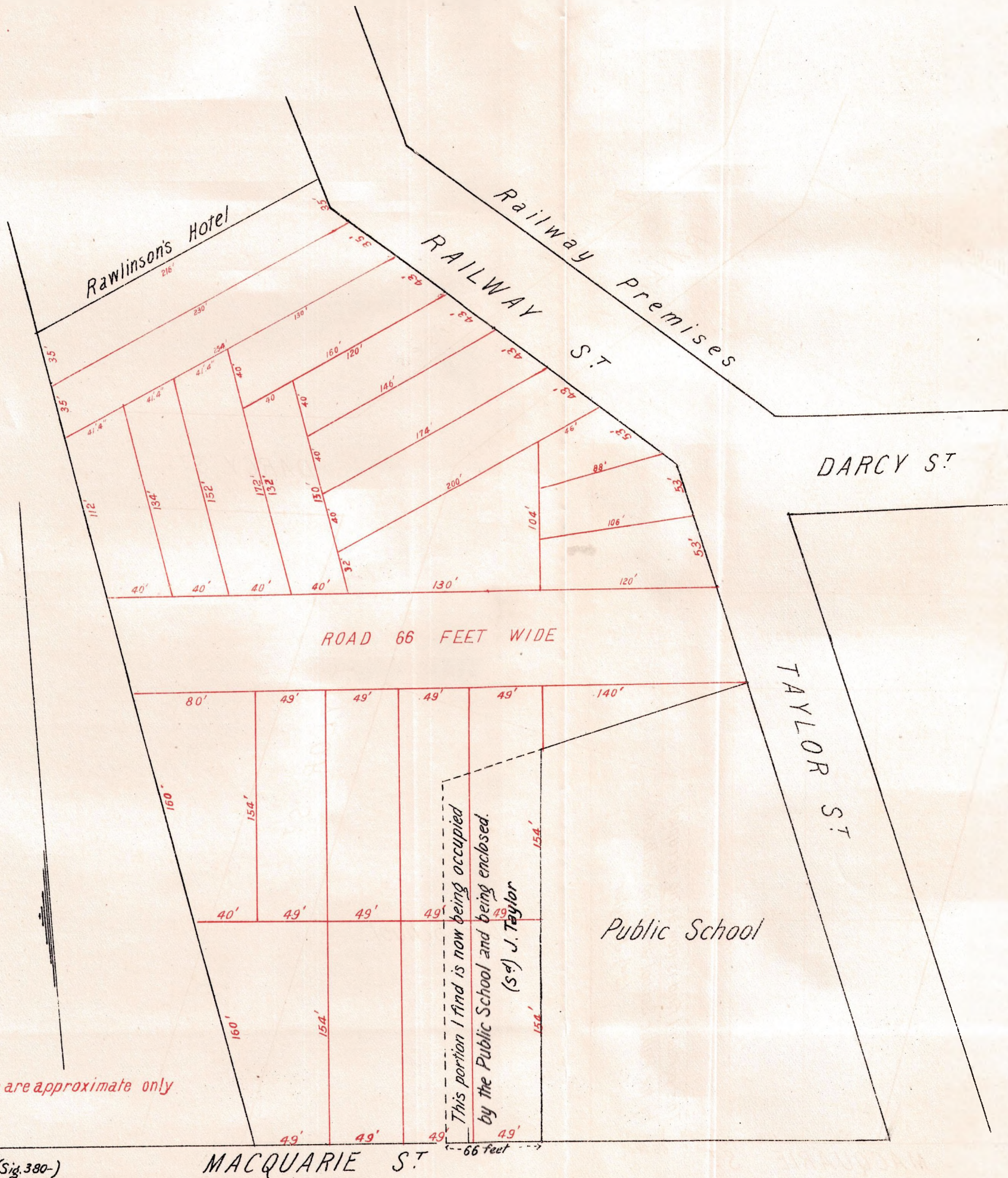
GROUND PLAN,
WOOLPACK HOTEL,
 PARRAMATTA.

(Sig. 380-)

GEORGE ST

PHOTO-LITHOGRAPHED AT THE GOVT. PRINTING OFFICE, SYDNEY, NEW SOUTH WALES

SHOWING PROPOSED SUBDIVISION OF THE BARRACKS RESERVE.
PARRAMATTA.



N.B. Lengths are approximate only

This portion I find is now being occupied by the Public School and being enclosed. (Sd) J. Taylor

(Sig. 380-)

MACQUARIE ST

1888.

NEW SOUTH WALES.

PRISONS ACT.

(ADDITIONAL REGULATIONS FOR REFORMATORY TREATMENT OF MALE OFFENDERS.)

Presented to Parliament, in pursuance of Acts 4 and 37 Vic. Nos. 29 and 14 respectively.

Department of Justice,
Sydney, 15th November, 1888.

ADDITIONAL REGULATIONS FOR REFORMATORY PRISON TREATMENT OF MALE OFFENDERS,
FROM THE AGE OF 16 TO 25 YEARS, UNDER SENTENCES UP TO SIX MONTHS.

His Excellency the Governor, with the advice of the Executive Council, has been pleased, under section 5 of 4 Victoria No. 29, to make the following additional Regulations for Reformatory Prison Treatment of Male Offenders from the age of 16 to 25 years, under sentences up to six months.

WILLIAM CLARKE.

THERE shall be a seventh class of prisoners, from the age of 16 to 25 years, under sentences not exceeding six months, being first convictions, who shall be treated during such sentences under the following conditions of "separate treatment":—

- 1. Each prisoner shall occupy a separate cell, and shall be employed upon such suitable work as may be furnished to him.
- 2. He shall be allowed exercise for one hour each day, and a longer period if thought necessary by the Surgeon.
- 3. He shall, if coming under the regulations as to eligibility for school, be allowed one hour daily for performing tasks to be set for him by the Schoolmaster, and one hour for reading such instructive and reforming books as may be selected for him by the Chaplain. He shall at all times be provided with a Bible.
- 4. He shall not, under any pretence, attempt to communicate with another prisoner. He must neither read aloud, sing, whistle, dance, nor make any noise in his cell, exercise ground, in the corridor, or chapel.
- 5. He shall rise immediately upon the first bell being rung, wash his hands and face, and make up his bedding neatly in such form as may be directed.
- 6. He shall keep his person, cell, and the furniture therein in the highest state of cleanliness.
- 7. He shall wash his feet twice in summer, and once in winter, weekly, and shall bathe once a week.
- 8. He shall not be allowed to alter his clothing, and shall keep it clean and in proper repair.
- 9. He shall, on hearing his cell door open, at once, if not in bed, stand up in the centre of his cell, facing the door, with his hands by his side and his heels close together.
- 10. In marching to or returning from the exercise grounds or chapel, he shall keep five yards distant from any other prisoner.
- 11. Any prisoner requiring assistance or instruction, or having anything to communicate, may ring his gong for the officer on duty; but all conversation not strictly necessary is to be avoided, and on no account is the gong to be rung without sufficient reason.

12. At the order "Prepare for exercise," the prisoner shall, as soon as the door is opened, move out of his cell to the exercise circle, and take up the position assigned to him by the Officer; at the word "One," he shall stoop down and take hold of the rope handle attached to the marching chain; at the word "Two," he shall at once assume an erect position, retaining hold of the marching chain, and so remain at attention until the Officer calls "Walk round." During wet or very hot days he may (by permission of the Officer) remain in his cell, or take such exercise as may be practicable and directed, in the corridor.

13. He shall be very respectful to all officers of the Government, and shall never pass a superior officer of the prison without touching his hat.

14. The Scale of Dietary will be—16 oz. bread; 8 oz. meal; 8 oz. meat; 8 oz. potatoes; 1 oz. sugar; ½ oz. soap; ½ oz. salt.

They shall be required to perform any such work capable of being performed in a cell.

The Surgeon shall visit daily each prisoner of the seventh class in his prison.

Each prisoner shall be weighed monthly, and reports of weight shall be laid before the Surgeon at the commencement of each month.

The prisoners shall be allowed the usual monthly visits, but in each case the Gaoler must be satisfied that the visitor is a person to whom it is desirable to permit the privilege.

Correspondence will be permitted in terms of Regulation No. 31.

Each prisoner of the seventh class shall be provided with a plank bed, which shall be used without a mattress or substitute therefor for a period of one month. A coir pillow of 4½ inches in diameter will be allowed.

After a period of one month a coir mattress will be allowed; but, in case of misconduct, the Visiting Justice may direct the prisoner, apart from any cell or other punishment, to be deprived of his mattress for a period not to exceed fourteen days.

These Regulations shall take effect from 1st January, 1889.

1888.

NEW SOUTH WALES.

LANDS FOR PUBLIC PURPOSES ACQUISITION ACT.

(RESUMPTION OF LAND IN THE TOWN OF YASS.)

Presented to Parliament, pursuant to Act 44 Vic. No. 16.

NOTIFICATION OF RESUMPTION OF LAND UNDER 44 VICTORIA, No. 16.

New South Wales, } By His Excellency The Right Honourable Charles Robert, Baron Carrington,
 to wit. } a Member of Her Majesty's Most Honourable Privy Council, Knight Grand
 (L.S.) } Cross of the Most Distinguished Order of Saint Michael and Saint George,
 CARRINGTON, } Governor and Commander-in-Chief of the Colony of New South Wales and its
 Governor. } Dependencies.

WHEREAS the parcel of land hereinafter described is required for the construction of an extension of the gaol at Yass, and the Government has sanctioned the carrying out the said extension, for which public funds are lawfully available: Now, I, the Governor of the said Colony, with the advice of the Executive Council of the said Colony, in pursuance of the powers in this behalf given to or vested in me by the "Lands for Public Purposes Acquisition Act," do, by this notification published in the Gazette and in a newspaper, that is to say, in the "Yass Courier," circulated in the Police District wherein the said land is situated, declare that the land hereinafter described has been resumed for the public purposes hereinbefore mentioned, to the intent that, upon the publication of this notification in the Gazette, the legal estate in the said land shall forthwith be vested in the Minister for Public Works and his successors, on behalf of Her Majesty, for the purposes of the said last-mentioned Act, for an estate of inheritance in fee-simple in possession, freed and discharged from all trusts, obligations, estate, interests, contracts, charges, rates, rights-of-way, or other easements whatsoever, and to the intent further that the legal estate therein, together with all powers incident thereto or conferred by the said Act, shall be vested in the said Minister as a Trustee with the powers stated in the said last-mentioned Act: And I declare that the following is the description of the land hereinbefore referred to, that is to say:—

All that piece or parcel of land, being allotment No. 5 of section No. 1, in the town of Yass, parish of Hume, county of Murray: Commencing at the south corner of allotment No. 7, section No. 1; and bounded on the north-east by the south-west boundaries of allotments Nos. 7, 8, 9, and 10, being a line bearing about north 45 degrees west 5 chains; thence on the north-west by the south-east boundary of allotment No. 16, being a line bearing south about 45 degrees west 1 chain; thence on the south-west by the north-east boundary of allotment No. 4, being a line bearing about south 45 degrees east 5 chains to the north-west side of Rossi-street; thence by a part of the north-west side of Rossi-street, being a line bearing about north 45 degrees east 1 chain, to the point of commencement,—containing 2 roods.

In testimony whereof, I have hereunto set my hand, and caused the Great Seal of the Colony to be hereto affixed, at Government House, Sydney, this twenty-fifth day of October, in the year of our Lord one thousand eight hundred and eighty-eight, and in the fifty-second year of Her Majesty's Reign.

By His Excellency's Command,
 JOHN SUTHERLAND.

GOD SAVE THE QUEEN!

1888-9.

NEW SOUTH WALES.

LANDS FOR PUBLIC PURPOSES ACQUISITION ACT.

(RESUMPTION OF LAND IN THE TOWN OF YASS.)

Presented to Parliament, pursuant to Act 44 Vic. No. 16, sec. 6.

NOTIFICATION OF RESUMPTION OF LAND UNDER
44 VICTORIA No. 16.

NEW SOUTH WALES, } By His Excellency The Right Honourable
to wit. } CHARLES ROBERT, BARON CARRINGTON,
a Member of Her Majesty's Most
Honourable Privy Council, Knight
(L.S.) Grand Cross of the Most Distinguished
CARRINGTON, Order of Saint Michael and Saint
Governor. George, Governor and Commander-in-
Chief of the Colony of New South
Wales and its Dependencies.

WHEREAS the parcel of land hereinafter described is required for the construction of an extension of the Gaol at Yass, and the Government has sanctioned the carrying out the said extension, for which public funds are lawfully available: Now, I, the Governor of the said Colony, with the advice of the Executive Council of the said Colony, in pursuance of the powers in this behalf given to or vested in me by the "Lands for Public Purposes Acquisition Act," do, by this notification published in the Gazette and in a newspaper, that is to say, in the "Yass Courier," circulated in the Police District wherein the said land is situated, declare that the land hereinafter described has been resumed for the public purposes hereinbefore mentioned, to the intent that, upon the publication of this notification in the Gazette, the legal estate in the said land shall forthwith be vested in the Minister for Public Works and his successors, on behalf of Her Majesty, for the purposes of the said last-mentioned Act, for an estate of inheritance in fee simple in possession, freed

and discharged from all trusts, obligations, estate, interests, contracts, charges, rates, rights-of-way, or other easements whatsoever, and to the intent further that the legal estate therein, together with all powers incident thereto or conferred by the said Act, shall be vested in the said Minister as a Trustee with the powers stated in the said last-mentioned Act: And I declare that the following is the description of the land hereinbefore referred to, that is to say:—

All that piece or parcel of land, being allotment No. 5 of section No. 1, in the town of Yass, parish of Hume, county of Murray: Commencing at the south corner of allotment No. 7, section No. 1; and bounded on the north-east by the south-west boundaries of allotments Nos. 7, 8, 9, and 10, being a line bearing about north 45 degrees west 5 chains; thence on the north-west by the south-east boundary of allotment No. 16, being a line bearing south about 45 degrees west 1 chain; thence on the south-west by the north-east boundary of allotment No. 4, being a line bearing about south 45 degrees east 5 chains to the north-west side of Rossi-street; thence by a part of the north-west side of Rossi-street, being a line bearing about north 45 degrees east 1 chain, to the point of commencement,—containing 2 roods.

In testimony whereof, I have hereunto set my Hand, and caused the Great Seal of the Colony to be hereto affixed, at Government House, Sydney, this twenty-fifth day of October, in the year of our Lord one thousand eight hundred and eighty-eight, and in the fifty-second year of Her Majesty's Reign.

By His Excellency's Command,
JOHN SUTHERLAND.

GOD SAVE THE QUEEN!

1888.

LEGISLATIVE ASSEMBLY,
NEW SOUTH WALES.

WATER CONSERVATION COMMISSION.

(LETTER FROM MR. CHARLES ROBINSON.)

Ordered by the Legislative Assembly to be printed, 25 October, 1888.

[Laid upon the Table of the Honorable the Legislative Assembly of New South Wales by the Secretary for Mines, Copy of a letter respecting the Return in connection with the Water Conservation Commission, ordered to be printed on the 4th July, 1888.]

Copy of Letter received from Mr. Charles Robinson.

Sir,

Sydney, 3 August, 1888.

Owing to the form in which some of the items of expenditure by the late Commission on the Conservation of Water is presented in the Parliamentary Return ordered on the motion of Dr. Ross, M.P., I am made to appear in what to me is, I believe, a new character—that of a *bon vivant*. I refer more particularly to the item of £53 5s. 4d., p. 6, as follows:—

Claimant.	Date or period of supply or service.	Nature of service.	Amount paid.	Date of payment.	Certified by.	Paid to.
Charles Robinson.	1885. May 5, 6, 8, 10, 11, 13, 14, 15, 18, 20, 21, 24, 26, 27, 28, 29, 30, 31.	Secretary and shorthand writer—fares, £1 10s.; steamer fares (4), £2 10s.; hotel expenses, £2 5s.; lunch, £1 5s. 3d.; Werris Creek, refreshment, 3s.; fruit, 10s.; gratuities to servants, 15s.; hire of vehicle, £1 5s.; hire of vehicle and gratuities, 10s. 6d.; Mr. Donkin's expenses, Sydney to Narrabri, £1; fruit, 5s.; gratuities, 15s.; expenses to Sydney (Messrs. Lyne and Murray), £2; hotel expenses, Wee Waa, £1 5s.; dinner, £1 2s. 6d.; hotel expenses, Pilliga, £2 19s.; dinner, £1 5s.; gratuity, Walgett, 12s. 6d.; gratuities, do., 10s.; breakfast, £1; dinner, £1 2s. 6d.; hire of vehicle, £5; expenses, Mr. Barton, £2 10s.; expenses, shorthand writers, £2 17s. 6d.; vehicle hire, £2; breakfast, &c., £1 10s.; gratuity to coach-driver, 10s.; travelling expenses, £1 10s.; gratuities to servants, Bourke, £1 5s.; breakfast, £1 7s. 6d.; hotel expenses, £4 17s. 6d.; supper, £1 5s.; hire of vehicle, £1 2s. 6d.; hire of vehicle and hotel expenses, £1 18s. 6d.; dinner at Mount Victoria, 15s.; telegrams, 3s. 7d., exchange, 3s.—6s. 7d.	£ s. d. 53 5 4	1885. 8 June	W. J. Lyne	Charles Robinson.

These are not my personal expenses, but petty disbursements I made on the part of the Commissioners and their staff, on a journey from Sydney, *via* Newcastle, Tamworth, Gunnedah, Narrabri, Walgett, Brewarrina, Bourke, Nyngan, and Dubbo, at which, and some other minor places, they took evidence.

Speaking from memory, the party consisted of—Mr. Lyne, M.P., Mr. Russell Barton, M.P., Mr. R. L. Murray, M.P., Mr. Franklin, Mr. M. Mordie, Mr. Gipps, Mr. Donkin (members of the Commission), Mr. M'Kinney and Mr. Czarlinski (engineers), Mr. Laing and Mr. Friend (shorthand writers), Mr. Hall reporter of the *Herald*, Mr. Thompson (reporter of the *Telegraph*), and myself.

It is because I find that I am supposed to have lavishly indulged myself in high-priced dinners, &c., at the public expense, that I deem it necessary to offer this explanation, which I should be glad if you would submit for the information of the Honorable the Minister for Mines.

A similar explanation applies to the item of £64 10s. 10d., on page 15 of the Return, which, for the convenience of accounting, is put down to me, although, as a matter of fact, a large proportion of it was incurred by another officer of the Commission, whose duties devolved on me during the latter portion of the journey.

I have, &c.,
CHARLES ROBINSON.

1888.

NEW SOUTH WALES.

PARLIAMENTARY STANDING COMMITTEE ON
PUBLIC WORKS.

REPORT

TOGETHER WITH

MINUTES OF EVIDENCE

AND

APPENDIX

ON

STORAGE RESERVOIR AT POTTS' HILL

AND

SECOND LINE OF PIPES TO CROWN-STREET.

Presented to Parliament in accordance with the provisions of the Public Works Act,
51 Vic. No. 37, section 8.

SYDNEY : CHARLES POTTER, GOVERNMENT PRINTER.

NAMES OF THE MEMBERS OF THE COMMITTEE.

LEGISLATIVE COUNCIL.

- The Honorable JOHN LACKEY, Chairman.
- The Honorable GEORGE CAMPBELL.
- The Honorable WILLIAM HENRY SUTTON.
- The Honorable JAMES WATSON.
- The Honorable FREDERICK THOMAS HUMPHERY.

LEGISLATIVE ASSEMBLY.

- JOSEPH PALMER ABBOTT, Esquire, Vice-Chairman.
- JAMES NIXON BRUNKER, Esquire.
- HENRY COPELAND, Esquire.
- ALEXANDER KETHEL, Esquire.
- JOHN RENDELL STREET, Esquire.
- THOMAS MICHAEL SLATTERY, Esquire.
- JACOB GARRARD, Esquire.
- SYDNEY SMITH, Esquire.

[James Nixon Brunker, Esquire, by reason of his accepting the office of Minister for Lands, did not take his seat as a member of the Committee.]

LIST OF WITNESSES.

	PAGE.
Joseph Barling, Esq., Under Secretary for Public Works	1-2, 23
Robert Hickson, Esq., Acting Engineer-in-Chief for Harbours and Rivers	2-3, 3-8, 24-26
Thomas Rowe, Esq., President of the Water and Sewerage Board	9-13
John Trevor Jones, Esq., Engineer to the Water and Sowerage Board	13-23
Reginald Bloxsome, Esq., Secretary of the Water and Sewerage Board	23-24
William Christopher Bennett, Esq., Commissioner and Engineer for Roads and Bridges	26-27
F. A. Bishop, Esq., Civil Engineer.....	28-29

APPENDIX.

- To Evidence of J. Barling, Esq..... A
- Plans showing the Proposed Works, as they were submitted to the Committee.

PARLIAMENTARY STANDING COMMITTEE ON PUBLIC WORKS.

STORAGE RESERVOIR AT POTTS' HILL, AND SECOND LINE OF
PIPES TO CROWN-STREET.

REPORT.

THE PARLIAMENTARY STANDING COMMITTEE ON PUBLIC WORKS, appointed during the last Session of Parliament, under the Public Works Act of 1888, 51 Vic. No. 37, to whom was referred the duty of considering and reporting upon the expediency of "Constructing a Storage Reservoir at Potts' Hill," and of "laying a second pipe between Potts' Hill and Crown-street," in connection with the Sydney Water Supply, have, after due inquiry, resolved that it is expedient the proposed works should be carried out; and, in accordance with the provisions of Sub-section IV, of clause 13, of the Public Works Act, report their resolution to the Legislative Assembly:—

These works were separately referred to the Committee for consideration; but, as they are very closely connected, each being a part of the general scheme of water supply for Sydney and its suburbs, they were considered by the Committee together.

Very early in the inquiry it became known to the Committee from the evidence given that while they were asked by the resolution of the Legislative Assembly to inquire into and report upon the expediency of constructing the Storage Reservoir at Potts' Hill at an estimated cost of £120,000, a contract for a portion of the work, amounting in value to £55,000, had already been let, and the formation of the reservoir had been commenced. This contract is shown by the evidence to have been let before the date when the names of the members of the Committee were gazetted, and an error appears to have been made in the wording of the resolution referring the work to the Committee, for it will be seen from a statement by the Under Secretary for Public Works that while the estimated cost of the whole work is £120,000, the intention with regard to the Committee was to ask their sanction to that part of the work which remains to be done outside the present contract, viz., the pitching of the reservoir and the laying of the necessary pipes to connect with the mains, the estimated cost of which portion of the entire work is £65,000.

The proposed reservoir, a Minute of the Engineer-in-Chief for Harbours and Rivers states, will be an open one, and it will be the distributing centre for the suburbs north of the Parramatta River and the North Shore, "to which," the Minute proceeds to say, "must be added the southern and other suburbs, which must be supplied from the main scheme, and for which this will be the most suitable distributing point." It is further recommended as a "splendid 'stand-by' for the city itself, in the event of the necessity occurring at any time to repair the works between Potts' Hill and Prospect, including the emptying of the 6-foot pipes which cross the Duck River Valley, for the purpose of cementing their inside surfaces, which it will be desirable to do from time to time."

The proposed second line of pipes is to meet the necessity that would arise if a breakage should at any time occur in the pipes composing the present line, a circumstance which, unless such a provision as is now proposed were made, might
very

very seriously inconvenience the population depending upon the present line of pipes for their daily water supply. It is also pointed out that the second pipe-line is required to meet the wants of the people in regard to water supply, which in a few years will be apparent from the increased population in the suburbs. The necessity for this second line of pipes was put before the Committee prominently in a Minute by the Engineer-in-Chief for Harbours and Rivers, dated in February of this year. "At present," he says, in this document, "Sydney is depending upon one line of pipes only between these points (meaning between Potts' Hill and Crown-street), and I consider the risk is altogether too great, for if a pipe burst, and this may happen any day, the city might be suddenly left without water, with the exception of the small quantity that could be pumped from Botany, and in some positions it might take several days to lay in a new pipe. Experience with cast-iron pipes in Europe," the Minute goes on to say, "shows that they may give way at any time, from no apparent cause, even after they have been laid and at work for many years."

The Committee have carefully inquired into these representations, and, as already mentioned, they are of opinion that the proposed works should be carried out. Not only did they examine a number of witnesses upon the proposals; they added to the evidence obtained by them in that manner the information derivable from a personal visit to the site of the reservoir and an inspection of the route regarded as the most suitable for the second line of pipes. On Thursday, 27th September, they proceeded by train to Rookwood, and thence by vehicle to Potts' Hill, where, with the assistance of the Government engineers, they carefully examined the plans of the reservoir and the second pipe-line, and also the site of the reservoir, and the work at present in progress there; and at the termination of the inspection at Potts' Hill they drove along the proposed route for the second line of pipes, examining it the whole of the way.

In taking the evidence which will be found accompanying this report, the Committee endeavoured, not only to learn the nature of the proposed works, but to clearly understand the advantages likely to be derived from them at the present time, and in the future, and generally to inform themselves as to the reasons in support of the proposals, and whether the works were absolutely necessary, or such as it would be wise to carry out. The form of their inquiry may therefore be stated as follows:—

- (1.) The nature of the proposals.
- (2.) The present arrangements for supplying Sydney and its suburbs with water.
- (3.) The advantages to be derived from the proposed Works.
- (4.) Whether the existing facilities for storing water are such as to render the large expenditure on the new reservoir unnecessary.
- (5.) The condition of the Botany Waterworks, and whether they could be utilized to an extent which would provide for any emergency intended to be met by the second pipe-line.
- (6.) The cost of the proposed works, and the provision that will be made to meet the expenditure.

These points will be found to be very fully dealt with in the evidence of the witnesses examined. Mr. Barling, Under Secretary for Public Works, describes very clearly the nature of the proposed works, and his description is supplemented by evidence obtained from Mr. Hickson, Acting Engineer-in-Chief for Harbours and Rivers, under whose superintendence the reservoir is being constructed. The object in regard to the reservoir, Mr. Hickson points out (*Question 8*), "is to provide a supply of water, either in case anything should happen to the pipe-line from Potts' Hill towards Prospect, or if that pipe required to be cleaned"; and with reference to the proposed line of pipes, "the second pipe-line from Potts' Hill down to Sydney is required in case anything should happen to the one pipe-line now existing." If a pipe burst, he states (*Question 68*), or any accident happened on the present line, Sydney would be dependent upon the small quantity of water at Crown-street—not half a day's supply, and it might take three or four days to repair the damaged pipe. The risk which now exists is further seen in the fact that the present pipe-line is being worked to almost its utmost capacity. It is capable of transmitting during twenty-four hours a supply of 17,000,000 gallons, but the daily

daily supply for Sydney, which amounts to about 10,000,000 gallons, is sent through during the twelve hours of the day, instead of being spread over the twenty-four, and this, as will be seen by Mr. Hickson's evidence (*Questions 156-158*), must increase the possibility of a break and a consequent interruption in the supply. Mr. Hickson also states (*Question 100*), that as far as his experience has gone in England, and other places where there are large populations, it is usual to have duplicate pipes to provide for accidents, and (*Question 110*) in consideration of the population dependent on the water supply from the Nepean, he considers it essential there should be a duplicate service here; especially, he points out in answer to other questions, as it will be necessary very soon to provide for a supply to suburbs not at present receiving the water in consequence of not having yet been reticulated. The route for the proposed second line is not fully determined, the surveys in relation to it not yet being complete, but the route examined by the Committee is most favoured. This is recommended because for almost the whole of the way it passes along roads or streets, and only a small piece of land will have to be resumed. The route adopted in the case of the existing pipe-line would not do for the second line, because, in the event of a pipe in the existing line bursting, injury might be done to the second pipe line; the earth would probably be washed away from underneath the pipes, which would then drop down, and both lines would be disabled. The proposed reservoir, Mr. Hickson informed the Committee, will have a capacity of 100,000,000 gallons, or ten days supply for Sydney.

Evidence as to the nature of the proposals referred to the Committee was also obtained from Colonel Rowe, President of the Water and Sewerage Board; Mr. J. Trevor Jones, Engineer to the Board; Mr. W. C. Bennett, Commissioner and Engineer for Roads and Bridges; and Mr. F. A. Bishop, Civil Engineer; and the testimony of those gentlemen is in favour of what it is proposed to do. Colonel Rowe thinks (*Question 370*) the reservoir very necessary; and (*Question 371*), with regard to the proposed pipe line, that "in view of the enormous supply of water which we require at present, and the increasing supply necessary to meet the demands of the public, it would be prudent to have the second line of pipes; in fact," he proceeds to say, "it is absolutely necessary for many purposes besides that one." Further, he states (*Question 407*), he had consulted with Mr. Jones as to reducing the size of the duplicate pipe line by adopting a 3-foot instead of a 4-foot pipe; but after considering the matter, he came to the conclusion that, having regard to what the population is likely to be in ten or twenty years' time, such a proceeding was not desirable. "I think," he says, "the only safe course is to duplicate the main. Independently of the future supply, suppose that a break-down took place in the present pipe which would take three or four days to repair. We have only half a day's supply in our present reservoirs, and if a break occurred which would take two or three days to repair, I do not know how we could supply the people with water; and if a fire took place in the meantime the city might be half destroyed." Mr. Trevor Jones, whose extensive experience as an engineer in connection with the Sydney water supply makes his evidence specially valuable, will be found to strongly advocate the proposed works. He regards them (*Question 525*) as a necessary part of the water-works, and (*Question 483*), he has no doubt of the completeness of the plan for the construction of the reservoir, or, as will be found from his replies to several other questions, of the importance of laying down a second line of pipes. His reasons for advocating the proposals are generally similar to those advanced by the engineers of the Harbours and Rivers Department; but it will be noticed that his evidence goes more into detail, and that throughout it is favorable both to the proposed works and the plan submitted for carrying them out. He is afraid that perhaps the estimated cost of the pipes is a little low, as since the estimate was made pipes have gone up considerably in price, but this is the only point in the scheme to which he raises any question. As for the necessity for the second pipe line, he states (*Question 486*) that if a break were to occur in the present line it would take a long time to repair it, and "Sydney would in the meantime be without water; it would be a calamity." During the course of the inquiry the question arose as to whether in view of the probable rapid growth of population it would not be wise to lay down a line of pipes of larger delivering capacity than that proposed, and the Acting Engineer-in-Chief for Harbours and Rivers was specially examined upon this point. He did not, however, think it necessary to lay down pipes of a larger size than those proposed in the scheme before the Committee.

The pitching of the reservoir, which was a special portion of the work connected with the proposals intended to be referred to the Committee, will be found dealt with in the evidence of Mr. Hickson (*page 7*), and in that of Mr. W. C. Bennett and Mr. F. A. Bishop, and, according to that evidence, appears to be necessary in order to ensure the reservoir's stability.

The present arrangements for supplying Sydney and its suburbs with water are described with much fullness in the evidence, and it will be seen that, though the present provision for the daily water supply is, as far as it goes, admirable, it cannot be regarded as perfect without some safeguard, such as the works proposed, against the possibility, if not the probability, of the supply being subjected to sudden and serious interruption.

The advantages to be derived from the proposed reservoir and second pipe line, the third point mentioned in the form of the Committee's inquiry, are apparent from much that has already been said. But, in addition to this, it will be seen by an examination of the statements made on the part of some of the principal witnesses, that both the storage capacity and the power of delivery will be so increased by the new works that they will be equal for some considerable time to come to any demand made upon them by the city and the suburbs. Before the proposed second line of pipes is well in use, Mr. Trevor Jones says (*Question 510*), he anticipates that the increased consumption in Sydney and its suburbs will amount to such a quantity as will require a second pipe. It is possible, he explains, that the city and suburban supply will so increase that it will not be met three or four years hence by the present pipe. Upon this point he was asked (*Question 546*) whether the Water and Sewerage Board receive many applications for water services in the suburbs, and he replied, "Yes; they might be counted perhaps by the thousand streets; the applications since the Board was formed have been immensely numerous." Mr. Jones also shows (*Question 684*) that while in 1881 the daily consumption of water in Sydney was 3,500,000 gallons, he estimates (*Question 699*) "that 30,000,000 gallons will not be too much for us six years hence, on a hot day." Mr. Hickson states (*Question 770*), that with the additional pipe-line, about 34,000,000 gallons can be delivered into Sydney each day, and that when two other proposed pipes are put down—one to North Shore and the other to the southern suburbs—the delivering capacity will be 39,000,000 gallons. Then, above this quantity, there will be a reservoir surplus of 10,000,000 or 11,000,000 gallons, which, if necessary, will be available for distribution over the locality between Prospect Reservoir and the new reservoir at Potts' Hill. This surplus over the 39,000,000 gallons is explained by the circumstance that while the delivering capacity of the pipes below Potts' Hill will be 39,000,000 gallons, the quantity of water which can be delivered daily from the Prospect Reservoir to Potts' Hill, through the line of 6-foot pipes connecting those two places is 50,000,000 gallons. Mr. W. C. Bennett points out (*Question 865*), that the Potts' Hill Reservoir will not only be useful in connection with a suburban water supply; it will double the value of the 6-foot pipes from Prospect, as it will utilize them at night as well as in the day.

With reference to the question whether the existing facilities for storing water are such as to render the expenditure proposed for the new reservoir unnecessary, it is perhaps sufficient to supplement the evidence to which attention has already been drawn by stating that Mr. W. C. Bennett, who was a member of the Commission responsible for the present water supply, explains that it was part of the original project to have a balance reservoir; and the advantages to be gained from it are not only those which witnesses other than Mr. Bennett will be found to have described; it will bring what he terms "the head" of water home to Sydney, and render available the night discharge of the large pipes. "If you have this reservoir," he says, (*Question 865*) "for the gradual receipt of the water during the night, it doubles the value of the large pipe, and the larger such a reservoir is the better, because, when the daily discharge begins, it will not fall so quickly in a large reservoir as it will in a small one, and consequently a higher head is kept up longer."

As to whether the Botany waterworks could be utilized in any emergency to an extent that would meet the requirements intended to be met by the second line of pipes, the evidence shows clearly that they could not. Colonel Rowe states (*Question 387*), that it would be impossible, in the event of the
Nepean

Nepean scheme failing, or the pipes getting out of order, for the Botany works to make up the deficiency and supply the city. The engines are very old and antiquated, and if they were renewed it would have to be done at considerable expense; and then the present pipe, Mr. Trevor Jones points out, is not large enough to permit of powerful machinery driving water through it at the velocity necessary to provide the quantity now required for Sydney. Of equal, if not greater, significance is the statement, also made by Mr. Jones, that the Botany water is gradually becoming contaminated, and in a very short period will not, he considers, be trustworthy. The engines at Botany are at the present time kept in readiness in view of any accident occurring in connection with the Nepean supply, but when the proposed second line of pipes has been laid and brought into use it is probable the Botany works will be abandoned, as Sydney will then be regarded as secure against any casualty in relation to its daily consumption of water.

The last matter that requires notice in this report is the question of cost, and the provision that will be made to meet the expenditure. There is nothing in the evidence to show that the estimated cost of the reservoir, or of the second pipe-line, is excessive. Mr. Trevor Jones thinks the estimate of what the pipes will cost a little under what will actually have to be paid for them; but beyond this nothing is said by the witnesses that gives rise to an impression that the estimate of cost has not been carefully prepared. As to the provision for meeting the expenditure, that, it is explained, will be in the hands of the Water and Sewerage Board. The control of the new reservoir and the pipe-line will, on their completion, with the liability incurred by their construction, be passed over to the Board, and they will fix and collect the water rates necessary to provide for the payments which, in consequence of the expenditure, will have to be periodically made. This part of the subject will be found by the evidence to have been very fully gone into by the Committee, as they were desirous of understanding as clearly as possible the arrangements which the Board, under the circumstances, will require to put into operation:

The resolutions relating to these proposed works were passed by the Committee on Wednesday, 17th October, as follows:—

Moved by Mr. Suttor, and seconded by Mr. Campbell, and agreed to—

“That the Committee consider it expedient that the Storage Reservoir at Potts’ Hill be completed, as proposed on the plans and explained in the evidence before the Committee.”

Moved by Mr. Street, and seconded by Mr. Suttor, and agreed to—

“That the Committee consider it expedient that the laying of the second line of pipes between Potts’ Hill and Crown-street, as proposed on the plan and explained in the evidence before the Committee, be carried out.”

JOHN LACKEY,
Chairman.

Office of the Parliamentary Standing Committee on Public Works,
Sydney, 22 October, 1888.

PARLIAMENTARY STANDING COMMITTEE ON PUBLIC
WORKS.

MINUTES OF EVIDENCE.

STORAGE RESERVOIR AT POTTS' HILL AND SECOND LINE OF PIPES
TO CROWN-STREET.

WEDNESDAY, 26 SEPTEMBER, 1888.

Present:—

The Honorable JOHN LACKEY (CHAIRMAN).

The Hon. WILLIAM HENRY SUTTON.

ALEXANDER KETHEL, Esq.

The Hon. FREDERICK THOMAS HUMPHERY.

JOSEPH PALMER ABBOTT, Esq.

HENRY COPELAND, Esq.

JACOB GARRARD, Esq.

SYDNEY SMITH, Esq.

The Committee proceeded to consider the proposed construction of a storage reservoir at Potts' Hill, and the laying of a second line of pipes between Potts' Hill and Crown-street, in connection with the Sydney water supply.

Joseph Barling, Esq., Under Secretary for Public Works, sworn and examined:—

1. *Chairman.*] Are you aware of the proposed improvements to be carried out in connection with the Potts' Hill Reservoir? Yes.
2. Would you describe shortly the nature of the works? Yes. The works comprise a reservoir and a second pipe line. The proposal to construct a distributing reservoir at Potts' Hill in its present shape was first brought under the attention of the Minister for Works on the 28th July, 1887, by a minute from the Engineer-in-Chief for Harbours and Rivers, Mr. Moriarty, who described it in the following terms:—"The proposed reservoir will be an open one, and it will be the distributing centre for the districts lately proposed to be added to the Sydney water scheme, viz., the suburbs north of the Parramatta River and the North Shore, to which must be added the southern and other suburbs, which must be supplied from the main scheme, and for which this will be the most suitable distributing point. It will also form a splendid 'stand by' for the city itself in the event of the necessity occurring at any time to repair the works between Potts' Hill and Prospect, including the emptying of the 6-foot pipes which cross the Duck River Valley for the purpose of cementing their inside surfaces, which it will be desirable to do from time to time." For various reasons the matter remained in abeyance for some time, but in May of this year the present Minister for Works, Mr. Sutherland, obtained the authority of the Cabinet to carry out the work. Tenders were accordingly invited for the first part of the work in June last, resulting in the acceptance of the offer of Messrs. Gummow & Co., the amount of the contract being £49,763 14s. This tender was accepted on the 2nd July. I may say that the Public Works Committee was gazetted on the 13th July or eleven days subsequent to the acceptance of the tender. At the same time a portion of the work amounting to about £6,000 was given to a party of the unemployed. The estimated cost of the whole work is £120,000, but the sanction of the Committee is asked for the portion which yet remains to be done outside the present contract, viz., the pitching and laying the necessary pipes to connect with the mains. This is estimated to cost about £65,000. I may mention that the North Shore and western suburbs scheme referred to in Mr. Moriarty's minute, a portion of which I have read, is already contracted for, and is in course of being carried out, and orders have been given by the Minister for Works to undertake the surveys in connection with the southern schemes, also referred to in that minute. I propose to call Mr. Hickson, the Acting Engineer-in-chief for Harbours and Rivers, to give evidence as to the engineering details of the scheme, and the President of the Water and Sewerage Board, with the Engineer to the Board, Mr. Jones, will also attend to prove the necessity for the work. With reference to the second line of pipes it is proposed to lay down a second pipe-line in connection with the Sydney water supply from Potts' Hill to Crown-street Reservoir, being a length of 61,000 feet. The route will be different from the one followed by the present pipe line, as it is considered undesirable for the two sets of pipes to follow the same course. The estimated cost of the proposed new pipe line is £165,000, which is based on the cost of the present pipe-line. The pipes proposed to be used are spigot and faucet cast-iron, the same as the present pipes, being 48 inches in diameter, and capable of delivering about 17,000,000 gallons in twenty-four hours. The main necessity for undertaking this work now, is that in case of the breakage of any of the pipes composing the present line, Sydney might be seriously inconvenienced.

J. Barling,
Esq.

26 Sept., 1888.

J. Barling,
Esq.
26 Sept., 1888.

inconvenienced during the time the break was being repaired. It is patent also, independently of this, that in a few years the additional water supply will be required owing to increased population in our suburbs, the extension of the water mains and the increased demand which always follows an abundant water supply. I propose to call Mr. Hickson, the Acting Engineer-in-Chief of the Harbours and Rivers Department, to fully explain the engineering details of the proposal, and Colonel Rowe, the President of the Water and Sewerage Board, and Mr. Jones, the Engineer to the Board, will give evidence as to the necessity for the work. With the permission of the Committee I will now read the minute which first brought the matter under attention. It is dated the 15th February, 1888, and is as follows:—

Minute Paper.

The Engineer-in-Chief for Harbours and Rivers to The Under Secretary for Public Works.

*Subject:—*Sydney Water Supply—Reporting necessity for laying a second pipe to Sydney; recommending that the sum of £165,000 be placed on the Loan Estimates for 1888.

Harbours and Rivers Branch, Sydney, 15 February, 1888.

I BEG to recommend that a sum be placed on the Loan Estimates for the purpose of laying a second pipe between Potts' Hill and Crown-street, a distance of 11½ miles.

At present Sydney is depending upon one line of pipes only between these points, and I consider the risk is altogether too great, for if a pipe burst, and this may happen any day, the city might be suddenly left without water, with the exception of the small quantity that could be pumped from Botany, and in some positions it might take several days to lay in a new pipe.

Experience with cast-iron pipes in Europe shows that they may give way at any time for no apparent cause, even after they have been laid and at work for many years. On the Glasgow, Liverpool, and other large water works some fractures take place almost every year.

I estimate the cost of providing and laying a second line of 48" and 42" pipes to Sydney as follows:—

Pipes and castings delivered in Sydney	...	...	...	...	...	...	£140,000	0	0
Laying, inspection, &c., &c.	...	...	...	...	...	...	25,000	0	0
Total	...	...	...	...	...	...	£165,000	0	0

E. O. MORIARTY.

3. Are these works now being carried out under the superintendence of Mr. Hickson? Only the Potts' Hill reservoir. We have done nothing with regard to the second line of pipes.

4. Does Mr. Hickson now occupy the position of Mr. Moriarty? Yes; in the absence of Mr. Darley, who succeeds Mr. Moriarty.

Robert Hickson, Esq., M.I.C.E., Acting Engineer-in-Chief for Harbours and Rivers, sworn and examined:—

R. Hickson,
Esq., M.I.C.E.
26 Sept., 1888.

5. *Chairman.*] Have you control of the works proposed to be carried out at Potts' Hill? Yes.

6. Is the pipe contract to be carried out under you? Yes.

7. Is this a sort of auxiliary work to the general water supply of Sydney? Yes.

8. And the object of it is to convey the water to other portions of the suburbs not provided for in the first water supply system? Yes; the object of the Potts' Hill Reservoir is to provide a supply of water, either in case anything should happen to the pipe line from Potts' Hill towards Prospect, or if that pipe required to be cleaned. The second pipe line from Potts' Hill down to Sydney is required in case anything should happen to the one pipe line now existing.

9. Have you two pipe lines between Prospect and Potts' Hill? No.

10. Does this provide for a second pipe line there? No; only between Potts' Hill and Sydney. This reservoir will give a supply to Potts' Hill in case anything should go wrong with the pipe between Potts' Hill and Prospect.

11. What is the capacity of the proposed reservoir? 100,000,000 gallons.

12. How long would that supply Sydney? For about ten days at the present rate of consumption.

13. Does this give a supply to the higher levels about Sydney? It does not alter the height at all.

14. How are the higher elevations provided for? The water is pumped from Crown-street.

15. What are the functions of the reservoir at Petersham? It supplies Petersham and the neighbourhood about there. It is only local.

16. Are there any other reservoirs besides that along the line? No; nothing between Crown-street and Potts' Hill, except Petersham.

17. Is it part of the project at all to have reservoirs for local use anywhere? No; except at North Shore.

18. Supposing any of the towns in the neighbourhood of the water pipe line, between the catchment area and Sydney, required water, is there any provision for supplying them? They can be supplied.

19. Would that necessitate the establishment of an independent reservoir? That depends on circumstances. At Campbelltown it is proposed to give a supply from the canal leading from the Nepean down to Prospect. We do not propose to make a special reservoir, but to take it direct from the canal.

20. But if any large supply were given, would it not be necessary to have a reservoir? Yes.

21. What distance is Potts' Hill from Crown-street? 11½ miles.

22. What distance would it be from Potts' Hill to the reservoir at Prospect? It is about 10 miles.

23. Is there any reservoir at all between Potts' Hill and Prospect? No.

24. Was it not proposed originally to have a reservoir to supply Parramatta and its suburbs? I do not know.

25. Was it contemplated that all the towns in the neighbourhood of Sydney, between here and Parramatta, should be supplied? No doubt it was.

26. In what way was that provided for? I cannot tell you. I may say that this is new to me; but there is an officer in the Department who can give you all the information required with regard to the scheme itself.

27. Have you only recently come into charge of this work? Yes; it was carried out under Mr. Moriarty.

28. Has it been tolerably successful in all respects up to the present time? Yes.

29. During the late drought was there any want of water in Sydney? No; we have now in fact nearly twelve months supply at Prospect, supposing not a drop of rain came, and it is not half-full.

30. Are the works at Prospect nearly complete? Yes.

31. Has the dam there subsided recently? It has not given at all for over three weeks. We have taken steps to prevent it.

32. Has anything been done with the provision made for the temporary supply before the permanent supply was provided? The Water and Sewerage Board have that in hand.
33. That is Hudson's scheme? Yes; it has been taken up in some places, and the pipes used to some extent, but it has been handed over to the Water and Sewerage Board, and I do not know what they purpose doing with it.
34. This work now proposed by your Board is specially for supplying some of the suburbs? Yes, and keeping a duplicate supply for Sydney.
35. Have you visited the works along the line? I have been twice at Potts' Hill. I have been from there up to the canal at Prospect, and right up to the tunnels.
36. Are the canals and tunnels working satisfactorily? Yes; I walked through the tunnels the other day.
37. Are they answering satisfactorily? Yes.
38. Are the dams at the Pheasant's Nest working well? Yes; they are as tight as a bottle. We took advantage of the late drought to get the tunnels thoroughly examined, and the result was most satisfactory.
39. Do you still keep a record of the amount of water which passes from the catchment area? Yes; it is still kept.
40. Do you find any alteration (from the fact of the dams having been constructed or the passage of the water having been impeded) in the quantity which passes? No; there is no difference.
41. Does it not sometimes have that effect when the natural course of the water is impeded? It diverts the water to some other place, but there is the same quantity of water.
42. What is the catchment area at the Pheasant's Nest? About 350 square miles.
43. Has that been all reserved? Yes.
44. Has the water been spoiled by vegetation or anything of that kind? No; it is very pure.
45. Is it not usual that vegetation grows very quickly in new dams? We have not noticed anything at Prospect; much depends upon the nature of the water.
46. How long would the storage of water at Prospect last in case of drought? About two years.
47. You do not actually bring the supply through Prospect? We can do so or not; but we are doing it now.
48. When completed it will be a storage that you can bring the daily supply direct? Yes.
49. Do you recollect the elevation at Potts' Hill? 175 feet above high-water, Sydney.
50. Will that be a sufficient height for all purposes? No; we should have to pump to the high ground at North Shore.
51. What about the highest portions of large buildings in Sydney? They are supplied by pumping from Crown-street.
52. Does by far the greater quantity of water come to Sydney by gravitation? Yes.
53. Has it not been asserted in the newspapers that it is not a gravitation system? Yes; but by far the greater proportion of the water comes by gravitation.
54. *Mr. Garrard.*] By which line are you going to give a supply to the southern suburbs, Kogarah and Cook's River? By a new pipe line branching off from Potts' Hill.

R. Hickson,
Esq., M.I.C.E.
26 Sept., 1888.

THURSDAY, 27 SEPTEMBER, 1888.

Present:—

The Honorable JOHN LACKEY (CHAIRMAN).

The Hon. WILLIAM HENRY SUTTON.
The Hon. FREDERICK THOMAS HUMPHERY.
HENRY COPELAND, Esq.

ALEXANDER KETHEL, Esq.
JACOB GARRARD, Esq.
SYDNEY SMITH, Esq.

[The Committee met at noon at the Redfern Railway Station and proceeded by train to Rookwood, and thence by vehicle to Potts' Hill, where, with the assistance of Mr. Hickson, Acting Engineer-in-Chief for Harbours and Rivers, and Mr. Houston, Resident Engineer, they carefully examined the plans of the proposed storage reservoir, and of the second line of pipes between Potts' Hill and Crown-street, and also the site of the reservoir and the work at present in progress there. At the termination of the inspection at Potts' Hill, the Committee, accompanied by the Acting Engineer-in-Chief for Harbours and Rivers, drove along the proposed route for the second line of pipes from Potts' Hill to Crown-street, examining it the whole of the way.]

THURSDAY, 27 SEPTEMBER, 1888.

Evening Sitting.

Present:—

The Honorable JOHN LACKEY (CHAIRMAN).

The Hon. WILLIAM HENRY SUTTON.
The Hon. FREDERICK THOMAS HUMPHERY.
HENRY COPELAND, Esq.

ALEXANDER KETHEL, Esq.
JACOB GARRARD, Esq.
SYDNEY SMITH, Esq.

The Committee further considered the proposed storage reservoir at Potts' Hill and the laying of a second line of pipes between Potts' Hill and Crown-street.

Robert Hickson, Esq., M.I.C.E., Acting Engineer-in-Chief for Harbours and Rivers, sworn and further examined:—

55. *Chairman.*] As Acting Engineer-in-Chief for Harbours and Rivers, have you control of the works now being carried out at Potts' Hill? Yes.
56. Did you accompany this Committee to-day when we made an examination of Potts' Hill and the works proposed to be carried out there? Yes.
57. And of the proposed line of pipes from there to Crown-street? Yes.

R. Hickson,
Esq., M.I.C.E.
27 Sept., 1888.

- R. Hickson, Esq., M.I.C.E., 27 Sept., 1888.
58. Has a contract been entered into for the main work at Potts' Hill—the excavation? Yes, and for forming the bank.
59. Does that include the completion of the reservoir generally? No; it includes excavation, the forming of the bank, and the puddle wall inside the bank.
60. What other work will require to be done afterwards? It will require to be pitched or protected in some way. Pitched, I think.
61. What is the amount of the contract for the work now in hand? £55,000.
62. And is the estimated cost of the whole work generally £120,000? Yes.
63. Will the laying of the pipe line from there to Crown-street be a separate contract? Yes.
64. That will have to be undertaken subsequently? Yes.
65. Have the surveys been completed for the pipe line? The levels have not been taken for all the proposed routes. We have taken them for two or three.
66. Has the Department professionally decided upon any particular line? It has not definitely decided.
67. As far as you have examined the proposed lines, are you inclined to the line we went over to-day? Yes; I think it is the best line.
68. Would you state what are the main objects of the proposed duplicate line? We would require it in the event of a break-down in the present line. If a pipe burst, or any accident happened on the present line, Sydney would be dependent upon the small quantity of water at Crown-street, and it might take three or four days to repair the damaged pipe. The small quantity of water at Crown-street would only last a short time. I think there are only 3,500,000 gallons there—not half a day's supply.
69. Is there any other object in constructing a duplicate line between Potts' Hill and Sydney? I have described the main object. Another object would be to meet the not far distant demands of more water being required than the present line can bring down.
70. Those will be the suburbs south of the proposed line? Yes, and North Shore also.
71. Will not the North Shore be connected with the reservoir directly across the railway bridge on the Parramatta River? Yes.
72. What point will it be taken to? The pipes will first be brought to Ryde, near the station, where a reservoir is being built.
73. How about the reticulation—Will that point be sufficiently high to supply the water to North Shore? No; it will be pumped from there to a reservoir, to be built on the high land at North Shore.
74. Will that be far from the reservoir at Ryde? Yes; I think it is about four miles. The survey is not completed for that, but that is the project.
75. What is the name of the point on which the reservoir will be built? Willoughby.
76. Will the water go by gravitation from there to the different parts of North Shore? Yes.
77. To the highest parts? I think so.
78. What is the height of Crows Nest and about there? I cannot tell you, but I think the whole of North Shore can be supplied. That scheme, however, is only in its infancy.
79. Are the surveys completed? No.
80. It is a project in contemplation? Yes.
81. What is the state of affairs with regard to the southern suburbs which we came through to-day? The surveys are not yet completed.
82. Will they be supplied from the pipe line which we went over? No.
83. As far as you have considered the matter would you recommend that the pipe to supply the southern suburbs should connect directly from Potts' Hill or from some portion of the pipe line further down? Direct from Potts' Hill.
84. Do you know if there is any estimate in the Department of the population of the suburbs which we came through to-day, south of the Liverpool Road; or, in other words, of the supply that will be required by those suburbs? The Water and Sewerage Board, I think, has all that information.
85. Have you given a great deal of attention to this matter yourself since you have had charge of the water supply? Yes.
86. You were not connected with the scheme in its inception? No.
87. How long have you taken it up? The last two months.
88. Since then have you had to make yourself acquainted with the duties and with the project in its various stages? Yes.
89. You were not employed on the works in any way previously? No.
90. Were they carried out entirely by the Engineer-in-Chief for Harbours and Rivers, or under his superintendence and direction? Yes.
91. Have you had experience before as an engineer of works of this description? Yes; at home; and I have carried out the Hunter River district supply under Mr. Moriarty.
92. Is that the supply which gives water to the whole of the mining townships from Maitland downwards? Yes.
93. Where is it drawn from? From the Hunter River itself, at a point 2 miles above West Maitland.
94. Is there a reservoir? Yes; there is a large reservoir. The water is pumped direct from the river if the water is clear, or from the reservoir, to a place called Buttai, about $5\frac{1}{2}$ miles, and to an elevation of 300 feet above sea-level, from whence it flows by gravitation to Newcastle and the mining townships.
95. Is that below West Maitland? Between West Maitland and Newcastle.
96. Is that supply taken back again from East Maitland? No. There is another pumping engine, which supplies East Maitland, West Maitland, and Morpeth.
97. Then the supplies to the mining townships lower down, towards Newcastle, are carried out by gravitation? Yes. That work was carried out under my superintendence.
98. Then you have had considerable experience in the construction of waterworks? Yes.
99. Do you think that on the whole the works at Potts' Hill are desirable? Yes.
100. Is it usual, as far as your experience has gone in the Old Country, or in other places, to have duplicate pipes to provide for accidents where there are large populations? Yes. In the only waterworks I carried out at home we had duplicate pipes.
101. Is it usual to have duplicate pipes? Yes.
102. Do you know anything about the Glasgow water supply? No; except from reading.
103. Do you know whether or not they have a duplicate pipe there? I cannot say off-hand.
104. Is the Glasgow supply in principle a good deal like our own? Yes.

105. It is taken from Loch Katrine, conveyed into a large reservoir, and from there taken to the City of Glasgow? Yes. R. Hickson,
Esq., M.I.C.E.
106. Do you recollect if they have duplicate pipes between the reservoir and Glasgow? I cannot say, but I think they have. 27 Sept., 1888.
107. In large works of this character it is usual to have duplicate pipes? Yes.
108. Are you aware of the estimated cost of the excavation at Potts' Hill, and of the pipe line between there and Crown-street? Yes.
109. Do you think the cost is reasonable? Yes. I have gone over the figures myself in detail since I have taken up the work, and I think the estimated cost is fair and reasonable.
110. Do you think that in consideration of the population dependent on this water supply it is essential that there should be a duplicate service? Yes.
111. When this duplicate line shall have been completed do you think that the general water supply of Sydney will be a fairly complete one? I think it will be very complete.
112. During the late drought has there been any scarcity of water even under present circumstances? No.
113. If the present water supply had not been in existence do you think that we should have had great complaints of scarcity of water? I think so.
114. Such complaints did not exist during the late drought? No. We have a reserve now of 2,500,000,000 gallons.
115. What will be your average store when the present dam is completed? About 7,000,000,000 gallons.
116. With the present population, what supply would that give? The Water and Sewerage Board will be able to give better information than I can on that point, but I think about two years' supply.
117. That is supposing no additional water were coming in? Yes.
118. In the construction of the water supply generally do you know whether any consideration was given to the matter of, intermediate supply. You are aware that there are several towns between the catchment area at the Pheasant's Nest and Sydney or the suburbs of Sydney. I allude to Campbelltown, Liverpool, Fairfield, Parramatta, and perhaps Granville. Was any provision made for the supply of those places? Two of them have been brought under my own notice since I came here, namely, Campbelltown and Liverpool. For Campbelltown I have made a recommendation which, I think, the Water and Sewerage Board are going to carry out. That is, to give a supply from the canal. Liverpool is still under consideration.
119. That was a portion of the project in the first instance? Yes.
120. Was provision also made for manufacturing industries that may exist now or that may be likely to exist in future? The design was all carried out by Mr. Moriarty, and I do not know the details.
121. Do you know whether provision was made for irrigation? I cannot say.
122. Have you given any attention to irrigation? No.
123. Have you had any experience of irrigation during your professional career? No.
124. Is the Railway Department using this water supply on any portion of their lines? I do not think so. They are not using it at any place that I know of. At Campbelltown, I think they will use it.
125. Are they applying for it at Liverpool? Yes.
126. Have you had any application from Parramatta? No.
127. Is there a connection with the water supply between Granville and the main supply? No.
128. *Mr. Copeland.*] What is the present inflow at Prospect Reservoir? Just at present there is nothing coming in. The canal has been shut off for some two or three weeks.
129. What is the cause of that? We are taking this opportunity, when a very small quantity of water is coming down, to examine the tunnels, and also to clean out the aqueducts and repaint and tar them.
130. Were the tunnels found to be in good order? In very good order indeed. Very little stuff had to come out.
131. Then the rumours in the newspapers about the tunnels giving way were not true? There was not the slightest foundation for them. I examined the tunnels very closely, and walked through them with a candle. I examined every portion of them.
132. So far the whole of the works are standing quite well? Yes; they could not be made better.
133. What was the inflow before the water was taken off? It varies greatly from day to day.
134. What was the average? I cannot tell you, because the water was shut off shortly after I came up to Sydney.
135. What is the total capacity of the one pipe you have down now? About 17,000,000 gallons per day.
136. What is the present consumption? About 10,000,000 gallons per day.
137. I suppose when the second pipe is laid the total capacity will be about 34,000,000 gallons? Yes; about double.
138. So that would be likely to supply three times the present population? Yes, I think so.
139. Do you know whether the consumption is increasing very much? I believe it is.
140. Have you any idea what the ratio of increase is? No. The Water and Sewerage Board have all that information under their control. Their engineer can tell you the details.
141. Are the Botany Works now dismantled? I do not think so. I think they are ready to start at any time.
142. Then, in the event of the present pipe giving way, you would be able to fall back upon the Botany supply for a few days? I believe that could be done. I have not been down there, but I believe it is in readiness to start if required.
143. If those works were maintained and ready for steam to be got up, I suppose there would be no real necessity for this second pipe, that is, so far as provision against accident is concerned? As far as I know the engines for the Botany supply are in a very bad state. They are not reliable. But that of course is only heresay. The engineer of the Board can give you all the particulars about that.
144. Have you been connected practically with any gravitation scheme in any other place? Yes, with a small gravitation scheme in the north of Ireland, where I was working for a short time; but it was a very small one. The Hunter River district scheme is partly a gravitation scheme. The water is pumped to a certain point, and it gravitates from there to all the small towns.
145. Have you ever examined the proposal made some time ago for having a gravitation scheme for Sydney? No.
146. I refer to what is known as the Kenny Hill scheme? No.
147. I suppose you can form no idea as to the difference in cost of maintenance between that scheme (or any other gravitation scheme) and the system of pumping water? No. 148.

R. Hickson,
Esq., M.I.C.E.
27 Sept., 1888.

148. Have you gone into the figures of the probable cost of pumping to the various reservoirs when this scheme is completed? No.
149. Do you know what the cost is at present for pumping? No; that is under the Water and Sewerage Board.
150. Is the proposal to lay a second pipe made entirely with a view to supply Sydney with water in the event of the other pipe breaking away? Not entirely; but mainly.
151. Could all the suburbs that are now requiring water be supplied from the present line of pipes? If they were fully reticulated they could not be supplied.
152. You say that the present daily consumption is 10,000,000? Yes, about that.
153. And the present pipe is bringing down a daily supply of 17,000,000 gallons? It can do so in twenty-four hours.
154. Do you think that if the suburbs were properly reticulated you would have an additional consumption of 7,000,000 gallons? The supply of 17,000,000 gallons comes down in twenty-four hours, but we want that quantity brought down in about eight hours. That is the time during which the heavy draw is made on it.
155. Have you ever in the Department considered the question as to the advisability of maintaining the Botany waterworks in order, in preference to adopting this more expensive system of laying down a second pipe? I think Mr. Moriarty has done so. It has never been brought before me, and I have never had occasion to do it.
156. *Mr. Humphery.*] When you say that the supply to the city is to be given in eight hours, are we to understand that the 17,000,000 gallons that can be supplied now is spread over twenty-four hours? The present pipe is capable of taking down 17,000,000 gallons in twenty-four hours; but it is very well known that in all water supplies the great draw is from eight to ten hours per day.
157. Are you now receiving 10,000,000 gallons during eight or ten hours per day? Very nearly. I suppose it is spread over twelve hours, because during the night hardly anything is taken.
158. Then you are working the existing line of pipes up to its utmost capacity? Yes; I believe that is almost the case.
159. If all the suburbs were supplied with water, even the duplicate pipe would scarcely be sufficient? It would be sufficient with Potts' Hill Reservoir.
160. But you will have little to spare when the pipes are duplicated if you extend the supply to Ryde and the suburbs on the southern side which are not yet supplied? This does not affect the question, as the north and south suburbs will be supplied by independent pipes.
161. Is it a matter of absolute necessity to proceed with laying the second line of pipes, in order to give a supply to the suburbs at present without it? I think so.
162. It is not altogether for the purpose of supplying the town in the event of the present line breaking down, but to assist the existing pipe line? Yes; when the suburbs are fully reticulated.
163. Is it your opinion that the sum of £120,000 will cover the cost of the storage reservoir at Potts' Hill and also on the second pipe line? £120,000 is only for Potts' Hill. The pipe line is £165,000.
164. The cost will be £285,000 for constructing the Potts' Hill Reservoir and laying the second pipe line? Yes.
165. Are you of opinion that that sum will cover the cost? I think so. I went into the estimates carefully, and I think it will cover it.
166. *Mr. S. Smith.*] Where do you propose to run this line of pipes? There has been two or three different routes surveyed and examined. It is not fully surveyed; but I think that the line I have pointed out to the Committee is the best line. That will have to be determined by careful levels.
167. I understand you would recommend the Committee to adopt the route we went over to day? Yes; I think it is the best line.
168. What will be the length from where the pipe branches off from the old pipe line to the place where it joins again? By one line the distance to Crown-street is $11\frac{1}{2}$ miles. The line we went over to-day is nearly half-a-mile shorter.
169. What is the length of the present pipe line? $10\frac{3}{4}$ miles or $10\frac{1}{2}$ miles.
170. So that the proposed route will be shorter than the old line of pipes? It will be a little longer; about a quarter of a mile longer.
171. I suppose that the reason for recommending a different route is because if the second line were carried along the present line of pipes there would be a danger in case of a break away that the new line would be damaged also? Yes; the earth would be washed away underneath the pipes, which would drop down, and both lines would be disabled.
172. Is that the main reason for recommending that the new line of pipes should be laid along a different route? Yes.
173. Will you be obliged to resume much land in carrying out this new route? Only one small piece will have to be resumed where we went over it.
174. The other portion will go along the road? Yes; along streets and roads the whole way.
175. What will be the cost of the resumption of that piece of land? I do not know. Land costs a great deal when you get near Sydney.
176. Will you be called upon to resume any land near Sydney? The land I refer to is a short distance east of Burwood Road.
177. What will be the total cost of the laying of the pipe, including the resumption of land? £165,000.
178. When the Potts' Hill Reservoir is completed, what will be the quantity of water stored there? 100,000,000 gallons.
179. Will all that be available? Yes; we practically take it from the bottom.
180. 17,000,000 gallons per day is the quantity you can at present take by the line of pipes from the present reservoir down to Potts' Hill? 17,000,000 gallons from Potts' Hill down to Sydney.
181. As to the works at Botany, do you know whether any proposal has been made as to what should be done with those works? Nothing has come before me in connection with them.
182. Do you not think it is a matter which should receive some consideration in view of the fact that it is now proposed to spend over £200,000 on these new works? It did come under the consideration of Mr. Moriarty, who planned out this scheme.
183. Are you aware that a large sum of money has been spent at Botany? Yes; there must have been a great deal of money spent there.
184. Did I understand from you that the engines there are not in very good repair? That is only hearsay. I have not been down there.

185. What quantity of water can the Botany engines send to town? I cannot tell you. The engineer of the Water and Sewerage Board, who has worked these engines for a long time, can give you that information. That does not come under my Department now.

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186. *Mr. Garrard.*] What is the size of the pipe from the outlet of the canal to Potts' Hill screening tanks? 6 feet.

187. The capacity of that 6 feet pipe would be about equalized by the two lines of 4 feet pipes? The capacity of the 6 feet pipe is a little more.

188. Is the principal reason for erecting the Potts' Hill Reservoir the necessity for supplying the northern and southern suburbs, or the necessity for an auxiliary to the city reservoirs? It is for both. The Potts' Hill Reservoir is mainly to provide for the event of an accident to the 6 feet pipe, or of having to shut it off for any purpose, when the water supply to Sydney would be stopped for a time. This work will give a reservoir holding a supply for a certain number of days, so that if anything occurs, we shall still have a supply at Potts' Hill to keep the city going.

189. That is about a week's supply? Yes; rather more.

190. The total cost of the Potts' Hill Reservoir when finished will be £120,000. The amount of the present contract for excavating and forming the bank is £55,000. What is the balance of £65,000 for? Pitching the slopes and laying the necessary pipe connections into the reservoir.

191. Are the slopes to be pitched all round the reservoir? Yes.

192. Do you produce a plan showing the embankment of the Potts' Hill Reservoir? Yes; this is a section of the bank.

193. What is the total height of your dam? It varies, as the ground is uneven.

194. I speak of the dam proper, not the sides. What is the height of the embankment? 22 feet.

195. What will be the depth of the water when the reservoir is fully charged? 4 feet less than that.

196. The maximum height of the water will be 4 feet less than the total height of the embankment? Yes.

197. That will hold how many gallons? 100,000,000 gallons.

198. Will practically the whole of that water be available for the pipes to Sydney? Yes; the whole of it.

199. What is the length of this dam? The bottom is 1,143 feet long by 843 feet wide. The top is 1,206 feet long, and 906 feet wide.

200. *Mr. Copeland.*] Is that the width at high water level? That is the width at the top, 4 feet above the water level.

201. *Mr. Garrard.*] Your estimate of the capacity of the reservoir is given from the highest level of the water, and not from the embankment line? Yes.

202. Is it necessary to have the top of the embankment at least 4 feet above the water line? Yes. On a large surface of water like that there will be considerable wash—a sea, in fact; and we want the top of the bank to resist that. I may also say that we have such a surplus of material that we have to put it somewhere.

203. What is the nature of the puddle trench you are putting in your dam—what is the width and height of it? 2 feet at the top, and it varies of course according to the depth, from 4 feet I think.

204. What is the average depth you have to go below the ordinary surface of the ground? I cannot tell that until we open up the trench.

205. Have you not already opened it out? No.

206. Are you not now filling in the puddle wall? A small portion. The average depth is only 2 feet.

207. You do not expect to go deeper? No.

208. Is that puddle trench made on the same principle as the one at the Prospect Reservoir? Yes.

209. Are you aware of any defect in the embankment at the Prospect dam? Yes; there is a small slip at one portion of the dam.

210. Is there anything wrong in that puddle wall against which you are now providing in this wall? No; there is nothing wrong. The water does not come through the dam at all.

211. Are you making this puddle in exactly the same way as the puddle was made at the Prospect dam, or have you gained experience? It is being made practically the same, except that it is being made a little drier than the first part of the puddle at Prospect dam was made.

212. The difference is that you are making it drier than it was made at Prospect? Yes; than what it was at first.

213. Do you think there is quite sufficient core to prevent any soakage through the embankment? Yes.

214. The reason for the very large back to the dam is not that it is absolutely necessary, but because you have a lot of surplus material that may be put there? Yes.

215. Is there an absolute necessity for pitching the four sides of the dam? I think it is necessary to pitch it all round.

216. Is the Prospect Reservoir only pitched at the dam? That is all.

217. If it does not require pitching on the sides of the Prospect dam, why should it require pitching here? It is quite a different case. This is practically a dam all round. There is the same slope all the way round. Prospect has only one dam across, and the water lies on the surface.

218. But on the upper or western side of this dam you really have untouched ground, and no made ground at all? There is not much made ground, but there will be some. There will be a very small quantity, but still when we are carrying out the work, owing to the action of the water on the upper portion, it will be absolutely necessary to pitch it first of all for the protection of the bank, and secondly; to prevent the continual drip of mud and sludge into the reservoir.

219. Then your reason for having it pitched all round is because you are disturbing the natural soil, while at Prospect the natural soil was not disturbed? No; except where the dam is.

220. The present line of pipes from Potts' Hill to Crown-street I understand are able to convey 17,000,000 gallons in twenty-four hours? Yes.

221. The supply going through at present being about 10,000,000 gallons? Yes; the present consumption is about 10,000,000 gallons.

222. Between Potts' Hill and Petersham Reservoir is it intended to tap the new line of pipes, or has the present line of pipes been tapped for reticulation purposes? I think the Water and Sewerage Board have tapped the present line in one or two places, but I am not sure.

223. Is it intended to tap the new line of pipes? It is not intended to tap them except when necessary to convey water to a reservoir.

224. The purpose is for the mains to lead direct to the reservoirs, and that there should be a separate reticulation leading from the various reservoirs to the streets? Yes.

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225. Is it undesirable to intercept or tap the mains? I think so, except for a reservoir.
226. You do not intend to tap this new line at any point between Potts' Hill and Petersham to supply the northern or southern suburbs? No.
227. That will be done by means of direct lines of pipes from the Potts' Hill Reservoir? Yes.
228. So that if the route is going along the railway bridge at Strathfield there will be three miles of pipes from Homebush right to Potts' Hill, running parallel? They will not be parallel. One branches off Potts' Hill from the line of pipes, going north. One will branch off from Potts' Hill, going to the right and to the south. The exact route is not yet decided.
229. Has there been any accident or any defect in the line of mains now existing between Potts' Hill and Crown-street—any bursts of a serious character? I think there were one or two at first, but that was before I came down. None have come to my knowledge. Mr. Darley told me there had been one or two.
230. What pitching do you propose for the reservoir? Sandstone.
231. Is there any stone in the neighbourhood? There is a stone that will be good enough a mile or a mile and a-half away from the works. I have not seen it myself, but the resident engineer told me of it.
232. How is this work being carried out now—by contract? Yes?
233. Are there any of the unemployed engaged separately on it? Yes; but they are doing the work by contract. It is a sub-contract.
234. Is the clay used for the puddle trench of this reservoir of as good quality or better than that used at Prospect? It is quite as good.
235. Is it any drier than at Prospect. Yes?
236. *Mr. Suttor.*] What did you say was the amount of the present large contract? £55,000.
237. Does that include the amount to be paid to the unemployed? Yes.
238. How much will the unemployed get? The large contract is for £49,763; the amount to be paid to the unemployed will come to about £5,500.
239. That is for the reservoir alone? Yes.
240. I suppose there is no rule according to which accidents may be expected? No; they may occur at any time.
241. I suppose that these pipes as a rule have a fair length of life? Yes; when they are good.
242. What would be the life of a really good pipe? I cannot say from my own personal knowledge. I do not know the case of any waterworks where the pipes had to be renewed.
243. They are looked upon as almost everlasting? Yes; practically.
244. *Mr. Copeland.*] With reference to the unemployed, how have they contracted with the Government? They have a sub-contract based on the prices of the contract let to Gummow & Co., the contractors for the main portion of the dam. We have to supply them with some material, and the prices were arranged between one of their representatives and myself, and submitted to the Minister.
245. Do you know how many of the unemployed are at work? I think about fifty now.
246. Are the whole of those fifty men parties to the contract or only one of their number? Two men on their behalf; but in paying over the money to those two the resident engineer sees that they pay the money over to each labourer in proportion to the work done, and he sees each man sign a receipt, so that these men cannot come on the Department afterwards and say that they were not paid, nor can those two men go off with all the money.
247. The two men who have contracted do not sub-let to the other men. Do the other men stand in equally in the contract according to the work done? Yes; they submit a pay sheet.
248. Have you any idea what their earnings are per week? They have not been earning very much during the last ten days because we had to stop them. They got ahead of the other contractors. The portion they have got is complete in itself: that is, they do the whole of the excavation, the whole of the bank, and the whole of the puddle opposite their own corner, and they cannot get up any higher on their bank than the other contractors, and we have arranged that they should dovetail in with each other. They are waiting until the contractors get up to their level, therefore they have not been earning very much during the last ten days.
249. When they were in full work how much were they making? I cannot say; but they are perfectly satisfied, and they are working remarkably well. They are a very steady lot of men.
250. You do not know anything like what their average earnings are? No; but I could get the pay-sheet.
251. Are they getting paid the same rate as the contractors for the large contract? No; we do not give them the same rate because Gummo has to supply everything, while we supply the employed with some things. We give them water and do the rolling for them. At least we have arranged with Gummo and Co. to do the rolling of the bank for them. On account of that, there is a certain amount taken off the price paid to them, and we pay the contractors for the rolling of the bank.
252. Are you getting the work done by the men employed at as cheap a rate as by the other contractors? Just about the same.
253. Are they doing the work equally as well? Quite as well.
254. Are they doing the work in a satisfactory way? Yes.
255. Under the supervision of some of the departmental officers? Yes; the resident engineer is always on the spot.
256. Are the large pipes you are putting in cast iron pipes? Yes.
257. Have tenders been called for the additional line of pipes? No.
258. Do you know if it is possible to make these pipes in this Colony? I do not think they could be made with the present appliances in foundries. It is a special line, and special appliances are required for casting pipes.
259. How many miles of pipes would be required? About 11 miles.
260. Of additional pipes? Yes.
261. What weight of castings would that amount to? I cannot tell you off hand. I can get it.
262. I should be glad if you would get the information as to the total weight and the estimated cost, with a view to ascertaining whether the work could be done in the Colony. What is the length of the pipe? 12 feet by 4 feet in diameter.

Thomas Rowe, Esq., President of the Water and Sewerage Board, sworn and examined:—

- 262½. *Chairman.*] Are you the president of the Water and Sewerage Board? Yes.
263. For how long have you been in that position? Since the formation of the Board. I think about six months.
264. Are you an architect by profession? Yes.
265. Have you been engaged in the practice of your profession in Sydney for a great number of years? For thirty years.
266. Have you given considerable attention to the water and sewerage works of Sydney during that time and before you occupied your present position? I have had to do so in my professional work. I was also for four years an alderman of the city of Sydney and borough mayor.
267. Had you experience as an architect and engineer before you came to this Colony? No. I have been forty years here.
268. Since you have occupied the position of President of the Water and Sewerage Board have you had necessarily to give a lot of attention to the works proposed to be carried out under your Board? I have endeavoured to do so. There has been a great deal to be accomplished in a short time.
269. Have you examined the works proposed to be carried out between Potts' Hill and Sydney? Yes.
270. Have you given very much attention to the Nepean scheme—that is, the system from which Sydney has been supplied? I have traced a good deal of it down from the Pheasant's Nest. I have not been down the whole distance. I have seen a great deal of the works.
271. Do you know the catchment area above the Pheasant's Nest? No. I have not travelled over it. I know the sources and the force of the supply, but I have never travelled over the catchment area.
272. Have you been up the Cordeaux at all? No.
273. Or the Cataract? No.
274. Do you know the site of the dam at the Pheasant's Nest? Yes.
275. Have you been through the tunnels? No; at the time I passed the tunnels were charged with water.
276. You did not traverse the tunnels? It was impossible to do so.
277. Before the water was laid on did you? No.
278. Have you held any investigation before the Board since you have been in office as to the character of the works, or the state they are in? Yes. We spent two days inspecting the works along the line.
279. Have you taken any evidence during that time as to the character of the works? No.
280. All the information you have had in reference to them has been merely the information derived from your own personal inspection? Yes.
281. Were you accompanied by the members of your Board? Yes.
282. How many members are there on the Board? Seven in all.
283. Have you inspected the Prospect Reservoir? Yes.
284. And the large embankment or dam there? Yes.
285. How long is it since you were there? It must be three months ago.
286. Was the subsidence in existence then? Yes.
287. Did it seem to be of a very alarming character, in any sense, from your professional point of view? Not in my opinion. I think it was a natural consequence.
288. In a large work like that such a subsidence would naturally occur? I think so.
289. Subsidence always occurs in such large earthworks? Yes. That is my opinion.
290. Are you aware whether the sinking of the dam at all affected the puddled part inside—the backbone, as it is called? I do not think it affected the core of the dam. I do not think the water reached it in any way whatever.
291. As far as your experience of the works has gone, has the water been vitiated at all by its course through the canals or tunnels between the upper sources and the present dam? I have no knowledge of its being vitiated in any way.
292. Is the water delivered now in Sydney in a pure and generally good state? I have that impression.
293. Have you heard any complaints made? I have heard a few complaints in connection with the reticulation of the suburbs. That is quite natural until the pipes are flushed out. It is no fault in the quality of the water.
294. Are you aware, approximately, of the quantity of water required in Sydney for present purposes? From 8 to 9 million gallons per day.
295. What is the aggregate supply of the stores from which you are now getting it—That is, entering the Prospect Dam? I believe it has been from 5 to 7 million gallons per day of late. It has reached as much as 15 million gallons per day and more.
296. When you say it has been from 5 to 7 million gallons per day, do you mean during the recent drought? Yes.
297. Are you aware of the rainfall along the coast, or of the Sydney rainfall? No.
298. You know, generally, I take it, that the rainfall during the last year has been very much less than the ordinary rainfall? Yes.
299. Are you prepared to say how much per cent. less the rainfall has been? No; but I am fully aware that it is something considerably less.
300. Would that account in some measure for the paucity of the supply to the Prospect Dam? Certainly.
301. Do you know the extent of the catchment area above the Pheasant's Nest? I know it is thousands of acres, but I have forgotten the exact area; about 350 square miles.
302. Have you given any professional attention to the character or configuration of the country above the Pheasant's Nest? No. We have been organizing the department very busily during several months, and it has been impossible to go into everything.
303. That would be more in connection with reticulation and the disposition of the work? My work is more in connection with the reticulation, and whatever time we can give to the larger subjects we are always glad to do so.
304. Did you, before your accession to your present position as President of the Water and Sewerage Board, give very much attention to the different schemes which have been proposed for supplying Sydney with water? I have always taken a deep interest in the matter.
305. Have you formed any professional opinion which would warrant you in expressing an opinion with regard to the various schemes proposed? No; I could not go that far.

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306. Do you think that the present scheme for supplying Sydney is a fairly complete one? I think it is an excellent one. I think it is a grand scheme.
307. If the present supply had not been in existence should we have had loud complaints of the scarcity of water during last year? We could not have supplied the demands for water. We never got more than 5 or 6 million gallons from Botany at the utmost with two engines going. We never got more. Where would the other 3 million gallons have come from during the past year?
308. Do you know if the machinery which used to supply Sydney from Botany is in existence? Certainly. We have the fires banked up there, and the engines are ready to work again at a moment's notice. Within at least half an hour they could be in full play.
309. Are those works, as well as the Sydney water supply, now under your superintendence? Yes.
310. That is the reticulation? Yes.
311. Have you anything to do with the engineering part of the works—that is repairs or reformation in case of damage, or anything of that kind? Yes; the Board has to do that now.
312. How far does that extend—does it extend to the general pipe system—does it affect the trunk lines? Not at present. Those works will be handed over when completed.
313. Will that apply to the Prospect Dam as well? The entire works, right to the source.
314. Was the Botany supply originally in the hands of the Corporation? Yes.
315. Has that been handed over to your Board? Yes.
316. Are you keeping that as an alternative supply in case of anything going wrong? Yes; in case of a breakdown.
317. Does that apply to the Botany dams generally as well as to the machinery and engine power? Yes; but there is a difficulty about part of the watershed at present. The Cooper Estate, which was leased by the Corporation for £2,000 a year, is likely to be interfered with. A syndicate has been formed which professes to have purchased it. We still think we have a claim, and we have placed the matter in the hands of our solicitor to get counsel's opinion as to whether or not we have taken over this lease from the Corporation. If this syndicate formed a township it would materially affect the watershed as to the quantity and purity of the water. There is another light in which to look at it. If they do away with the present dams, in flood-time the water might overpower the lower dam at Botany, and so break away the supply we have to fall back upon. We regard it as a serious matter.
318. What proportion of the general catchment area would be affected by that sale? It is on the Bunnerong Road, on the right hand side going to Botany, beyond Randwick Racecourse.
319. That would be a material part of your catchment area? Yes.
320. Do you know what extent of the area it would be? About 1,000 acres.
321. Is it a thousand? Yes. It is proposed to be purchased by a syndicate. Whether the information is correct or not I do not know.
322. Was it private property before? Yes; it was Sir Daniel Cooper's property.
323. Did it form part of the catchment area of the Sydney water supply? Yes; as private property.
324. Does that principle apply to no other property about there except this special property? I do not know.
325. Would the water catchment be affected by the properties on the higher elevations about Waverley? I think not.
326. They do form part of the catchment area? They do. It is part of the natural formation. There has always been trouble about that, but there have been filter-beds and such things put along there to provide against contamination. Another difficulty arising from this Cooper Estate is that if it were taken from us and cut up into a township there would be drainage which would ultimately affect the remaining portion of the watershed.
327. So far as the catchment area of the Botany supply is concerned at present there is not much population to vitiate the water? Not very much.
328. Is there some? Yes; but not enough to affect it very seriously.
329. Does it cost a very large annual outlay to keep up the Botany system? No; not at present. We have reduced the staff down to a mere nothing. There are just two men in charge. The engineer lives on the spot, but he comes to town daily to attend to other duties at Crown-street.
330. Is your Board partly elected and partly nominated? Yes.
331. Is it partly elected by the Municipalities about Sydney? Yes.
332. Three are nominated by the Government and two elected by the Municipalities? Yes.
333. Then the Board consists of five members altogether? No; there are seven members. Two aldermen are elected by the suburbs, and two by the city. Three members are appointed by the Government, two of whom are officials in the Harbours and Rivers Department and Roads and Bridges Department.
334. Do they elect their own president, or is he appointed by the Government? He is appointed by the Government. We are of opinion that the constitution of the Board is an excellent one. We find it works very well.
335. Has it worked satisfactorily so far? Yes, excellently well. The composition of the Board seems to be a very good one.
336. Have you had very much to do with the new sewerage works? They have not been handed over yet.
337. They are not thoroughly completed? The idea is to pass a short Bill to hand over the portions that are completed, in order to go on with the reticulation of the sewerage.
338. Is your Board appointed under an Act of Parliament passed some years ago? Yes, in 1880.
339. Under which come the sewerage and water supply? Yes.
340. Are there any other works besides these which come under the category of your duties? No.
341. Is the suburban sewerage system committed to your charge as well? It will be.
342. Is that provided for in the Act? Yes.
343. Does that apply also to water reticulation? Water and sewerage.
344. Are there not limits to the suburbs? Within the County of Cumberland.
345. All inside the County of Cumberland? Yes.
346. Will the works in each case be carried on by mutual arrangement—That is, will the municipalities become parties to it, and be responsible for a portion of the payment, the Government contributing the other portion? The Government, I presume, will carry out the main trunk lines the same as with the water, and the Board will carry out all the ordinary operations, and paying the interest on the entire outlay, which will be proportionally divided amongst the various municipalities, city and suburban.

347. Since the Nepean supply has been brought into operation, have you used the Botany supply at all? T. Rowe, Esq.
Not since the Board was formed. 27 Sept., 1888.
348. According to the professional view of the case, would the supply from Botany be vitiated through the water not being taken from it regularly? I do not think it would be vitiated. The danger is that the pipes might possibly be choked, if they were not used, owing to fungoid growth. I do not think the water itself is likely to be contaminated.
349. I refer more particularly to the pores of the sandhills—The whole source of that supply is a natural sponge—Would the sponge principle, under which the water is supplied, be affected through being kept closed for a certain time? No; I do not think it would.
350. Have you had a good deal of experience of the Botany water supply during your long residence in the Colony? Yes.
351. Have you seen the value of the supply from year to year? Yes. Since I have been here I have been acquainted with the Botany water supply.
352. Is it a very good supply? Yes; an extraordinary water supply.
353. In common with others, have you been astonished that the supply has been so great, considering the demand and considering the small area? Yes; it is very surprising.
354. Have you seen in any part of the world a better class of water than you get from Botany? I suppose there is better water. There is a want of lime in that water. But it is a very pleasant, soft water; but there must be a superior water even to that of Botany for general use.
355. Have you had any experience of the London water supply from the Thames? About three years ago I had. I do not think it is equal to our water.
356. And that is a much better system now than it was twenty years ago? Yes; it is all filtered, but it is not equal to our water.
357. Is it not the case that there is a large population living near the various sources from which the Thames supply is secured? Certainly.
358. Would not that necessarily vitiate the quality of the water supply? It is well protected and filtered, and they do not allow drainage to go near it.
352. Still, is there not a natural percolation of animal and other matter where population is located, and where land is being worked? Yes; there is always a danger of that.
360. Is it not a fact that where the soil is renewed by cultivation the water from that soil is affected? Yes; there is always a danger in that respect. The watershed of London is vastly different from the surroundings of Botany.
361. In what respect? The inhabitants are vastly more numerous.
362. All the soil in fact is enclosed in gardens, and those gardens are richly manured? Yes.
363. And the water from those gardens give the stores that supply London? Yes. I think there is no comparison between the two water supplies.
364. One point in connection with the Nepean water supply is that there is no settlement upon the catchment area? Very little.
365. And another point, I take it, is that the sources of supply are of a sandstone character? I believe so.
366. You have never visited it yourself? No.
367. Is it not the case that a sandstone formation supplies the best and purest water for drinking purposes? Certainly.
368. And the whole of this area, with the exception of an infinitesimal portion, has been secured for the purpose of catching water? Yes; I believe so.
369. Have you examined the site of the new reservoir at Potts' Hill? Yes.
370. Do you think it is a desirable acquisition to the water supply of Sydney? I think it is very necessary.
371. Do you think that the duplicate pipe system proposed is a desirable one? In view of the enormous supply which we require at present, and the increasing supply necessary to meet the demands of the public, I think it would be prudent to have the second line of pipes. In fact it is absolutely necessary for many purposes besides that one.
372. Has any provision been made for a portion of this water to be used for manufactories and for purposes other than for household use? I have always understood that the supply was intended to be used for all purposes; for manufacturing as well as for household purposes.
373. Do you think that the supply would be sufficiently copious to enable manufactures to be carried on at any future time? Yes.
374. Have you given any attention to irrigation from a professional point of view? No.
375. Have you had any experience of it? No.
376. I refer to the means of collecting water for irrigation? No. I would not profess to give an opinion on a thing of that kind.
377. As President of the Board, are you aware of the estimated cost of these works? Yes.
378. The reservoir itself and the pipe line also? Yes.
379. The estimated cost of the reservoir is £120,000? Yes.
380. The contract for excavation alone is £55,000? Yes.
381. The difference between £55,000 and £120,000 is made up of pitching and other things necessary to the completion of the work? Yes.
382. Will that come under the head of a separate contract or will it be carried out under the Harbours and Rivers Department? By the Harbour and Rivers Department. We have nothing whatever to do with these works.
383. You only take the works after they are completed? Yes.
384. Then you understand the estimated cost of the pipe line which we drove over to-day? Yes.
385. Have you formed any opinion as to whether it is a reasonable estimate or an exorbitant one, or not sufficient? I do not profess to give an opinion on matters of that kind. It is properly a hydraulic engineer's duty.
386. On the whole you think it is a desirable work? Yes, as a duplicate service, and for many reasons.
387. Do you think it would be better than to have to fall back on the Botany works in the case of the Nepean scheme failing or the pipes getting out of order? It would be impossible for the Botany works to make up the deficiency and supply the city. It could only give at the very utmost five or six million gallons per day, and that of course would not be continuous. The engines are very old and antiquated, and

- T. Rowe, Esq. and you could not tell when they might break down. There are three old, and one auxiliary new one, and they would have to do an enormous amount of work, and the western suburbs could not be supplied at all.
- 27 Sept., 1888. It could only supply the eastern suburbs and the city.
388. Even if the second line of pipes is established you will not abandon the Botany supply? I think it will be abandoned and utilized for manufacturing purposes. It may be abandoned as a water supply.
389. I think I have heard it stated that the machinery and the works, which were connected with the Botany supply, are very inferior, or that they are getting worn out? They are very antiquated, very old, and may give way.
390. I mean the Crown-street engines, which are now connected with the Nepean supply? They are also defective. We have ordered new engines from England to supplant them.
391. Not only defective, but the principle is an old one? Yes; they are not modern; and they are not powerful enough. Instead of having two inferior engines we prefer to have one superior engine.
392. With a view to a perfect and continued supply you have recommended the use of an improved engine and a new one? Yes. We require to pump a larger quantity of water to Paddington in order to supply the high buildings of Sydney, which we cannot do satisfactorily at present. We can only supply certain parts of the city satisfactorily. When we have a new and more powerful engine we should be able to pump a greater quantity of water to Paddington, and thereby supply a larger number of high buildings in Sydney now being erected, and buildings higher still which will be erected.
393. Do you supply the greater part of the city now by gravitation? The greater portion.
394. Can you state the approximate portion of the city which you so supply? No. Mr. Jones will be able to give that information.
395. Then your improved engine will facilitate the reticulation from Crown-street to the higher levels of Sydney? When pumped to Paddington. We should pump to Paddington in order to supply the higher buildings of Sydney, and furnish the higher levels of Sydney with a better supply in case of fire.
396. Do you recollect what are those higher levels? It affects some of the high buildings even in George and Pitt Streets. The water scarcely rises to the uppermost storeys. It seriously affects the elevated buildings; and in case of fire there will be positive danger.
397. Then it is proposed to supply the higher portions of St. Leonards from Ryde? Yes; from Potts' Hill by way of Ryde.
398. The water will then be pumped from Ryde to a higher level a short distance away? Yes, at Chatswood; and it will gravitate from there down to North Shore.
399. Will that reach all parts of North Shore? Yes.
400. *Mr. Copeland.*] Do you say that the water supply from Botany is of very good quality? Yes; it is always considered to be of very good quality.
401. Do you think it is better or not so good as the water from the Nepean? I consider the Nepean is the better water of the two. There is less corrosion in the pipes in travelling from the source. There is less fungus matter corroding inside the pipes from the new source than from the old source.
402. Have you any idea what it would cost to supply new engines of a modern type to the Botany works? The only guide which I have is the new Crown-street engine, which will cost from £10,000 to £12,000. The same engine would do for Botany. That is the only idea that I can give.
403. Do you think that at a cost of £10,000 or £12,000 for a new modern engine, the water from the Botany supply could be used in case of an emergency? Of course the distance for pumping would be greater, and there would be a larger head of water. That would be a very low estimate. Perhaps it would be nearer £20,000. Pumping from Crown-street to Paddington is different from pumping from Botany to Crown-street. The engine would have to be more powerful, so that £10,000 or £12,000 would be under the cost.
404. As an alternative scheme to the one now proposed have you ever considered whether it would be as well to obtain new engines for Botany, and depend upon that supply in case the present pipe broke, or was destroyed, simply as a temporary supply? I have never looked at it in that light. I thought Botany was to be given up in consequence of the large amount of money laid out for this new scheme of water supply and its probable success. I always looked at it in that light. Of course the Botany supply is always liable to contamination through increase of population.
405. But you are aware that this proposed new pipe is estimated to cost £255,000 along with the reservoir. If the anticipated danger could be guarded against by the outlay of £20,000 or £25,000 at Botany, would you not consider that was a judicious plan? No, I should not. I should think the scheme a very imperfect one, to put it in that way.
406. Do you think the Botany water supply could not be utilised in lieu of the proposed second pipe? Not to the extent that the present system requires; not even if we had twice the present supply of water at Botany.
407. I am not suggesting this by way of a permanent thing, but merely to avoid any difficulty that might arise through one of the present pipes bursting? I do not think it would be advisable. I reasoned with Mr. Jones, the Board's engineer, as to reducing the cost by making the 4-foot duplicate pipe a 3-foot pipe, but after considering the matter I came to the conclusion that it was not desirable to do so, looking forward to what the population was likely to be in ten or twenty years time. I think the only safe course is to duplicate the main. Independently of the future supply, suppose that a break-down took place in the present pipe, which would take three or four days to repair. We have only half a day's supply in our present reservoirs, and if a break occurred which would take two or three days to repair, I do not know how we could supply the people with water; and if a fire took place in the meantime the city might be half destroyed.
408. Can you tell me if there is any settlement taking place on the watershed of the Nepean supply? I do not know of any new settlement at present.
409. Is the whole of the land in the present watershed reserved? I believe so. We have not got a plan of the entire catchment area yet, but we have applied to the Government for it. I do not think people are settling upon that land.
410. Is there any danger of the water becoming contaminated? I am not aware of anything of the sort. The Board has been applied to frequently for permission to cut timber, and many other things; but we have refused anything of the sort.
411. You do not know whether the whole of the land is reserved? I am not certain. I do not believe that there are any more persons living on the land now than there were when it was handed over to the Board. As to the number of inhabitants upon the area, I could not tell you. 412.

412. It seems to me you can only be sure of that if you know that the whole of the land is reserved, and not composed of private lands? There must necessarily be some private land here and there.
413. If there is any private land, is there anything to prevent the owners of that private land from establishing industries of such a kind as would be likely to contaminate the water? I should think it is provided for, but I have no knowledge of it.
414. In addition to your position as President of the Water and Sewerage Board, do you also occupy the position of Colonel of the Engineer Corps? Yes.
415. Are you the highest officer in the Corps? Yes; I command the Engineer Corps.
416. Is there any Imperial Engineer officer in the Colony occupying a higher position than yourself? There is an Imperial officer, but he is not over me—only as instructor. He is not senior to me.
417. Is he an engineer officer? Yes.
418. Have you ever been consulted on the question of the defence of the water supply? Never.
419. What would be your opinion, in view of a possible invasion, as to the necessity for protecting the water supply? The danger is lessened considerably by the new scheme. The danger existed under the old scheme at Botany. Under the new scheme there is no very great danger unless an enemy got past Parramatta by the Hawkesbury, and could fight his way over towards the water mains. There is no other danger that I know of.
420. I suppose it would be a very serious matter if an enemy did get possession of the water supply? Certainly; it would be a serious matter.
421. Almost as serious as forcing his way in to Sydney Harbour? It would be a very serious matter; but I do not see that it is at all possible for an enemy to affect our present water scheme.
422. Is there no part of the scheme more vulnerable than other parts, or no part where there is special necessity for protection? I do not know of any. I have not looked at it in that light.
423. If you occupied the position of Colonel of any invading Company of engineers, is there no particular part of the water supply towards which you would direct your forces with the object of destroying it? No; I really do not know any. I should have very faint hope indeed of reaching the water supply of the city from the seaboard anywhere.
424. Do you believe it would be a very serious thing? I admit that it would be a very serious matter.
425. But you do not think there is anything to fear? I do not, indeed.
426. Supposing an invading force succeeded in effecting a landing at the Hawkesbury or any other part of the coast? That is the only part where I think it is possible to land; but there is very little chance of an enemy reaching the mains of our water supply.
427. In that case you think there is no danger? I have never thought that there was any danger whatever in that respect.
428. Is it customary in other countries to have the water supply of large cities in any way specially protected from danger? I have not met with it in my own experience. One would naturally suppose that they would be protected from danger; but I have not observed that that is the case in my travels, and I have been in Italy, France, and Germany.
429. Do you think there is no necessity to take special action to protect the water supply? I do not think it is necessary. I do not think there is the least danger in that respect.
430. *Mr. Suttor.*] Do you know if the attention of the Government has been called to the fact of the Cooper Estate being sold, and the desirability or otherwise of doing anything. Has your Board called attention to it? No. We are obtaining counsel's opinion, and after we have obtained that opinion we shall certainly inform the Government with reference to it.
431. Are you aware that a great deal of work has been done in the Centennial Park? Yes.
432. What works have been carried on there? Forming it into a park, making roads, cutting down bushes, planting, and beautifying the natural features of the place.
433. And a great deal of the manuring of the land there? Yes; I think they are slightly manuring it.
434. Is it not proposed to sell certain portions of the park for building sites? Yes; the hills around the park.
435. Will not that to a great extent affect the purity of the water supply? Certainly; it must very much tend to affect the Botany supply, unless a very expensive sewerage scheme is carried out.

John Trevor Jones, Esq., Engineer to the Water and Sewerage Board, sworn and examined:—

436. *Chairman.*] Are you Engineer to the Water and Sewerage Board? Yes.
437. Are you an engineer by profession? Yes.
438. Have you been a long time engaged in the practice of your profession? Since 1854. I was a surveyor before then, and I have been connected with water supply and mining in Victoria. I was afterwards City Engineer in Sydney.
439. Since that have you been engaged in your present occupation? Yes. I am a Civil Engineer of the University of Melbourne, in the sense of having attended lectures and passed in that subject without graduating in all subjects.
440. Had you to do with water supply in Victoria? Yes; for six years.
441. Did you follow your occupation at home? No; I was too young. I was a draftsman, but that did not give me much experience.
442. What water supply had you to do with in the neighbouring Colony? With the Malmesbury, which supplies Sandhurst and Castlemaine; with the Harcourt Reservoir, the Expedition Pass, the Clunes, and the Geelong water supplies. I had something more or less to do with several others, but not in the position of designing any works.
443. Had you anything to do with the Melbourne city supply at any time? No; not professionally.
444. Did you occupy the position of City Engineer in Sydney? Yes, and had charge of the Botany water supply.
445. Did you find that to be a good supply on most occasions? Yes; of course it failed during very dry seasons to give a constant supply, and we were obliged to have recourse to an intermittent system from want of water on several occasions. The quality of the water was excellent.
446. The supply was not sufficient for the demand at all times? Not always, but nearly so.
447. Is the catchment area of the Botany supply very small? Yes; about 6 square miles. It is a very peculiar one of course, being a bed of sand.

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448. Have you ever given any attention to the idea submitted by some skilled men that the Botany supply had any other source than the rainfall within its own area? There was no occasion to adopt any theory. The rainfall was quite sufficient to supply all the water that came.
449. Have you formed any opinion as to the probability of the water coming from any extraneous source? Yes; I formed the opinion that it did not come from any extraneous source.
450. Would the sea-water filter at all into the Botany supply? No; it never would in the slightest degree. You may have observed that on the foreshore of any place you can dig a well in the sand, and if the land rises above the water's surface you will get fresh water. That is because the height of the water on the land is greater than in the sea. Therefore, the stream will set in towards the sea, and no matter how slow it is, it is sufficient to keep the salt water back. You will find that to be the case on the beach at Sandringham now.
451. Will the old water supply at Botany be interfered with by the increase of population from time to time? I should not very much like to supply the city with water from it after three or four years. Some land has been recently sold upon it whereupon it is intended to build residences upon the banks of the stream.
452. Is that part of the Cooper estate? Yes.
453. That forms part of the catchment area? Yes; the principal part of it.
454. Is that out towards Botany? Yes; between the Bunnerong Road and Botany.
455. Has it never been secured for water supply purposes? No; it was offered once to the Corporation, but they did not seize the opportunity.
456. How long ago? I think it was about twelve or thirteen years ago, before I took charge.
457. Do you recollect the circumstances? No; I was not in Sydney; but I heard from a very good source that that was the case.
458. At what price per acre was it then offered? I heard it was offered for £100 per acre.
459. What was the area? 1,000 acres for £100,000.
460. Are you aware at what price the land has been recently sold? I have been told that it has been sold for £325,000. That is for 1,000 acres.
461. So that the price is £325 per acre for what was previously offered at £100 per acre? Yes.
462. Do you know anything of the project to erect buildings on some portions of the Centennial Park, which are to be sold for that purpose? Yes.
463. High-class residences? Yes.
464. Are you aware whether that project is still proposed to be carried out? I firmly believe it is.
465. Is it part of the project in connection with the improvement of the Centennial Park? It is; I firmly believe.
466. Would not the drainage from those buildings go into the Botany water supply? Already the drainage from far more objectionable buildings is actually flowing into the water supply. I erected a series of filter dams to intercept it, but still the water is running through the sand below, and it is a little more deteriorated every year, according to tests which I have made.
467. Would that apply to the drainage from Waverley, Randwick, and other places? Yes.
468. But is there not a series of filter dams right from there down to Botany? Yes; there are about nineteen altogether.
469. Then when the water reaches the pond at which the engine is, it ought to be tolerably pure? Yes; the water was quite pure there. I could only get any impurity just under the first filter, high up. Above one side of the dam the water would be filthy. I had that water tested, and it was found to be such water as should not be given to the citizens. I had to filter it through another dam; it had only two dams to go through, because we intercepted that water with Busby's Bore, and delivered it by gravitation into the city.
470. Does Busby's Bore tap the water supply considerably above the lower dam? Yes; at the Centennial Park, at 100 feet above high-water mark.
471. How is Busby's Bore connected with the supply at the Sydney end? It is brought from the Centennial Park under the corner of Victoria Barracks, and then under the court-house at Darlinghurst. Then it runs along Oxford-street, across College-street, and into Hyde Park; near the middle of Hyde Park pipes carry the water away.
472. Does it not come to the corner of Park-street and Elizabeth-street? Not quite.
473. Is it not conveyed some distance by ordinary pipe? Yes.
474. Do you remember whether it was delivered in past days at the corner? Only by recollecting that I saw it when on a visit.
475. Then Busby's Bore does not actually come to that point? No; it delivers from pipes from where I have stated.
476. Have you given any attention professionally to the proposed works in connection with the Potts' Hill Reservoir? I have given a little; but I have not gone minutely into the details; I have examined the details fairly well, so as to get a general impression.
477. From the examination you have made are you of opinion that the estimated cost is a fair and reasonable one? I am afraid that perhaps it is a little low, for the reason that, while it is a fair estimate for the time when the present line of pipes was laid, pipes have since gone up considerably in price.
478. Are you aware how long ago this estimate was made? No; but I am judging from the amount now, and I know that it estimates that you can get the pipes laid at £8 per ton. You could at the time the other line was laid get the pipes at five guineas per ton landed in Sydney. Now smaller pipes, which ought to be much cheaper, cost us £6 5s. per ton. Both iron and freight are now higher.
479. Will that apply to large works like this, seeing that the pipes on which you are basing your calculation would be for small works? There are large pipes, and they will cost more per ton than small pipes. It is safe to add £1 per ton to the cost of the pipes required for this contract.
480. Do you know the estimated cost of the excavation at Potts' Hill which we saw to-day? Yes.
481. Have you made any calculation as to the accuracy of that estimate? No.
482. Have you had much experience of excavation such as that? Yes.
483. Do you think that the idea proposed to be carried out there is a safe one with reference to the pitching, the dam, and the embankment? I have no doubt on that score. The soil in which the excavation is made is composed of very retentive pure clay; and the puddled dam is designed in such a way as to intercept any percolation, apart altogether from the immense width of the soil which is put on the bank

bank owing to the quantity they have to spoil. The size of the bank itself is sufficient safeguard either against percolation or accident. As for the pitching on the surface I deem it to be necessary to prevent the erosion that arises from the lap of the water in windy weather; and as the water will be at varying levels the pitching ought to be pretty extensive, both up and down, to resist the effect of the water.

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484. Did you pay attention to-day to the principle on which the piping was to be connected with the main piping for Prospect? Yes; I knew that before.

485. Do you think the principle is a good one? Yes. In fact, all the Nepean works are good.

486. Do you think that a duplicate pipe is essential? I certainly think that in every water supply a duplicate pipe should be made. I have two reasons for supposing that a duplicate pipe is necessary. One is to act as a stand-by in case of an accident, which, while it is improbable, is yet possible. The strength of these pipes is in excess of what is required, but there may be a flaw in the casting, and that would render a break possible. If a break were to occur it would take a long time to repair the line, and Sydney would in the meantime be without water. It would be a calamity.

487. Have any breaks taken place in the pipes up to the present? Yes; two.

488. Did they impede the supply generally? We had the Botany supply to fall back upon then.

489. How long ago was that? Immediately after the pipes were tried.

490. Just after the temporary system was abandoned? Yes.

491. That was the time when the colour of the water in Sydney was so impure for a day or two? That impurity was not owing to the break, but owing to the rainy season which followed, and the canals were not properly protected.

492. I suppose that is incidental to a new work in any part of the world? Yes; I never saw new works started without some such occurrence.

493. Have you since had any complaints as to the character of the water? No; the water has been splendid.

494. Have you visited the catchment area above the Pheasants' Nest? Yes; but I have not seen the whole of it. I have been through it all except the head of the Nepean.

495. Is not that the proper source? No; I think we get quite as much from the Cataract and the Cordeaux.

496. Is not that at the head of the Nepean? No; I refer to the head of the Nepean itself where it parts from the Cordeaux.

497. But are not they the watersheds which supply the Nepean? Yes; they are all tributaries.

498. The water got for the purposes of supply is above the Cataract, is it not? Yes; all above the Cataract.

499. Is there not a tunnel from the Cataract to the Cordeaux? The Cordeaux is at the Pheasants' Nest, and a $4\frac{1}{2}$ -mile tunnel from that leads to the Cataract, and a dam is made there to divert the Cataract and the other two rivers into a tunnel 2 miles long.

500. Therefore the great catchment area is entirely above that? Yes.

501. The settlement about Picton would not affect this supply? No, I do not think it would.

502. It goes down into the Cow pastures, and from there into the Nepean, at Penrith? Yes.

503. Actually there is no settlement on the catchment area above there? No, so far as I know.

504. It has been stated to-day that there are one or two mining settlements there.—Do you think they should be allowed to remain? With extreme precautions they might. If it is very valuable I do not think they ought to be disturbed, because you can secure the river against impurities.

505. Still, with a view to having the catchment area as pure as possible, would it not be desirable to keep off any settlement? Yes, in that respect, certainly.

506. Do you know anything of the mineral work which is being carried on there.—Is it gold or coal? Coal is the only thing I have heard of.

FRIDAY, 28 SEPTEMBER, 1888.

Present:—

The Honorable JOHN LACKEY (CHAIRMAN).

The Hon. WILLIAM HENRY SUTOR.

The Hon. JAMES WATSON.

The Hon. FREDERICK THOMAS HUMPHREY.

HENRY COPELAND, Esq.

ALEXANDER KETHEL, Esq.

JOSEPH PALMER ABBOTT, Esq.

JACOB GARRARD, Esq.

SYDNEY SMITH, Esq.

The Committee proceeded to further consider the proposed Storage Reservoir at Potts' Hill and the laying of a second line of pipes between Potts' Hill and Crown-street.

John Trevor Jones, Esq., Engineer to the Water and Sewerage Board, sworn, and further examined:—

507. *Chairman.*] Were you present yesterday when this Committee made an inspection of the proposed new works at Potts' Hill? Yes.

J. T. Jones,
Esq.

508. And also when we traversed the proposed line of pipes from Potts' Hill to Crown-street? Yes.

509. I think you have stated that the proposed works were of such a character that you concurred with them? Yes; they meet with my approval. I cannot see how a scheme for a city like this can be complete without such an auxiliary.

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510. Independently of the supply which it would give to Sydney in the case of the main line of pipes giving way, would it be of great value for the purpose of supplying the southern suburbs, which is part of the project? Yes. Before the pipe is well in use I anticipate that the increased consumption in Sydney and its suburbs will amount to such a quantity as will require a second pipe. It is possible that the supply for Sydney and its suburbs cannot be met three or four years hence by the present single pipe.

511. I think you have stated that you are still keeping up the Botany supply? We keep the machinery in readiness.

512. The dams, of course, are still intact, the supply is there, and the whole machinery is ready in case of necessity to use it as a supplementary or auxiliary supply? Yes.

513.

- J. T. Jones, Esq.
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513. Do you think that the Potts' Hill project is of greater value than the Botany supply? Yes. With a small 30-inch pipe from the Botany supply it would be very difficult, in the event of the failure of the present pipe from Potts' Hill, even with very powerful pumps, to keep Sydney well supplied. Another reason is that I consider the supply for Botany, within a very short period, will not be trustworthy.
514. For what reason do you think it will not be trustworthy? I have reason to believe that a considerable portion of the land which forms the Botany watershed has been sold.
515. With a view to sub-division and settlement? Yes.
516. Will that vitiate the purity of the water? Yes; it will render it suspicious at any rate.
517. Are you of opinion that the Botany supply will be very much affected by the improvements now being carried on at the Centennial Park? No.
518. Is there not a great deal of removal of the soil at the Centennial Park? Yes; and no doubt there will be some manuring of the surface. That would tend to vitiate the water, but it has to travel so far afterwards, and filter through so many yards of sand, that I hardly think any impurity will occur. The tendency of running water is to purify itself, and in a very remarkable degree, as I am able to prove. I had water proved by a chemist to be unsuitable for consumption at the one point; and three chains away from there, after it had trickled among grass, I took up a bucket of the same water, without telling the chemist anything about where the water came from. I submitted it to him and he pronounced it perfect. So I believe that notwithstanding anything which may happen to vitiate the water in the Centennial Park, it will become purified by the time it reaches the lower dam, and even before that.
519. How many dams altogether are there? Ten in the lower, and nine, I think, on the Lachlan Reserve.
520. Then the percolation in the course which the water takes from the catchment area above down to the last of the dams necessarily clarifies it? It does not all percolate. When it runs low down we are obliged to run it through the pipes. But every bit of it is percolated in the upper dams.
521. Does it not pass through aquatic vegetation which has the same effect? Yes. That has undoubtedly the property of depriving it of various germs. I am almost certain of that. We had a sample of the water tested every quarter, from every place where there was the slightest suspicion; and it was always classed as No. 2. That perhaps would sound rather detrimental if I did not explain that No. 1 water is perfectly pure water. Of course no water collected in that way could be perfectly pure.
522. On the whole do you think that the different contracts, as far as you are aware, connected with the excavation of the Potts' Hill Reservoir are within a reasonable cost? I have not examined them. My attention has not been drawn to them.
523. Do you know the gross amount of the contract? No; only roughly. I understand that it is £65,000.
524. No; it is £55,000? That seems a reasonable amount.
525. As far as you have formed an opinion on the project now under consideration, do you think that it is satisfactory? I think so. It is a necessary part of the waterworks. I have two reasons for thinking so. The one is that if anything should happen to the 6-foot pipe which fills the reservoir, or if anything were required to be done to it, you would have to stop the supply to Sydney while performing the operation. But when you have this reservoir at Potts' Hill you will be able to stop that pipe and apply any remedy or make any repairs you wish without stopping the supply of water to Sydney. The second reason is that that pipe, if it had to feed the city only, as the city consumed the water, would cause fluctuation—that is to say, it would be necessary during the night, when the consumption is very small, to restrict the flow through that pipe, and prevent it from doing full duty. It would not be doing half its work. With the reservoir it will be flowing uniformly all the time.
526. Then the reservoir would form an independent supply of its own for the time being? It would last a week at all events.
527. Do you think that it would be sufficient to give time for ordinary repairs in the event of a burst between the Prospect Dam and the reservoir at Potts' Hill? Yes; I think it is a very ample provision.
528. And do you think that it is very desirable? Yes. Of course, with such an accession the water supply might be compared with the most perfect water supplies in the world, and it is more perfect than most water supplies in the world; but I do not see why Sydney should not possess such a water supply.
529. Have you given much attention to the proposed lines of pipes? I have.
530. Two or three routes have been traversed? Yes. Both Mr. Hickson and myself are agreed that the one we traversed yesterday is the best so far. It might be well for the Board to examine the others, but we have paid attention to it, and have obtained the opinions of those whom I respect, and the line we traversed yesterday is the favoured one with us all.
531. Do you think that it is the most desirable one? Yes; one advantage being that it is shorter and straighter, and utilizes the tunnel already made for it at Redfern. It crosses the railway at a place where there is a tunnel to go under without interfering with anything. All the other proposed lines inconveniently intersect the railway once or twice.
532. Is your Board given powers of reconstruction in any way, or power to make an alteration in the pipe service beyond ordinary repairs or improvements? I think that, like a railway, it is contemplated that the Board shall take over the maintenance of the works, but I think it is intended that the Government shall take in hand any contemplated large extension.
533. For instance, would you feel warranted in carrying out the deviation of a pipe line? Not a main trunk pipe when it is laid, unless the Government should hand over that power to the Board.
534. Do you recollect if you have that power now under the present Act? I believe not. The Act does not contemplate that condition of things at all, so far as I remember.
535. As far as the Botany supply is concerned, has your Board an intention to keep it in a state of repair, or in sufficient order to meet emergency or accident, as a supplementary or auxiliary service? I think it is contemplated to leave it alone when this second pipe is laid. Sydney will then be secured against any casualty.
536. Would you get rid of it altogether? I think they intend to sell the land and do away with the service altogether.
537. What is the diameter of Busby's Bore? It varies. It is 2 feet in lateral width, and 4 ft. 6 in. in height generally, but it is very irregular.
538. Does it pass under several buildings in the city of Sydney? It passes under Marshall's Brewery and a few buildings behind it. It passes under part of Darlinghurst Court.
539. Then it comes through Oxford-street to the corner of Hyde Park? Yes.

540. Would it not pass under several of the buildings in Oxford-street? No. It goes straight along Oxford-street about 4 feet from the kerbstone. J. T. Jones, Esq.
541. Have you examined it? I have walked right along it several times.
542. Is it in a fair state of repair? No; but it is quite capable of being put in repair. Being composed of loose rubble without mortar, in many places the pressure has dislodged some of the stones, but they could be easily replaced if required. 28 Sept., 1888.
543. Is it intended to keep it in existence or to close it up if the Botany supply ceases? It is being utilized just now. There is a soakage in it. You may remember in the history of that tunnel that it supplied water to Sydney several years before it penetrated to the swamps. There was a soakage from Surry Hills. That stream of water is still flowing in the tunnel, and has to be got rid of. On my advice, Mr. Bennett has utilized it to scour the sewers. He has put a connection into the sewers by which the sewers can be scoured out.
544. Can it be kept for that purpose? I see no objection to that.
545. It will have to go under repair for that? No. For some time there was ground for suspicion that the water was being polluted in Riley-street, and I immediately lined it with iron pipes. That is the only dangerous part. If the masonry came in the iron pipes would take the place of the masonry.
546. Do you have many applications for water services in the suburbs of Sydney? Yes. They might be counted perhaps by the thousand streets. The applications since the Board was formed have been immensely numerous.
547. Do they come direct or from the municipalities? No; sometimes they go to the municipalities who endorse them, and send them on to the Board; but they generally come from the residents who club together and send a petition to get an extension.
548. Would not the water service be supplied to the municipality instead of to individuals? No; there is no intention to do that. The Board has refused to do that, even in the case of Liverpool and Campbell-town. The Board says it will supply the water on the same terms as to any other suburb, dispensing the water, and charging rates for it.
549. What rates are you charging now? We are now charging 6d. in £1 upon the assessed annual rentals or values of the property. The system of counting the rooms has been abandoned by the Board.
550. The property is not valued? The Board generally adopt local municipal valuations.
551. Is it a condition before you give a water service that the property is valued? Yes.
552. Then you charge them 6d. in the £? Yes. We had to adopt the valuations of the municipalities at first, owing to the hurried way in which the Board was brought together. It will hereafter be necessary for the Board to provide its own valuation, or perhaps to scrutinize the municipal valuations closely.
553. *Mr. Garrard.*] Do you charge 2½ per cent. on ⅓ of the annual value? Yes.
554. *Chairman.*] What is the nature of the arrangement between the Board and the Corporation now? With regard to water, no arrangement whatever.
555. They are using the Nepean service? Nothing else is used except Nepean water.
556. In what way is that paid for? The Corporation has nothing to do with it. The Board sends out its papers and collects the money directly.
557. Do you recollect what the city income is for water? It came to £83,000, plus the meter rate. It came to £90,000 altogether, including the meter rates; and there was a great want of certainty about it, because at the last a lot of people refused to pay when they found that it was not legal to pay the Corporation. But I had estimated last year's revenue from all sources at £90,000 13s. 6d.
558. You cannot tell what was actually received? Yes; up to the present date; but we have not received all this year's rates yet. The papers have yet to be issued for the last half-year.
559. Have you made any approximate estimates? £120,000 is what we shall receive this year altogether.
560. Is that for the city service? No; city and suburbs.
561. How far do the suburbs extend now? It takes in the whole of Waverley, Bondi, and Randwick. From Randwick to Waterloo, Alexandria, St. Peters, Marrickville, Petersham, Ashfield, Burwood, Homebush.
562. Are they all supplied? Yes; and part of North Shore.
563. Does that supply go from Waverley? No; it goes from Paddington to a portion of North Shore, and we have a small pump at North Shore to lift it to a level of 316 feet above high-water mark.
564. Does that reach the highest point of North Shore? It will give a fair service to North Shore unless we go very far inland in the direction of Lane Cove. At present North Shore is supplied by a 9-inch submarine pipe under the harbour. It is not an effective supply, being too small.
565. From your observation do you find that the consumption of water is increasing owing to the citizens having a greater supply than they had before? Yes; it is increasing per head; but the consumption is not rising so rapidly as I expected it would. I thought that the knowledge that there is an ample provision of water would have caused the consumption to rise faster than it has. I think the habit of carefulness with water has been so inculcated among the people of Sydney that they are economical by nature. They are much more economical than the same number of people in Victoria.
566. Do you regard the late drought as a protracted one? Yes; it was quite exceptional.
567. Was the rainfall considerably less than usual? It was 40 inches below last year; and it was about 29 inches below the average.
568. Do you know whether this deficient rainfall in Sydney has also prevailed in the neighbourhood of the sources from which the new supply is derived? I think so. It has influenced them very largely.
569. Have they had a similarly low rainfall? Yes.
570. Do you still keep a record of the quantity of water which passes at the Cataract? Yes; the Harbours and Rivers Department has got that.
571. Is the measurement still accurately kept? Yes; accurately and carefully kept.
572. So that you can tell in a moment the rainfall in one year as compared with another year? Yes; we can compare them very easily.
573. Have you been advised as to the number of inches of rain which have fallen this year at the head of the Cataract? No; I have not.
574. You have heard, I suppose, that the rainfall has been equally as low there as it has been in the neighbourhood of Sydney? I have found that, although the rainfall there may have been a little more than it was in Sydney, it was not very much more.

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575. There are certain rivers along the coast—George's River, and portions of the Nepean, not connected with the water supply, which would show the rainfall as well as the ordinary measurement? Yes.
576. Is the work of collecting the revenue of the water supply very great? It is. It has been very expensive so far, because the preliminaries in bringing it under a proper system were rather extensive. I have no reason to anticipate that the cost will increase as the amounts increase. The same staff will be able to collect a larger amount next year.
577. After your arrangements had been made do you think the cost will not be so great? I am sure it will not, because the books have had to be framed, and it caused considerable labour. Assessments of all sorts were made, and abstracts of other books taken which will not be necessary in future.
578. Do you know whether your Department has made any estimate of the actual net return you are getting from the outlay upon the waterworks? Yes; a very careful one.
579. What is the amount? It is under the estimate. Six pence in the pound has been found too little to pay the interest. We have now to pay interest on nearly £2,250,000; so that we have first of all to pay about £100,000 a year as interest, and we have of course to make the rates sufficient to cover the maintenance of the works, the collection of the rates, and other necessary expenses as well as the interest on outlay which is the first charge upon the revenue. It is expected that the revenue next year, under altered circumstances, will be £143,000.
580. Do you propose to increase the rates generally? Yes. Chiefly for the smaller tenements. It does not much affect the higher ones. But it affects them all round in a measure.
581. As the population increases, I presume you estimate that the works will yield a larger return? The expenses will begin to diminish. That is to say, the outlay for extensions will begin to diminish and the revenue will largely increase, so that the rate may be reduced again hereafter. But the Board seems to consider it to be its duty to pay interest on the sum expended.
582. Do you find the works, as handed over to the Water and Sewerage Board, in thorough good order? In splendid condition.
583. Does that apply to the engine power, the different reservoirs, and other works? I allude, of course, to the works handed over by the Government, and not to those handed over by the Corporation. The Corporation works were very much behind.
584. In what state is the Crown-street Reservoir? Excellent.
585. Is it a faithfully constructed work? Yes.
586. And in decent repair? It is in such good repair that although I emptied it with a view to giving it a coat of cement last year, I refrained from doing so because it was in such perfect repair.
587. Do you think that the revenue from the water supply is sufficient to justify the increased expenditure which is now asked for the reservoir at Pott's Hill, and the second line of pipes to Sydney? I am of opinion that it ought to be made sufficient at all risks. There is an objection to a large expenditure at this early stage. That is a natural objection, but I do not think the charge is too much for the revenue of a wealthy city. A house here of £100 rent does not pay as much by a long way for water as a similar house in Melbourne does, and their water supply has not cost anything like what ours has cost. Their rate is much higher than ours.
588. Are you of opinion that the proposed work is of such great value that its cost is justified? Yes; I am quite of that opinion.
589. What is the present population which you are supplying with water? We are now supplying nearly 60,000 houses. If we take five individuals for each house that will nearly always bring out the right figure. We are therefore supplying 300,000 people. Five is perhaps a little over the real number for each house, but it is over four.
590. Is that about the number you are supplying at present? About 250,000 is what we estimate we are supplying at present.
591. How many can you supply when the work is complete? We can then supply 500,000 people with liberal supplies of water, but I think that the supply will have to be liberal in future because so much use is made of it for trade purposes. I think that demands will be made for larger quantities in future.
592. *Mr. Humphery.*] Do you say that the revenue is not sufficient to pay interest on the expenditure and the costs of constructing the works? The revenue for this year is not sufficient.
593. Did you estimate the revenue for this year at £120,000? It was estimated at that amount, but it is apparent it will not realize so much.
594. Did I understand you to say that £20,000 had been received by the Corporation last year? I think that if all dues had been paid, the Corporation would have received a little under £90,000.
595. Did you estimate that you would receive £120,000 this year? Yes.
596. What did you actually receive? We cannot tell yet. The year is not yet over, but we can foresee that £105,000 will be this year's revenue. We must make next year's revenue £143,000.
597. Will not that be more than 4 per cent. on £2,250,000, after deducting all expenses? The expenses are very heavy.
598. Are they £50,000 a year? I cannot venture to say what the amount is; but I think the expenses are £40,000.
599. Is not the sum expended £2,250,000? It will be £2,500,000 at the end of this year.
600. Will you be expected to pay 4 per cent. on that? Yes.
601. That will be £100,000 a year?
602. If your income is £140,000 a year would not the difference between interest and revenue be enough to cover the expense for maintenance? All money spent on reticulation and extension goes to capital, and is not charged to maintenance.
603. Four per cent. on £2,250,000 will be £90,000 a year? Yes.
604. You will have £50,000 to cover the expense of your Department, and collecting rates. Will not that be ample? I know that we were astonished at the amount that had been expended. The expenditure was above our estimate. I would like to refer you upon this subject to our Secretary, who has made this his business. Mine has been more confined to the engineering work. I have supplied the figures. He has manipulated the amounts, and brought them out in a very concise and business-like manner. I did not anticipate that I should have to go into this question, otherwise I would have supplied myself with the necessary information.
605. Did you say that the pipes between Botany and Sydney are 30-inch pipes? 28-inch pipes practically, because there is about an inch of rust inside of them.
- 606.

606. What quantity of water could be conveyed by those pipes? It depends upon the pump. We have lifted as much as 6,000,000 gallons per day, working day and night.

607. Would the duplicate lines of pipes from Potts' Hill convey three times that quantity? Yes.

608. So that the Botany supply, even as an auxiliary to the present 48-inch pipe supply, would not be nearly as useful as the proposed second line of pipes? No. It would not be a satisfactory substitute at all. A question was put to Mr. Hickson, or Colonel Rowe, last night, as to whether, if more powerful machinery were put at Botany it would not be a good substitute for the proposed works at Potts' Hill. The only objection to that is, that the pipe is not large enough for heavy powerful machinery to drive water at what is accepted as the velocity that it will travel through pipes. 4 to 5 feet per second is the greatest velocity allowed or recommended by engineers in such pipes, and that pipe is not sufficient. It would not provide a sufficient quantity for Sydney at that velocity.

609. *Mr. Copeland.*] What number of tons of pipes would be required for this second line from Potts' Hill? There are 3,300 pipes 12 feet long. I think £90,000 is the statement of the cost made to me by the Public Works Department.

610. What I want to know is the weight? 11,000 tons. I am trusting to my memory in making that statement.

611. What is the length of piping required? 10 miles.

612. What is the diameter? They are to be 4 feet in diameter.

613. What is the length of each pipe? 12 feet long, as laid in the ground without including the socket.

614. What is the thickness of the iron? $1\frac{1}{2}$ inches.

615. Can you say positively what is the total weight of the pipes? $3\frac{1}{2}$ tons each.

616. Can you say whether it would be possible to get these pipes manufactured in the Colony? Certainly it would be possible.

617. Do you know whether it is the intention of the Department to call for tenders for them in the Colony? I think it is the intention to leave it open for all the world.

618. They could be manufactured in the Colony? I have no doubt of it. Of course they would be very much more expensive.

619. Are they cast-iron? Yes. Some pipes of a similar character have lately been made for the Sewerage Department by a little firm in Darlington. They are of excellent quality, and made as well as any pipes I ever saw. They are of the same diameter, I think.

620. In all probability if tenders were called for by the Department they would be responded to by manufacturers in the Colony? I hope so. I fancy of course that they would try for it.

621. Did you state that the rate the Board proposed to charge for this year was 6d. in the £ on the annual value of the property? Yes; on the annual value, less the usual 10 per cent. for outgoings.

622. You do not propose to charge according to the number of rooms? No; that is abandoned.

623. What is the charge in Melbourne? 8d. in the £ on the annual value, less outgoings.

624. And you propose to charge 6d. in the £? We propose to increase it to 8d. next year. We are bound to do so in order to produce the revenue necessary to carry on.

625. Do you think that if the rate is increased to 8d. in the £ the works will pay? It will just pay all expenses. The Board never wish to have any balance over if they can so adjust it.

626. Can you state whether any new settlement is taking place on any portion of the water-shed or catchment area of the Prospect Dam? No; I am not aware of any. Several applications have been made for mining sites; but they have been answered, I believe, to the effect that it is entirely illegal. That would be high up at the head of the Cataract River.

627. Do you know whether the land has been reserved for the water supply? Yes; so far that they are proclaimed as reserves; but I think there is another formality to go through.

628. Is there any action being taken to beautify or adorn the lands in the vicinity of these large sheets of water? There are no large sheets of water. There is only the natural river. At the Pheasant's Nest there is a small 10-foot dam thrown across it, and the sheet of water is not much larger than twice the size of this room.

629. What is the superficial area of the Prospect Dam? I do not know the acreage. I think it is 2,000 acres.

630. Is not that a large sheet of water? Yes; an enormous sheet of water. I did not know that you alluded to that. I thought you alluded to the catchment area.

631. Has any action been taken to plant ornamental trees there? Nothing.

632. Do the Board propose to take any action in that direction? I do not know. It may be the Board's intention to do so; but at present they have hardly had time to consider it. I may say that there have been general discussions as to the necessity for doing away with the shallow water on the immediate foreshore, as it causes disturbance to the soil.

633. Is it not the custom in other Colonies and countries to beautify these places? That is the case with small places, but I do not remember any large sheet of water being decorated. There is not the slightest objection to it.

634. Is not that done at Ballarat? Yes; the Gong Gong Reservoir is planted and decorated.

635. Has not something been done at the Yan Yean? Not in my time.

636. Do you think it would be objectionable to have fish in the Prospect Dam? No; I think it would be rather a good thing.

637. I suppose you are aware that they have perch, carp, and other fish in other large reservoirs? Yes.

638. Do you think it would be at all injurious? No. Quite the contrary.

639. Would it be rather beneficial to the water? I have always believed that it would keep the water fresher.

640. Would it not be desirable to have a large public sheet of water like that stocked with fish, and made a place of resort for picnic parties and that sort of thing? With restrictions, I certainly think that would be desirable.

641. Would it be a difficult thing to get from the railway to the Prospect Dam? There is about 3 miles of very level land to travel from one of the stations. It is quite accessible as far as the 3 miles are concerned. It is only about 6 miles from Parramatta.

642. Do you know whether tenders have been called for those pipes? None have been called for yet.

643. *Mr. Watson.*] Do you use any meters now? Yes. A large number. There are over 2,000 in use altogether.

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644. You do not always charge by valuation? No. The valuation is always the minimum charge upon any premises. It is a sort of rate upon the house. You can have a meter for your private house at your own option, and if your meter should exceed what we call the water rate you would have to pay the excess.
645. What do you charge per thousand in that case? 1s. 6d. per 1,000 gallons.
646. Was it originally the intention of the Board to have a sliding scale? It has a sliding scale.
647. What is it? It begins with 6d. in the £ this year. That is for all properties up to £300 a year. Then it drops down to 4d. in the £ for the difference between that and any other amount up to about £3,000. Then I think it is 3d. in the £.
648. Supposing any gentleman had a property valued at £500 a year, would he have to pay only 4d. in the £? After the first £300 it would be 4d. in the £; but for the first £300 he would have to pay 6d. in the £. You might have a valuable house paying less than houses of small value if a sliding scale were not adopted.
649. Have you ascertained whether the room system would produce more revenue than the valuation system? I have not had the means of determining it actually; but it makes a wonderful difference in small houses. In some houses in town where the rates were about 7s. a year under the old system, they have suddenly jumped up to £30 and £40 under the new system.
650. You do not use a meter for every house? No.
651. How do you select them? We do not select them. If people use any water over and above the domestic supply they are forced to have a meter. They may require water for an engine, for a garden, or for any purpose other than domestic purposes, then a meter is enforced, and we ascertain how much is used.
652. Did you not mention, in reply to Mr. Copeland, that if the water pipes were manufactured in the Colony they would cost much more than imported ones? Yes. That has been my experience in Melbourne and here.
653. How much more would they cost? The last contract in Melbourne was £8 3s. 6d. per ton, and we can buy the best pipes for £6 10s.
654. The colonial pipes would cost 25 per cent. more? Yes.
655. What is the freight on those pipes? We got them delivered in our own yard at £6 10s. per ton free from blemish. Finding it very difficult to manage the receipt of the pipes from the ships I got the City Council to enter into contracts for delivering the pipes actually in our yard. That has been found very satisfactory, and much cheaper than the other way.
656. Mr. Kethel.] How did you arrive at the charge of 3s. 6d. per room on all properties connected with the water supply last year? How did you arrive at the consumption per room? They were not limited to any consumption. They got as much water as they liked; 3s. 6d. per room was a guess quantity. It was 5s. per room at first, but it was found that that charge produced a surplus. Then it was reduced to 4s., and afterwards to 3s. 6d. It was a matter of experiment.
657. Then we understand you have based the charges for water supply not on what the people do use, but on what the exigency of your business requires? Yes; that is the case.
658. You are supplying I think 10,000,000 gallons per day to the city and suburbs? Yes.
659. If you sold all the water at the rate you now charge by meter, that is 1s. 6d. per thousand gallons, what revenue would that bring in? £273,750.
660. And your revenue for the present year you estimate will only be a little over £100,000? Yes.
661. How do you account for the immense waste shown in the difference between those figures? What becomes of the water not paid for? It is always considered by engineers dispensing water that the water is for the convenience of everybody, and should not be limited in any way for domestic purposes; but when it is used for other purposes it is expected that it should be paid for *pro rata*.
662. Have you any idea what becomes of the water that is not paid for. Is it used legitimately? It generally goes for bathing. You may say that everyone who uses a bath uses 60 gallons every morning.
663. Is water supplied by the Board for any other purpose which does not return a revenue? Only for charitable institutions, watering streets, and flushing sewers.
664. Are you aware that there is a large daily consumption of the water by the Municipal Council of Sydney? Yes; that is the case. The City Council is using a large quantity of salt water, but they flush the sewers with fresh water.
665. Have you no power to charge them for that? No.
666. On the ground that the use of the water is conducive to public health? Yes.
667. I understand that the present pumping engines at Crown-street are condemned as being unfit for the heavy strain that will be put upon them? Yes.
668. What steps have you taken to supply others in their place? We have ordered from England a 300-horse power Worthington direct acting engine of the very newest type and the most economical in working.
669. I believe you cabled for that? Yes.
670. Was the necessity for that engine so extremely urgent as to require the cable to be used? Yes, it was an extremely urgent case. The engines at Crown-street are now cracked in both cranks, and they are in imminent danger of giving way altogether, in which case we could supply the Paddington Reservoir by means of the old Botany pumps, but not to the extent of the consumption. The smaller pumps, which I took you to see in the small room, are themselves nearly rotten, and I am amazed to see them doing such heavy work as they now do. This new engine will replace them, but we do not mean to immediately do away with them; we shall keep them for emergencies until still another engine is imported of this new type.
671. I understand that there are a number of other engineers in various parts of the world who construct engines of very great excellence for pumping water? Yes, but nothing like the excellence of the Worthington engines.
672. What are their essential points of excellence which influenced yourself and the Board's advisers to order this special type of engine? First of all, there is what is called the direct-acting engines for pumping. It was seen that it was not absolutely necessary to have fly-wheels for them as for other engines, because the exact action of the pump is merely reciprocal, running backwards and forwards. The action was so simple that it was seen that all that was necessary was to put the piston at one end, and the pump plunger at the other end. This was carried out, and it was found to cheapen pumping very much

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much. However, while it was economical in the original cost of the pump it was expensive in the consumption of coal. Moreover, they thumped against the end of the caps of the cylinders at every stroke in a way that endangered their safety, and they made a great noise, which rendered them unfit for working in a populous neighbourhood.

673. What type of engines have you? Direct-acting, similar to those made by Worthington, Black, Tangye, and several others, whose names I have forgotten. There are a great many firms who make direct-acting engines. They began to adopt Worthington's plan of making them silent in working by having the duplex system. Shortly afterwards Worthington invented what is called compensating cylinders. By these means the efficiency of the pump has been greatly improved, and they have made the pump do the same work with half the former quantity of coal.

674. Do you know that there is great dissatisfaction among engineering experts in consequence of the Board cabling home for the engine, and that it is boldly asserted that other engines could have been cheaply purchased here quite equal to the one to be imported? The only engine that has pretensions to equal it in efficiency is the latest produced by Hathorne & Davey, and that will not come up to the Worthington in cheapness or efficiency. Moreover, they have not yet got that pump ready. They only invented it a short time since.

675. Was it under your direction that pumping engines were last year, or the year before, placed at Marrickville or some of the south-western suburbs? Yes; in 1886.

676. Were they manufactured in a remarkably short space of time by a Sydney firm? No; they were bought from Tangye's shop ready made. There was an engine placed at Botany; but it was already made in California. Mr. Selge brought it out.

677. What portion of the work did the Atlas Company perform in connection with that? I do not know. They never told me.

678. Would it not be worth while to ascertain if a colonial firm could have done that work and supply you with it as soon as you could get it by cabling to England? They could not give us such an efficient pump. They could have made a pump to answer an emergency. I wanted to get an engine on the efficiency of which I could depend to do the work, no matter who made it.

679. Were you consulted as to the type of engine and pump? Yes; and I strongly recommended the one now coming. That is the Worthington pump and engine. I did so after very close scrutiny and careful deliberation with Mr. Darley and several other gentlemen whose opinions I value very highly.

680. What provision has been made in connection with the Prospect Reservoir to prevent vegetation growing into the water so as to partially pollute the water? Nothing whatever.

681. Is it intended to allow the rank vegetation that grows on the banks of creeks and dams to grow right into the water? I think it is very doubtful as to whether it is not beneficial.

682. Do you not think it would be desirable to clear away the trees? Yes; the trees by all means, but I think that the growth in the water itself tends to absorb impurities. Water which was unfit for consumption at one dam was pronounced by the city analyst to be fit to be placed in the reservoir after flowing through grass and vegetation for a distance of 3 to 5 chains.

683. At what rate do you think that consumption of water is increasing and will increase when the proposed reticulation is completed? I think that 30,000,000 gallons per day will be used in hot weather.

684. What was the average daily consumption of Sydney when you first took charge of the water system? 5,000,000 gallons, almost exactly. Then came the dry year of 1881, and the supply falling short, I looked to see where it was going. I discovered that it was being wasted, and I brought down the consumption to 3,500,000 gallons per day. It remained at that for a year and a half. Then it began to rise, owing to the extensions in the suburbs. But I made great savings. It was very lavishly used in Sydney.

685. What was the amount of water which the Hudson Bros. were bound to deliver per day? 3,500,000 gallons.

686. Was it estimated that that would be sufficient to meet the immediate requirements of Sydney? Yes.

687. That was to supplement the Botany supply? Yes. It was a great blessing to Sydney, because the water got very scarce.

688. Is it your opinion that this duplicate pipe line which we are now considering in connection with the excavation and completion of the reservoir at Potts' Hill will be ample; or do you think it would be wise within the next few years to initiate a scheme such as was suggested some time ago to supply the city with water from Kenny Hill? I think there will be plenty of water for years. The merit of the Prospect scheme for quantity is almost unrivalled. It will last us for many years, and it will give us ample time to consider the necessity for further extension. I have no doubt that when the city grows to the size of New York the future will demand such an addition, and the Kenny Hill site will be looked at and examined carefully as to whether it will not be a good supplementary scheme, and I have reason to believe that it will be.

689. I believe the present catchment area is identical with that proposed for the Kenny Hill scheme. Would there be a sufficient additional supply of water to enable you to design and carry out that scheme? Plenty, without any detriment to the supply. It would be filled during flood time from the superfluity of water.

690. Would such a scheme be preferable to that suggested a year or two ago, to place powerful pumping engines some short distance beyond Penrith, where there is a long stretch of water of the Nepean? I thought there were several farms in that vicinity, which would make it objectionable. I do not know that country very well.

691. *Mr. Sydney Smith.*] Is there any objection to the Penrith scheme other than pollution? I have not sufficiently examined that to know exactly what quantity could be obtained. Moreover, I have not formed any estimate of the cost of the line of pipes, and the pumping. I am not in a position to answer.

692. What is the pumping capacity of the new engine for Crown-st.? 5,000,000 gallons in ten hours. The large bulk of the water is used during ten hours of the day. At night it falls off; so that the engine is obliged to work at more than double rate to meet the consumption.

693. Did you give great consideration to the Kenny Hill Scheme? Yes; but I never had an opportunity of surveying the ground, nor had time to make an examination of it. When I first came here, having been always used to gravitation schemes, I was enthusiastically in favour of gravitation schemes; but I no sooner examined the present Nepean scheme, than I was obliged to admit its fitness for the supply; and, therefore

J. T. Jones,
Esq.
28 Sept., 1888.

therefore, it weakened my advocacy of the Kenny Hill scheme. Although I was a great admirer of the present scheme, at the same time I regretted that it did not deliver the water at a higher point in the city.

694. Have you given any consideration to any other scheme? Mr. Manning's scheme drew my attention for some time, but it would not answer on account of the smallness of the catchment. I never gave much favour to that scheme.

695. With regard to the quantity now flowing out of the Prospect Reservoir, I understand that it is capable of delivering 16,000,000 gallons? From Prospect we can get 50,000,000 gallons.

696. I mean from the Potts' Hill Reservoir with the present line of pipes? 17,000,000 gallons.

697. How many gallons come into Sydney at present? 10,000,000 per day.

698. Have you ever gone into any estimate as to the total number of houses that will be supplied by the Sydney water supply when you have all your pipes laid down? No. I have not gone into any careful estimate of that, but I should judge that we should then have to supply 20,000,000 gallons per day.

699. There is a large number of people not supplied at present, and when you have made provision for supplying those houses with water, can you inform us what estimated quantity of water will be required for that purpose? I estimate that 30,000,000 gallons of water will not be too much for us six years hence on a hot day. I fancy that when we have spread the water over the suburbs, the effect will be very much the same as it was in Melbourne. A large quantity will be used for gardens. Then the climate is warmer here, and it induces people to bathe more than in Melbourne. People indulge in plunge bathing for a longer period of the year than they do in Melbourne. Here and in Melbourne, when the cold weather sets in, there is a tremendous difference in the amount of plunge bathing. In Sydney there are more warm days during which plunge bathing is enjoyable than in Melbourne. Therefore I think that Sydney people will eventually be very large consumers of water. I think 30,000,000 gallons per day will be required in six years.

700. How many million gallons can you deliver at Potts' Hill by the present line of pipes? The 6-foot pipe that comes into Potts' Hill is estimated to give 50,000,000 gallons.

701. And this additional pipe to Potts' Hill? It will deliver 18,000,000 gallons per day at Crown-street.

702. So that in six years time you will require all the water delivered into Sydney by the two lines of pipes? Not quite. Melbourne has exceeded 30,000,000 gallons per day on hot days.

703. To how many houses is the water supplied in Melbourne? I am not quite sure, but I think 60,000 houses are supplied. They had that some time ago.

704. Can you inform the Committee how many houses are supplied now and how many are likely to be supplied as soon as you have laid all the pipes required at present? 70,000 in round numbers. I anticipate that it will be required for half as much again.

705. 60,000 houses are now supplied with water by the Prospect scheme? Yes.

706. How many do you estimate have yet to be supplied? I fancy that 20,000 more houses will be placed under reticulation.

707. So that if the people in this Colony use the same quantity of water as the people of Melbourne, and we have 60,000 houses supplied, we shall require more than 30,000,000 gallons per day? Yes.

708. How long will it take you to complete the line of pipes and supply all the houses? I hope to be practically finished with the reticulation at the end of next year.

709. So that at the end of next year you will be supplying 70,000 houses? Yes; I estimate that, but I am not quite sure. Although I think it will be under that, I am preparing for it.

710. You think the number will be over 50,000? Yes; I am certain it will be, it is 60,000 now.

711. That is over the number actually supplied in Melbourne? On reflection I think I have understated the Melbourne numbers.

712. Taking the same proportion for consumption, you will require over 30,000,000 gallons per day at the end of next year? In Melbourne there is a difference. They have extended their water supply to places where we would hardly consider it justifiable to do so. They have supplied it to remote country farms where there is no houses for miles; and they use large quantities for irrigation and fruit-growing.

713. Is there any reason why we should not use water here for that purpose? No. I think it is well to contemplate that purpose as desirable.

714. Is it a good thing to encourage? Yes.

715. Is there any reason why we should not use the same quantity as in Melbourne, if we put the water to the same good purpose? I have every reason to believe that we will exceed the consumption of Melbourne.

716. I understand that they charge 8d. in the £1 for the water? Yes.

717. Do you know their total revenue? No.

718. Have you given any consideration to the supply of water by meter? Yes.

719. What is your opinion with respect to it? I am of opinion that it would be the best system, except for one strong objection. That is, the cost of the meters. A meter fixed in position costs between £5 and £6. When you remember that there will be 50,000 houses to be supplied you will see at once that meters would cost a very large sum of money, and in the future the number will be largely increased. Such a system would entail the purchase of large quantities of meters and the maintenance of a large staff to keep them in order. The whole cost of such a system would add so much to the necessities of the revenue that it quite discouraged the Board from entering upon the question. In order to enforce the use of the meters everywhere the Board would have to buy them and rent them out, because there are people so poor that they could not afford to pay £5 or £6 in the first instance. Therefore the only solution would be that the meters should be rented. That would necessitate the Board's being responsible for their being good perfect meters, and it would entail the Board's taking charge of them, and keeping them in good repair. All this was found to be so expensive that it would increase the water rate by a very large amount. It is found to be better policy as long as we can to give as much water as people require, and only to use meters when forced to do so. In Europe they use meters universally. In France, Germany, and Switzerland every water supply fixes a meter like gas companies. But then their supply is very limited. They have no such supplies as English communities have.

720. Have you ever made any estimate of the quantity of water used per house, taking the average number of houses, irrespective of factories and such like? I have not separated the amount as far as water is concerned. I have as far as money is concerned.

721. Do you charge 1s. 6d. per 1,000 gallons by meter? Yes.

722. Then I understand that at the end of next year you will be using 30,000,000 gallons per day? No.
723. That is if the same proportion of water is used here as in Melbourne? No; the consumption will not rise so suddenly. It is only as people get used to it that the consumption rises. I only anticipate such a consumption at the end of five or six years.
724. What quantity do you estimate will be required next year? I do not suppose the consumption will rise to more than 18,000,000 gallons.
725. What would be the revenue from that at 1s. 6d. per 1,000 gallons? It would amount to £328,500. It will not be sold at that price.
726. So that at the present rate when you charge per meter you would receive £325,500 per annum? Yes.
727. On what amount have you to pay interest? About £2,250,000 at the end of August.
728. At 4 per cent. that would be £90,000.—How much do you reckon for working expenses? £60,000 for last year.
729. That is £150,000 per annum? Yes; but I am only speaking from memory. I have reason to doubt whether this figure is quite correct on reflection.

J. T. Jones,
Esq.
28 Sept., 1883.

THURSDAY, 4 OCTOBER, 1888.

Present:—

JOSEPH PALMER ABBOTT, Esq. (VICE-CHAIRMAN).

The Hon. GEORGE CAMPBELL.

The Hon. WILLIAM HENRY SUTTON.

The Hon. JAMES WATSON.

The Hon. FREDERICK THOMAS HUMPHERY.

ALEXANDER KETHEL Esq.

JOHN RENDELL STREET, Esq.

JACOB GARRARD, Esq.

SYDNEY SMITH, Esq.

The Committee proceeded to further consider the proposed Storage Reservoir at Potts' Hill, and the laying of a Second Line of Pipes from Potts' Hill to Crown-street.

Joseph Barling, Esq., Under Secretary for Public Works, sworn, and further examined:—

730. *Vice-Chairman.*] It appears that a portion of this contract has been let for the construction of a storage reservoir at Potts' Hill? Yes.
731. Can you give the Committee that contract, or the particulars of it? Yes.
732. How far has the contract been let for the construction of this storage reservoir? Simply for the excavation, at present. There is a lot of other work, such as pitching, to be done. £49,763 14s. is the estimated amount of the contract now let, and the work now being done by the unemployed will bring it up to about £55,000. That is principally for excavation and forming the bank. The work we are now asking the Committee to sanction is the pitching.
733. Then a portion of the work for the construction of the reservoir has been let? Yes; actually let.
734. *Mr. Garrard.*] Has the contract been let since this Committee came into existence? The contract was approved by the Secretary for Public Works on the 13th June.
735. *Vice-Chairman.*] Is not the contract dated the 27th July? Yes; but the Minister's approval of the acceptance of the contract is dated 13th June.
736. *Mr. Garrard.*] What was the date of the passing of the Act, which constitutes this Committee? The 5th of June; but I may be permitted to point out that the 13th clause provides that it is after the first gazetting of the Parliamentary Committee that the works come under the consideration of this Committee.

J. Barling,
Esq.

4 Oct., 1887.

Reginald Bloxsome, Esq., Secretary of the Water and Sewerage Board, sworn, and examined:—

737. *Vice-Chairman.*] Are you the Secretary of the Water and Sewerage Board? Yes.
738. *Mr. Sydney Smith.*] Have you any information to supply to the Committee with reference to the Potts' Hill Reservoir and the second line of pipes to Sydney? I take it that any information with regard to that is partly an engineering question. The information I was asked to bring here was more with reference to the financial business of the Board, and statistics with regard to the population and reticulation of Sydney, and the revenue and expenditure.
739. Have you any information to give with regard to the revenue now derived, or likely to be derived, by the Board, from the water supply? Under the Corporation rating the revenue from water for domestic purposes, and by meter, was nearly £80,000 a year. The present rating by the Board will bring it up next year to £116,000, which we find is a great deal too small.
740. What amount do you think is necessary? Nothing less than £150,000 a year.
741. Do you know if the Board has power to assess a sufficient rate to obtain that revenue? Yes.
742. Is it their intention to assess it at a higher rate? It is not their present intention to assess it at a rate that will bring in that amount, but they intend to raise the rate they have already struck next year.
743. To enable them to get a larger amount to pay interest and working expenses? Not to pay the whole just yet.
744. How far do they propose to go in that direction? To about £130,000. We hope to get that by raising the rate 2d. in the £.
745. Can you tell us what is the interest payable on the outlay? Yes; the amount spent on the Nepean water scheme up to the 25th May last, with interest added, was £2,500,000. That, at 4 per cent., is £100,000 a year. Then there is the interest on £85,000 of debentures which were taken over by the Government from the City Corporation. That is £4,300 a year. That makes £104,300. Then there is one debenture of £5,000 falling due next year. The general expenses of the Board are £32,000 a year. The debenture of £5,000 forms part of the £85,000 I have referred to.
746. The whole interest will be £104,300, including the debenture falling due next year? Yes. Then there is provision to be made for the mains already laid underground. Their present value is £241,500. The average life of these mains from the present moment will be about thirty years. That will involve the payment of £14,000 a year for interest and sinking fund, bringing up the total to £150,300 to be provided.

R. Bloxsome,
Esq.

4 Oct., 1887.

R. Bloxsome, Esq.
4 Oct., 1888. provided yearly. There is still to be added to that—which I have not got—the amount spent by the Government on the Nepean scheme since May last, and whatever it will be up to 31st December this year, with interest added, and the interest also on £2,500,000 for nine months, which will be £75,000. That will be added on to the capital account.

747. Have you any idea what is the population you supply? About 275,000 is the population which the reticulation serves at present.

748. Are you actually serving that number? Yes; the calculation usually is $4\frac{1}{2}$ or 5 persons to a house, and we supply over 61,000 houses. That will give about 275,000 persons.

749. What does that take in? The city and suburbs.

750. How far out in the suburbs? It goes right beyond Strathfield. But there are heaps of places in between which are not reticulated.

751. A large number of people are not yet supplied? Yes.

752. *Mr. Garrard.*] But the mains are in to supply this large number not now supplied? Yes; most of the trunk mains are.

753. *Mr. Sydney Smith.*] Have you any idea what is the population which is not now supplied, and which will have to be supplied? I cannot say; they are so scattered, and it would be hardly fair to take the population of the city and suburbs and simply subtract the number we are now supplying. I do not know where the limits would be.

754. Still there is a very large population yet to be supplied? Yes; I suppose that the population of the city and suburbs is between 400,000 and 500,000; but I do not know what it is.

755. Have you taken into your calculation of the expenditure of the Board the cost of this storage reservoir at Potts' Hill and the second pipe to Sydney? No.

756. That will require an additional expenditure of 4 per cent? Yes.

757. Roughly stated, the cost will be something like £300,000, so that you will have to pay interest on that at 4 per cent., amounting to an additional £12,000 a year? Yes.

758. *Vice-Chairman.*] You have not to pay interest until the work is completed? No; we have nothing to do with the works until they are completed and handed over to us, and then we have to deal with them.

759. *Mr. Watson.*] But will not the accrued interest be added to the capital when you take over the works? Exactly. The present rating in Sydney I believe is one of the cheapest rates in the world for water supply. It is infinitely cheaper than in Melbourne or Adelaide. The Glasgow waterworks are the nearest approach to ours, as I believe has been already stated before this Committee. They commenced with a rate of 1s. 4d. in the £. After about fifteen years they gradually let the rate down to 8d. in the £. But it is a rate of 8d. right through, with no sliding scale such as we have here and in Melbourne. Therefore they get an enormous revenue. Although their reticulation has been finished for some time, their expenses are £36,000 a year, and they are only expending about £18,000 on extensions—a mere bagatelle. Our Board is expending over £120,000 a year in extensions, and their yearly expenses, I am happy to say, are only £32,000 a year, which sum will be still less when the control of the sewerage is handed over to the Board, because then very many of the salaries and expenses now debited solely to the water, will be divided between the water and sewerage accounts.

760. *Mr. Sydney Smith.*] What rate do you propose for next year? 8d. in the £1, with a sliding scale, so as to assimilate it as nearly as possible to Melbourne.

761. What rate have you been charging? 6d. in the £ for this six months, with a sliding scale.

762. What is the highest rate you can charge? We cannot charge more than 5 per cent. on the municipal rate. The municipal rate is 1s. in the £ right through, without a sliding scale, and 1s. in the £ would easily pay all that is required.

763. *Mr. Watson.*] What is your sliding scale? 6d. up to a valuation of £300; 5d. between £300 and £700; 4d. between £700 and £1,000. 3d. between £1,000 and £4,000, and 2d. beyond that. It graduates too much. Melbourne has not such a series of gradations.

764. What system do you adopt with regard to meters;—do you put them into every house, or merely where they are applied for? Only where they are applied for for domestic purposes; but everyone is obliged to have a meter who uses the water for any purpose other than domestic purposes, such as for stables or gardens.

765. Does all the water pass through the meter, or does the water go direct to the house for domestic purposes without passing through the meter? Not necessarily. If a man chooses he may have a meter on for the whole of his premises as well as for a stable and garden. But he must have a meter on for his stable and garden.

766. *Vice-Chairman.*] *Mr. Jones* stated that if a meter was on you would still charge the minimum rate, whether the meter indicated that that quantity of water was taken or not; and that anything beyond that would be charged for at water rate—is that the case? Yes.

767. *Mr. Watson.*] Supposing a certain quantity was used for the house, and there was not so much used as the house was taxed for, and a certain quantity passed through the meter for all purposes, would you charge for all the water that passed through the meter? If a person has a meter on for the house, the minimum amount he pays is the assessed annual rate. Supposing the water he consumes does not equal that the amount is all right. He does not get a refund. But if he consumes more than his assessed rate would pay for, he has to pay at the rate of 1s. 6d. per 1,000 gallons.

768. But if one pipe goes direct into the house and another pipe passes through the meter, you cannot arrive at that? He would have to pay the assessed rate for the house besides what he would have to pay for the water that went through his meter.

Robert Hickson, Esq., M.I.C.E., Acting Engineer-in-Chief for Harbours and Rivers, sworn, and further examined:—

R. Hickson, Esq., M.I.C.E.
4 Oct., 1888. 769. *Mr. Sydney Smith.*] I understand that 50,000,000 gallons of water per day empty into Potts' Hill by the pipe leading to that place from the Prospect Reservoir? Yes. It is capable of delivering 50,000,000 gallons per day.

770. How many million gallons per day can you deliver into Sydney when this additional pipe is laid? About 34,000,000 gallons.

771. So that you will be able to deliver 16,000,000 gallons per day more than you can send away to Sydney when you have the two pipes laid? Yes. But there are two other pipes to be put in; one to North Shore and the other to the Southern suburbs, so that the capacity of those four pipes will be 39,000,000 gallons.

772. *Mr. Garrard.*] What will be the capacity of the two pipes north and south, irrespective of the pipes to Sydney? 5,000,000 gallons.
773. What will be the total quantity taken away from Potts' Hill when all the pipes are connected? 39,000,000 gallons.
774. *Mr. Sydney Smith.*] Is that the full quantity which can be taken away? Yes. Then we have each morning stored in the reservoir about 10,000,000 gallons.
775. How long will it take to deliver those 10,000,000 gallons? Supposing we empty the reservoir in the daytime, it will fill up at night, so that we shall start each morning with the reservoir full.
776. But you cannot distribute 50,000,000 gallons with those pipes? No; 39,000,000 gallons.
777. You are only capable of taking 50,000,000 gallons from Prospect? Yes. We can take 39,000,000 gallons down, and we start each morning with 10,000,000 gallons.
778. But the capacity of the pipes is only 39,000,000 gallons? At night the reservoir will fill up.
779. According to the evidence, we can bring in 50,000,000 gallons per day from the Prospect Reservoir to Potts' Hill, but we can only take away 39,000,000 gallons with all those pipes? We can only take 39,000,000 gallons through the pipes.
780. *Mr. Garrard.*] Is it intended to draw away any water from the 6-foot main to supply any intervening places between Prospect Reservoir and Potts' Hill? Not that I am aware of at the present time.
781. Is it possible to do so? Yes, it is possible.
782. You will have 39,000,000 gallons coming to Sydney; therefore, if the 6-foot pipe carries 50,000,000 gallons you will have a surplus of 11,000,000 gallons to distribute between Potts' Hill and Prospect Reservoir? Yes; without lessening the quantity going down to Sydney.
783. *Mr. Sydney Smith.*] Has any proposal been submitted to the Government with regard to taking any water between Potts' Hill and the Prospect Reservoir? No; I only know of one, and that is to supply Campbelltown.
784. What quantity do you think they would require? Nothing has come before me on the subject.
785. *Mr. Garrard.*] Is it not proposed to supply Granville from the 6-foot main? I have not heard of it.
786. *Mr. Sydney Smith.*] Are you aware of the quantity that will be required at the end of next year for the supply of Sydney and suburbs? No; I have made no calculation. The Water and Sewerage Board have done that.
787. What sized pipe would be required to convey the additional quantity of 11,000,000 gallons per day into Sydney? It would require as nearly as possible a 5-foot pipe.
788. What would be the cost of such a pipe alone, as I presume there would be very little difference in the cost of laying it? It would cost £240,000 as against £165,000.
789. What extra quantity of water would that take into Sydney? 13,000,000 gallons.
790. How much does your present single pipe take down? 17,000,000 gallons per day.
791. How much would a 5-foot pipe take down? 30,000,000 gallons per day.
792. Nearly double the quantity; and at what additional cost? £75,000.
793. Do you think it would be wise to put down a 5-foot pipe? I think that 39,000,000 gallons per day is enough to meet all demands for a great number of years.
794. If we have it in evidence that when the two pipes now proposed are put down they will only be sufficient to supply Sydney with water for six years, do you think it would be advisable to put down a pipe of larger capacity? I think it would if the supply will only be sufficient for six years; but I would be very much surprised if that is correct.
795. If we have reliable evidence to that effect would it not be advisable to increase the capacity of the pipe to a size sufficient to carry the full quantity of water now coming into Potts' Hill? I think it would, presuming that the statement as to six years is correct.
796. *Mr. Kethel.*] Have you ever estimated the number of gallons per head of population which is required to be provided in constructing a water supply? It is usual to provide for from 30 to 40 gallons per head per day. A great deal depends upon the circumstances. If it is for a town where there are likely to be many manufactories you would require to supply more. In country towns it would be less.
797. Are you aware of the quantity per head supplied in the city of Melbourne, including factories and everything? Yes. Last year the quantity was $47\frac{1}{2}$ gallons per head per day.
798. At the same rate of consumption have you ever calculated the quantity to be supplied to the population of Sydney and suburbs when the duplicate pipe is laid and in full work? No. I do not know what is the population of Sydney.
799. We have 400,000 people in Melbourne supplied with $47\frac{1}{2}$ gallons per head per day. Sydney and its suburbs being hotter and more dusty let us allow 50 gallons per head per day. If you deliver 40,000,000 gallons per day will not that supply a population of 800,000? Yes.
800. I believe the population of Sydney and suburbs from here to Parramatta is about 400,000? I have heard that it is.
801. With the supply available for Sydney and its suburbs when the proposed duplication of the pipe is completed, and the two accessory pipes for the northern and southern suburbs are completed, will you be able to supply a population of 800,000 with an average consumption of 50 gallons per head per day? Yes.
802. Under these circumstances, is it your opinion as an engineer that it is desirable to increase the delivering capacity of the pipes beyond what is now proposed? I do not think it is necessary to increase it.
803. Have you ever calculated or ascertained from experience the probable duration of these pipes in service from the time they are laid down until it is necessary to remove or replace them? It is not known. I have known an engineer to estimate the life of cast-iron pipes at 350 years.
804. In a serviceable condition? Yes. But that, of course, simply means that it is not on record.
805. I suppose a great deal depends on the nature of the water that flows through the pipes, and the mineral and vegetable substances held in suspension? I can only say that in my own experience I never knew a pipe that required to be taken up through being worn out.
806. Is it never choked up? Not in my experience.
807. In the event of this Committee recommending the substitution of a 5-foot pipe for a 4-foot pipe would

R. Hickson, would the capacity of that pipe be very much greater? Yes; 30,000,000 gallons as compared with Esq. M.I.C.E. 17,000,000 gallons.

4 Oct., 1888. 808. Does the volume of water passing through a large pipe flow much faster because there is a smaller portion of it coming into contact with the pipe? There is less friction.

809. Therefore the larger the pipe the greater would be the flow of water? Yes.

810. Mr. Garrard.] What is the size of the pipe you propose to use for North Shore? 24 inches; and the same for the southern suburbs.

811. Is there any provision, such as valves, for supplying suburbs between Potts' Hill and Prospect Reservoir? There are scour valves which could be used, but they were only placed there as scour valves. I do not know of any valves put in for the purposes of supply.

812. Supposing a request were made by Rookwood, or any other suburb in that locality, to be supplied with water, would you supply them from the 6-foot pipe, or direct from the canal? I should think that for Rookwood the supply would be taken from the 24-inch pipe.

813. That is the North Shore pipe? Yes. It would not be taken from the 6-foot pipe.

814. What about Auburn or Granville? I do not know enough about the geography of those places to be able to say.

815. At present, we understand, you have 11,000,000 gallons of a surplus over and above what the four lines of pipes will take away from Potts' Hill, which can be used for intervening places? Yes.

816. I suppose the life of these cast-iron pipes depends upon their outside covering as much as upon the quality of the water flowing through them;—is there not as much oxydisation outside as inside? No. It mainly depends upon the quality of the water going through. There is very seldom any oxydisation on the outside if there is a proper covering.

817. Have you had much experience in taking up old pipes? No. I have seen some taken up, but they were not down many years.

818. Is there any means provided for cleansing the 4-foot mains? No; there is no special means.

819. Have you made an inspection of the 6-foot pipes? Yes.

820. Was there much growth inside? No, not much. There was a little rust.

821. Is not there much to fear from growth inside the pipes diminishing the supply? No; practically there is no growth worth speaking of.

822. Do you think it is necessary to pitch the reservoir all round? I do.

823. Because of the wash of the water? Yes; against the clay sides.

824. I understand there is no pitching at the Prospect Reservoir except at the dam? No.

825. There is no necessity for pitching there on account of the natural surface of the ground? Yes.

826. Whereas at the Potts' Hill Reservoir the natural surface of the ground will be disturbed or made up all round? Yes.

827. What is the capacity of the 24-inch pipe at North Shore? About 2,500,000 gallons per day.

828. Do you think that is sufficiently large for North Sydney? I am not prepared to answer that. It was all done before I came; but, no doubt, it was carefully gone into.

WEDNESDAY, 10 OCTOBER, 1888.

Present:—

THE HONORABLE JOHN LACKEY (CHAIRMAN).

The Hon. FREDK. THOS. HUMPHERY.
HENRY COPELAND, Esq.
ALEXANDER KETHEL, Esq.

JOHN RENDELL STREET, Esq.
JACOB GARRARD, Esq.
SYDNEY SMITH, Esq.

The Committee further considered the proposed storage reservoir at Potts' Hill, and the laying of second line of pipes between Potts' Hill and Crown-street.

Wm. Christopher Bennett, Esq., Commissioner and Engineer for Roads, sworn and examined:—

W. C.
Bennett,
Esq.

10 Oct., 1888.

829. Chairman.] Do you occupy the position of Commissioner and Engineer-in-Chief for Roads and Bridges? Yes.

830. In your capacity as engineer, have you given much attention to the proposed works between Potts' Hill and Sydney? Not particular attention. I was a member of the original Commission which recommended the works, and I have always taken a great interest in them.

831. We are now speaking of the second pipe between Potts' Hill and Sydney? I have not given much consideration to it.

832. Do you know the nature of the project, and the line on which this additional pipe is to be constructed? Yes; it is to increase the available supply of water in Sydney.

833. Have you traversed the line by which the duplicate supply is proposed to be brought? I have not seen the line since it was laid out, but I know the country generally.

834. As far as you have been able to make yourself acquainted with it, do you think it is a desirable work? Yes.

835. What is its principal merit, as far as you know? It will bring a larger supply into Sydney; and it will enable the Board to supply at higher levels by keeping the reservoirs replenished and full.

836. Will it be useful in the event of any accident happening to the present line of pipes between Potts' Hill and Sydney? Yes. It will give opportunities for repairing and cleaning.

837. Will it give a higher service than the original pipe? I think not. They all deliver into Crown-street. By keeping the Crown-street Reservoir full it will give a few feet higher service.

838. I suppose that even a few feet would be a matter of great moment in the supply of the town, and would have a considerable influence with respect to the higher levels—for instance, in Macquarie-street? Yes.

W. C.
Bennett,
Esq.
10 Oct., 1888.

839. And Waverley also? Yes. Besides, it will be indispensable in a very short time to meet the demands on the water supply.
840. Do you know under whose supervision this work is to be carried out? It was designed under Mr. Moriarty's supervision.
841. Is it being carried out by those occupying his place now? Yes.
842. Have you given any attention to the prices at which the works are to be carried out? No. I have not seen the estimates.
843. Do you think that you have sufficient knowledge of the work to express your opinion in favour of it? Yes; decidedly. I think if it is not indispensable now, in a very short time it will be.
844. *Mr. Garrard.*] Do you know the capacity of the proposed Potts' Hill Reservoir? I believe it is 100,000,000 gallons.
845. Do you know the site on which it is proposed to construct it? No; not the exact site.
846. Have you been out there since the site was marked off? No.
847. If it is proposed to pitch each of the four sides of the reservoir, do you think that is absolutely necessary, or is it only necessary to pitch it where the dam proper is? So much depends on the nature of the material that it is impossible to give an opinion of that sort without seeing it.
848. Do you know the Prospect Dam? Yes.
849. Is it not the dam portion only of that reservoir which is pitched? Yes, only the dam portion.
850. There would be a considerable wash, I suppose, on the ordinary sides that are not pitched in case of a high wind? Yes; but the slope is so gentle, and being a natural shore, even the wash can do it no harm there.
851. Because it would play upon the natural surface of the ground? Yes. It cannot work a hole that anything can go through.
852. It is different where the natural surface is disturbed; and in that case, do the sides require pitching? No; I do not think so. You require pitching on the face of the dam to protect the dam from the action of the water. On the natural slope of the ground it does not matter.
853. We have it in evidence that it will cost £65,000 to pitch the sides of this reservoir. Can you say whether it is absolutely necessary to pitch the sides of this reservoir? No; I have not seen the plan.
854. Is it not a fact that, as a rule, in small reservoirs of this capacity, pitching is only used on the dam proper? As a rule the pitching is on the dam, but for some reason it may be necessary here. There is no doubt pitching will keep the reservoir much cleaner, and I dare say that is the reason why it is proposed to be pitched. It is a subsidiary reservoir, and it is necessary to keep the water clean. If it were not pitched the water would wash against the sides and get foul with mud, which it takes a long time to precipitate.
855. You cannot tell us whether £65,000 is a reasonable estimate for that work? No; I cannot. In view of the purpose for which the reservoir is to be made, I have no hesitation in saying that it is necessary to pitch it, in order to keep the water pure and unmixed with clay, because that clay is particularly difficult to precipitate in water. I have no doubt that is the reason why it is proposed to pitch the reservoir.
856. Were you one of the Commission appointed to inquire into the inauguration of this water supply for Sydney? Yes.
857. It received your approbation, I suppose? Yes.
858. I understood you to say to the Chairman that if it was not indispensable at present it would in a very short time be indispensable to have a reservoir at Potts' Hill? That was the second pipe line I referred to; but I think the reservoir is very desirable. It will bring the head home to Sydney, and render available the night discharge of the large pipes. There are three other pipes drawing on it every day, and if the head is not kept well home in those pipes it decreases the discharge *pro rata*.
859. Do you know anything of the difference of level between Potts' Hill and Crown-street? Between the top of the water at Potts' Hill and the top of the water at Crown-street the difference would be 34 feet. I think that, under the circumstances, this dam being away from the pure water in the Prospect reservoir, it would not do to contaminate that water by putting it into an unpitched reservoir. I would have visited the site of the reservoir had I known that the questions would have reference to the construction of this particular dam; but I thought they would refer to the questions involved in the original project.
860. *Chairman.*] Was it not always a part of the original project to have an auxiliary service in addition to the reservoir at Prospect? Yes; to have a balance reservoir. There were one or two proposed.
861. That would be for other purposes besides the mere supply of Sydney? It was for the supply of Sydney chiefly.
862. Was it not for a suburban supply? Yes. When I say Sydney, I include the suburbs.
863. Are you aware that the project now submitted has partly for its object the suburban supply? Yes.
864. Do you think the construction of the Potts' Hill Reservoir will be useful in carrying out that idea? Yes; it will bring the head home.
865. Do you recollect any other reasons which make it useful? It will utilize the 6-foot pipe at night as well as in the day. In water supply the draught on the pipes is for a certain portion of the day. If you have this reservoir for the gradual receipt of the water during the night, it doubles the value of the large pipe; and the larger such a reservoir is the better, because, when the daily discharge begins, it will not fall so quickly in a large reservoir as it will in a small one, and consequently a higher head is kept up longer.
866. And besides that it will give both the suburbs and city an alternative supply in case of accident? Yes; in the case of any accident occurring above it, this new reservoir will give a supply until repairs can be made.
867. Do you think that is a reasonable feature in a large work of this sort? It is an indispensable feature.
868. When the additional pipe from Potts' Hill to Sydney shall have been completed, what proportion, do you think, of the general service to Sydney and suburbs will be supplied by gravitation? A very large proportion, but I cannot give it exactly.
869. Five-sixths or seven-eighths? I should say about three-fifths.
870. The balance will be supplied by pumping? Yes.
871. What places will be so supplied? The higher portions of North Shore, Waverley, Paddington, and the higher parts of Sydney.
872. The tops of the houses in Macquarie-street? Yes; and the higher levels are daily becoming more important, because the buildings are getting higher.

F. A. Bishop, Esq., Civil Engineer, sworn and examined:—

- F. A. Bishop, Esq. 873. *Chairman.*] Are you an engineer by profession? Yes; a civil engineer.
874. Have you been long resident in this Colony? About two years.
- 10 Oct., 1888. 875. During that time, have you been engaged in the work of your profession? Very little. I have been trying to recover my health, and the first year I did nothing.
876. Have you been made acquainted with the project for supplying Sydney with an alternative supply of water from Potts' Hill? I know something about it. I was Chairman of a Commission appointed to arbitrate between the Potts' Hill and Kenny Hill schemes last June.
877. That is outside our province. We take it that that is settled. We are now considering a work submitted to us by Parliament which consists of the construction of a storage reservoir at Potts' Hill, and a second pipe between Potts' Hill and Crown-street? Yes. I simply made that answer to show you how I became acquainted with the subject.
878. Have you visited Potts' Hill? Yes.
879. Do you know the site of the proposed reservoir? Yes.
880. Have you been there since the work has been commenced? No.
881. Do you know the proposed course of the second pipe between Potts' Hill and Sydney? Not definitely. I judge that it would be some distance from the line of the first pipe.
882. Are you aware of the cost of the work at the Potts' Hill Reservoir? Only in a general way from what I see in the newspapers.
883. Do you understand the principle on which it is being carried out? Yes.
884. Do you understand the object of the second pipe? I think so.
885. Do you consider the work is a desirable one? I do.
886. Is it usual in large works of this sort to have a duplicate service in case of accident? It is quite common.
887. Do you think it is necessary? I do.
888. Of course you have not gone into the details of the expenditure at all? No.
889. It does not come within your province until called in professionally? That is the only way.
890. *Mr. Garrard.*] Do I understand you to say that you have not taken into consideration the cost or estimated cost of the works at Potts' Hill? No; except so far as reading is concerned. I gave it some thought, but I never made any calculations.
891. I understand you were Chairman of a Commission appointed to inquire into the relative merits of Potts' Hill *versus* Kenny Hill? Yes.
892. In the course of that investigation, did you not go into the question of the estimated cost of the Potts' Hill scheme? Yes, to some extent.
893. For you to determine properly, would it not require more accurate calculations as to the relative cost of the two schemes? I do not know that it would in the way in which we took it. We took the evidence of Mr. Gipps on the one hand, and of Mr. Moriarty and his assistants on the other.
894. You took the figures submitted to you by the Harbours and Rivers Department on the one side, and the figures submitted by a gentleman who took an opposite view on the other side? Yes.
895. Without checking in any way those figures by actual calculations? No; not closely.
896. You took those two sets of figures as correct without minute investigation? Pretty generally so.
897. You went more upon the general scheme? Yes; perhaps that would be correct.
898. Have you had large experience in the construction of reservoirs? Yes.
899. Can you enumerate any of the works you have been connected with? In California.
900. What were the largest waterworks you have been connected with? The largest reservoir was not completed when I took ill. One, I think, embraced about 500 acres; another about 1,100 acres. Those were the largest dams.
901. Did you throw a dam across a valley? Yes.
902. Is that the usual way? Yes, generally, with large ones. They take advantage of the natural surface of the ground.
903. Has it always been the custom to pitch the dam portion of reservoirs? When there is any large stretch of water that is the custom; but in small reservoirs I have not thought it to be of sufficient consequence to do so. It depends very much upon the sweep of the wind.
904. Even if there was a considerable sweep of wind you would not pitch the natural sides of a reservoir? I do not see the necessity for it.
905. Do you know the position of this proposed Potts' Hill Reservoir? Yes; from seeing it and from the maps.
906. Do you think it is absolutely necessary that the four sides should be pitched? I am not sufficiently familiar with it to answer that question.
907. It is always necessary to pitch the dam, but it is not always necessary to pitch the sides? I would say this: My impression is that the sides of this reservoir are composed partly of excavation, and are chiefly artificial, and to whichever side the direction of the wind tends I should say that side ought to be pitched.
908. Do you know the proposed construction of the dam across this reservoir? Yes; I saw the plans some time ago.
909. Do you know the extent of the puddle core or wall? I do not remember.
910. Do you know anything of the nature of the clay found there or being used? I do not know what is beneath the surface; but I have seen places near there from which I could get a good idea.
911. Do you think that a core at the base (say) 4 feet 6 inches thick is sufficient for an embankment 20 feet high? Yes, I should think so.
912. It depends largely, of course, upon the nature of the clay and puddle? Yes; and very much upon what is beneath.
913. What is your usual custom in mixing puddle for works of this description—do you prefer to make it as dry as possible? It ought to have a fair amount of water. It should be thoroughly macerated.
914. Have you visited the Prospect Dam? I have.
915. Do you know the way in which that core was made? I know from description, from the plans, and from parts that I saw.
916. Was it mixed in the way in which you would like to have it mixed? I have seen them mixing for it. I can say that it was quite satisfactory; it was quite as good as I could do it, I am sure.

917. Do you think it is desirable to tap either of the mains leading from Potts' Hill to the city to draw off a supply for the suburbs. Is it usual to tap the mains for an intervening supply? It depends upon circumstances. I would rather draw from the reservoir, if I could.
918. Were you a long time in California? Yes; about 34 years.
919. Do you favour cast-iron, as against wrought-iron, for pipe-mains? It depends on circumstances. For reticulating a city, I prefer cast-iron; for bringing water a long distance, I prefer wrought-iron, or steel.
920. You know that it is proposed to bring a second line of cast-iron pipes from Potts' Hill to the Crown-street Reservoir;—would you prefer wrought-iron to cast-iron in a main of that description? I think under the circumstances I would prefer cast-iron in this case, mainly on account of durability.
921. What is the life of cast-iron as against wrought-iron? That is rather hard to tell. We only had experience for about twenty-four years in California of wrought-iron pipes. Many are good to-day, although they were very imperfectly laid.
922. Have you seen the present line of pipes to Crown-street? Yes; a portion of them.
923. Do you think they are a good style of pipe? I do.
924. Is the same kind of pipe quite suitable for duplication? Yes.

F. A. Bishop,
Esq.
10 Oct., 1888.

PARLIAMENTARY STANDING COMMITTEE ON PUBLIC WORKS.

Storage Reservoir at Potts' Hill, and Second Line of Pipes to Crown-street.

APPENDIX.

A.

[To Evidence of J. Barling, Esq.]

Sir,
Information having been asked touching the water supply of Melbourne, as throwing light upon the cognate questions relating to the Sydney water supply, I put myself into communication with the Water Supply Department of Melbourne for the purpose of obtaining the most recent and authentic information on the subject, and have now the honor to transmit a copy of my letter, together with the reply thereto, which I have received this day, and trust that the information thus obtained will be of service to the Committee.

Department of Public Works, Sydney, 3 October, 1888.

I have, &c.,

J. BURLING,

Under Secretary.

The Honorable the Chairman of the Parliamentary Standing Committee on Public Works.

My dear Sir,
The Parliamentary Standing Committee on Public Works of this Colony is inquiring into the question of an additional pipe-line in connection with the existing water supply, and the following information respecting the Melbourne water supply would considerably assist the deliberations of the Committee, viz. :—

The maximum quantity which your supply is capable of delivering to city and suburbs daily.

The average daily consumption.

The greatest quantity that has been delivered in any one day.

The average consumption for each year during the last decade.

The estimated population which you now supply.

If this information can be available by Wednesday next, when the Committee meets again, it would be very acceptable.

Any other information which you consider would be of service, and which is readily obtainable, might also be forwarded.

Apologising for thus troubling you, and trusting I may be in a position to reciprocate at some future time,

I am, &c.,

J. BURLING.

C. Le Cren, Esq., Secretary, Department of Public Works, Melbourne.

Department of Public Works, Melbourne Water Supply Branch,

Treasury Gardens (Gipps-street Entrance), 2 October, 1888.

Sir,

I have the honor to acknowledge the receipt of your letter, dated 29th ult., and in reply to inform you that :—

1st. The maximum quantity of water which can be delivered in Melbourne and suburbs daily is 33,000,000 gallons; but such quantity could be increased for a few days from the various service reservoirs in the suburbs, the combined storage capacity of which is 36,000,000 gallons.

2nd. The average daily consumption is 19,000,000 gallons.

3rd. The greatest quantity that has been delivered in Melbourne in any one day, 32,000,000 gallons.

4th. The average daily consumption for each year during the last decade :—

1879	8,800,000 gallons.	1884	12,357,000 gallons.
1880	9,700,000 do	1885	13,675,000 do
1881	10,500,000 do	1886	14,709,000 do
1882	11,300,000 do	1887	16,226,000 do
1883	11,600,000 do	1888	19,000,000 do

5th. The estimated population which is at present supplied with Yan Yean water, 400,000.

For the year ending 30 June, 1887, the number of tenements supplied was 73,424. The total expenditure to that date, £2,495,554; and the total revenue received, £2,397,852.

I have, &c.,

FRED. B. FORCE,

Acting Secretary.

The Secretary, Public Works Department, Sydney.

[Three plans.]

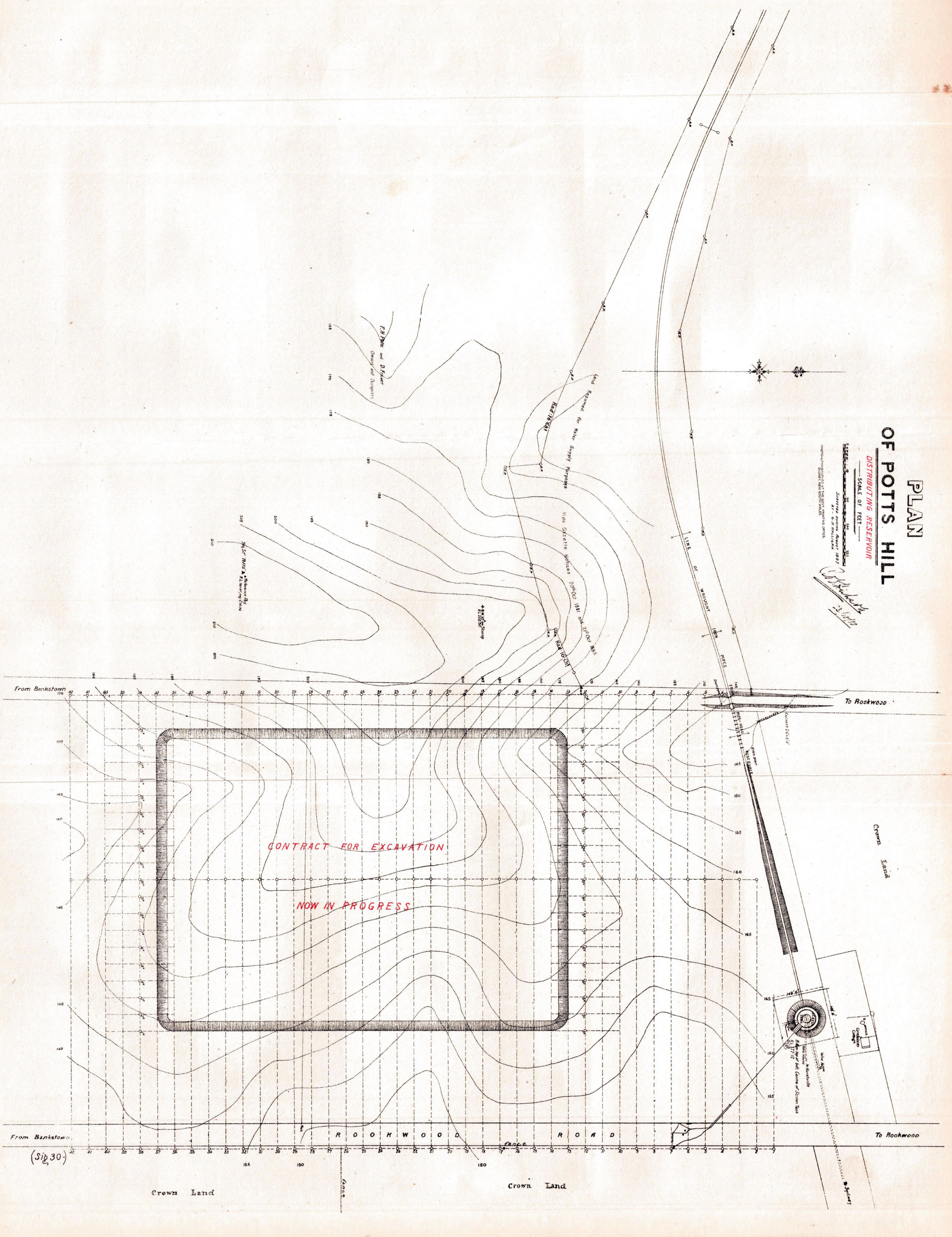
PLAN

OF POTTS HILL

DISTRIBUTING RESERVOIR

Robt. H. Smith
 23/11/08

SCALE OF FEET —
 Surveyed from Resurvey 1897
 by G. W. HALLIDAY
 DISTRICT SURVEYOR, DISTRICT OFFICE



— SYDNEY WATER SUPPLY —

— DISTRIBUTING RESERVOIR AT POTTS HILL —

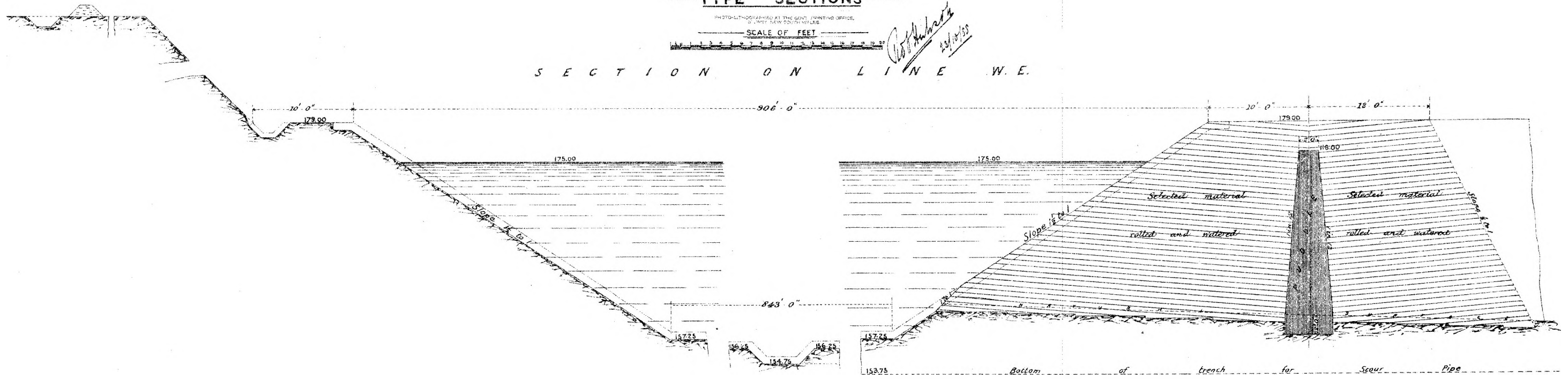
— TYPE SECTIONS —

PHOTOLITHOGRAPHED AT THE GOVT. PRINTING OFFICE,
BY MISS HELEN COOKE, 1913

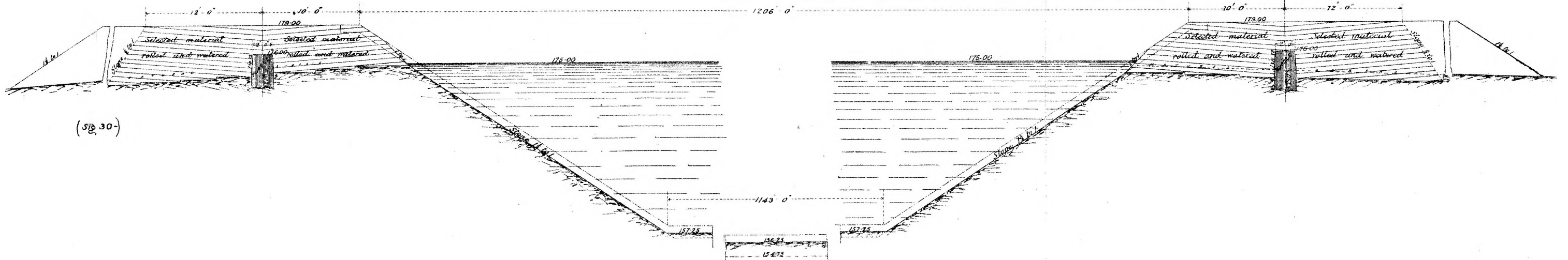
SCALE OF FEET

C. H. Roberts
24/10/13

SECTION ON LINE W. E.



SECTION ON LINE S. N.



(Sigs 30-)

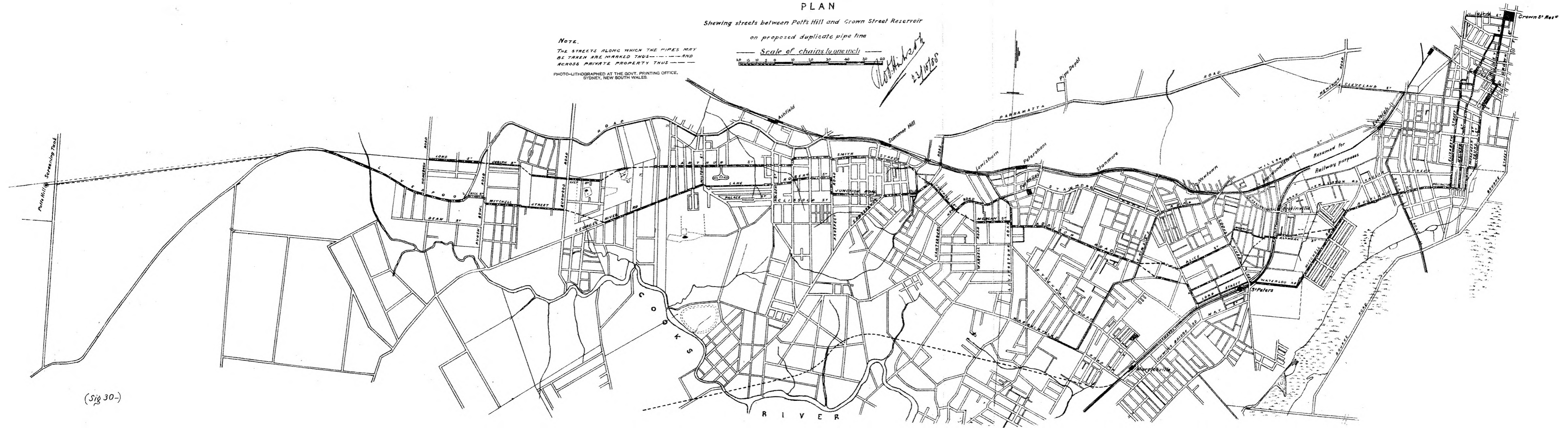
S.W.S.
PLAN

Shewing streets between Polts Hill and Crown Street Reservoir
on proposed duplicate pipe line

NOTE.
THE STREETS ALONG WHICH THE PIPES MAY
BE TAKEN ARE MARKED THUS — — — — — AND
ACROSS PRIVATE PROPERTY THUS — — — — —
PHOTO-LITHOGRAPHED AT THE GOVT. PRINTING OFFICE,
SYDNEY, NEW SOUTH WALES.

Scale of chains (unmarked)

W. H. B. 23/10/88



(Fig 30-)

1888.

LEGISLATIVE ASSEMBLY.
NEW SOUTH WALES.

POTTS' HILL STORAGE RESERVOIR BILL.

(MESSAGE No. 8.)

Ordered by the Legislative Assembly to be printed, 6 December, 1888.

CARRINGTON,

Governor.

Message No. 8.

In accordance with the provisions contained in the 54th section of the Constitution Act, the Governor recommends, for the consideration of the Legislative Assembly, the expediency of making provision to meet the requisite expenses in connection with a Bill to sanction the completion of a storage reservoir in connection with the Sydney water supply at Potts' Hill, in the county of Cumberland.

Government House,

Sydney, 30th November, 1888.

1888.

LEGISLATIVE ASSEMBLY.
NEW SOUTH WALES.

SYDNEY WATER SUPPLY (PARTIAL DUPLICATION) BILL.

(MESSAGE No. 7.)

Ordered by the Legislative Assembly to be printed, 6 December, 1888.

CARRINGTON,

Governor.

Message No. 7.

In accordance with the provisions contained in the 54th section of the Constitution Act, the Governor recommends, for the consideration of the Legislative Assembly, the expediency of making provision to meet the requisite expenses in connection with a Bill to sanction the laying of a second pipe in connection with the Sydney Water Supply, between Potts' Hill, in the parish of Liberty Plains, and Crown-street, in the city of Sydney, county of Cumberland.

Government House,

Sydney, 30th November, 1888.

1888.

LEGISLATIVE ASSEMBLY.

NEW SOUTH WALES.

SYDNEY WATER SUPPLY.

(MINUTES AND REPORTS RESPECTING THE PROSPECT DAM.)

Ordered by the Legislative Assembly to be printed, 6 December, 1888.

[From the *Evening News* of December 3, 1888.]

THE PROSPECT DAM.

WHEN the Government could no longer ignore the reports published in the *Evening News* respecting the condition of the Prospect Dam, Mr. Whitton and Mr. Bennett were instructed to inspect the embankment and report to the Secretary of Public Works. This was in last June, and at the time the reports of the two officers were published we advised Mr. Sutherland not to place too much reliance upon them, as they were evidently drawn up for the purpose of allaying any disquietude that might exist in the public mind. It was impossible to deny that cracks and subsidences had taken place; but the ingenuity of the two gentlemen, assisted by the explanations and opinions of Mr. Moriarty and the other professional men who are responsible for the construction of the dam, was taxed to its utmost to account for the flaws, and enable the Engineer-in-Chief for Railways, and the head of the Department of Roads and Bridges to assure Mr. Sutherland that the dam was perfectly secure, and would remain so for all time. This they did in the most emphatic language. Mr. Bennett's ultimatum was, "I am of opinion that the dam is perfectly safe. The material of which it is composed is admitted by all to be of the very best description." Mr. Whitton was equally sanguine and satisfied, for he concluded his report as follows: "I see nothing in the subsidence of the puddle wall, or in the lateral movement of the inner slope of the embankment, to raise the slightest doubt as to the perfect stability of this portion of the reservoir." May we suggest to Mr. Sutherland or the Government that these reports should be referred back to their authors, and that they should be instructed to revisit the Prospect Dam now to see how they can reconcile the opinions they expressed five months ago with its present condition. In our issues of last Monday and Saturday we published two accounts of what has been going on since the embankment was officially pronounced to be perfectly safe, with a description of the failure of the dam, so far as it has gone. In addition to our reports, the *Daily Telegraph* published one on Friday which is a significant confirmation of the reports and articles that have been appearing in the *Evening News* during the last twelve months or more. Our contemporary writes somewhat reservedly; but as it has only just realised its responsibility in the matter, having accepted all that Mr. Whitton and Mr. Bennett wrote as engineering gospel, it could scarcely be expected to go further as a beginning in the right direction than it did on Friday. The *Telegraph* has discovered that "there is room for all sorts of degrees of uncertainty and disquietude," and from the unusual activity on the part of some of the officers of the Department there is ground to hope that the officials have at last been roused out of their obstinate belief in the stability of the dam. (1.) Within the last few weeks the depth of water in the reservoir has been reduced 3 feet, and, so far as the dam is concerned it is probable that the late drought was not an unmixed evil. Had there been a wet season, and had the water risen to anything like the full capacity of the reservoir, (2) the only leakage right through it might not be the "stream," described by our reporter as running from the base of the embankment on its lower side. We do not believe there is a professional authority in the country, not even in the Public Works Department, who would express the opinion that the embankment could withstand the force of the full quantity of water it has been constructed to retain. So far from this being the case, the question for consideration now is, how long it will resist even at the low level to which the water has been reduced? If the Departmental ostriches have not pulled their heads out of the sand in which they have been buried for the last twelve months, it is time that they were forced to do so by Parliament. We are well aware of the magnitude of the issues we are attempting to raise by our continued references to this subsiding and leaky embankment. If it is authoritatively condemned as unsafe, it is doubtful if it can ever be rendered secure, but if this is possible,

possible, it would probably cost more to repair or protect it than it has done to construct it. (3.) Of the enormous quantity of water now in the reservoir, only about 3 feet of the depth can be run off, the remainder being below the level of the outlet-pipe, so that to get at the foundations of the embankment, the failure of which are believed to be the cause of the subsidences higher up, the reservoir would have to be pumped out. Even were this done there is no certainty that the embankment, which is giving way in so many places, could be rendered permanently secure. A correspondent, who seven months ago predicted the gradual but certain collapse of the work, and described in advance what has taken place since, said the dam might be secured by driving a row of piles all along a few feet from the inner side of the embankment, and filling in the space for some distance up the face with substantial masonry. This work he said would have to be done by divers, so that the cost of it would be enormous. If, however, the work is gradually giving way, it is no use-counting the cost of preventing its total destruction, provided it is possible to do so. Whatever the expense may be, it will have to be undertaken. As already intimated, it is the imperative duty of Parliament, or some of its members, to take this matter seriously in hand. It is no use depending upon the Government, for it will only continue to be hood-winked by officials. That offshoot of the Public Works Department, the Water and Sewerage Board, is equally unreliable. Its members visited the Prospect Dam some months ago, and the President, Mr. Rowe, on behalf of himself and his colleagues, expressed the most unbounded satisfaction with the manner in which the dam had been constructed, and the utmost confidence in its stability. No doubt the members of both Houses of Parliament were lulled into a false security by the official assurances that the embankment was as firm as a rock and as immovable as a mountain. Either one House or the other should now obtain a report for itself, and not leave it to the press to take all the responsibility of investigating and exposing this costly monument of Departmental incapacity and obstinacy.

Memo. *re* leading article in *Evening News*, of 3rd December, 1888.

<i>Statement in paper.</i>	<i>Remarks.</i>
(1.) Within the last few weeks the depth of the water in the reservoir has been reduced 3 feet.	The facts of the case are as follows:—The water in the reservoir stands now at the same height as it did in December, 1887, just twelve months ago. It gradually rose 3½ feet, reaching its greatest height in April last. Between that date and the end of August it fell 6 inches, since which to the present date it has gradually fallen to its present height.
(2.) The only leakage right through it might not be the stream described by our reporter as running from the base of the embankment on its lower side.	The only water appearing from the base of the embankment on its lower side is, in my opinion, what passes through the stone drains in the back bank for the purposes of drainage, and which were specially constructed for the purpose. This water is perfectly clear and brackish, and has been flowing from the drains ever since the embankment was raised slightly over the surface of the ground. If this water was fed by the reservoir direct, it would be soft, discoloured, and would be always increasing in quality, as the water in the reservoir lifted. This latter is not the case. The greatest quantity of this drainage water appears, as might be expected, where the bank is the largest, and where consequently a large surface was exposed as a catchment area; and this place is some 3,000 feet away from the nearest slip, and at a part of the embankment where there is no sign of settlement.
(3.) Of the enormous quantity of water now in the reservoir only about 3 feet of the depth can be run off, the remainder being below the level of the outlet-pipe, so that to get at the foundations of the embankment, the failure of which are believed to be the cause of the subsidences higher up, the reservoir would have to be pumped out.	About 8 feet in depth of the water can be run off by gravitation to Sydney by canal,—25 feet with gravitation through the two 48-inch pipes to the valley below the dam, and the remaining 25 feet will flow out by siphon action, also through the two 48-inch pipes and discharge in the valley below the dam as before. The time required to remove the lower 50 feet would be about twenty days, no pumping being required.

ROBT. HICKSON.

Minute by The Secretary for Public Works.

Slip at Prospect Dam.

Department of Public Works, Sydney, 3 December, 1888.

WITH reference to the interview I have had with Mr. Mestayer, M.I.C.E., this afternoon, at which I requested him to visit the Prospect Dam and make a report to me on its present condition, and to his acceptance of the commission, I now wish to give specific instructions for his guidance. He will notice from reading the papers, and from the information which I have given him, that further movements have taken place in the Prospect embankment, which have been the subject of many newspaper articles, and have caused a considerable amount of apprehension in the public mind. I have already instructed Messrs. Whitton and Bennett to report on the subject, and they have visited the dam, and are now engaged in preparing their report.

As the matter, however, is so important that it would not be right for me to leave one stone unturned in arriving at the true facts of the case, I have thought it desirable to call in the aid of experts who are unconnected with the Department. I understand that Mr. Mestayer is an engineer of considerable standing, especially in matters appertaining to hydraulic engineering.

I wish him, therefore, to at once visit the Prospect Dam and carefully examine its present condition, and also to ascertain the kind of material that has been used in its construction, and its adaptability to the purpose for which it has been used. I wish him to point out the cause of the movements which have taken place, their significance as bearing on the stability of the structure, and what, in his opinion, will be the best course to take under the circumstances.

I wish him to give me a report on the construction of the dam and subsidiary works as a whole, and whether, in his opinion, the design is in accordance with the best engineering knowledge on the subject, and whether also the works have been faithfully carried out according to the design.

In carrying out these duties, as I wish to get an entirely unbiassed opinion on the subject, he will consider himself quite independent of either the officers of the Harbours and Rivers Department or of the engineers outside the Department who have previously reported on the subject.

Mr. Hickson and all the officers of the Department will be so good as to give Mr. Mestayer every assistance in the way of answering questions he may put to them, and will place at his disposal any plans and other information which they may possess, or which may be in the Departmental records.

I wish Mr. Mestayer to undertake this work at once, and shall be glad if he will as quickly as possible take in hand the duties confided to him, in the carrying out of which I desire especially to impress upon him their great importance and the necessity for giving a plain unvarnished recital of the facts as they present themselves to his investigation.

JOHN SUTHERLAND.

Mr. Hickson please note and return.—W.B., B.C., 4/12/88. Noted.—R.H., 5/12/88. Under Secretary Public Works, B.C.

Memo. by Mr. A. Williams.

Prospect Dam.

In compliance with your instructions, I examined this work, and find that the face of the water side the dam has slipped and settled more or less for a considerable distance.

I beg to briefly state what I consider to be the cause, the effect, and the remedy.

It is my opinion that this movement is caused by the excessive moisture of the puddle-core forcing its way through, and meeting, in all probability, a saturated strata, caused by the percolation of the storage water from the face.

The effect is to leave the puddle-core unsupported, and its displacement will follow as a matter of course, and so destroy all confidence in the security of the dam. It is, therefore, imperatively necessary to stop this movement, and also to stop all possibility of future movement to this or any part of the dam.

The remedy is the weighting of the foot of the slope, to counterbalance the top weight that is crushing the lower part out of place.

A section of this class of work is now done by placing bluestone ballast at the foot of one of the slips. I consider that although this work will have a good effect, that it is not the best way of doing this work. It has no bond. It does not give the greatest weight for its cube measurement, and the water passes freely through this loose ballast, and consequently does not prevent the bank from getting soft by the constant soakage of the water.

I think the class of work that would give the best results is a solid bank, built with a face almost perpendicular to the water, and constructed with fascines and clay. This can be built along the whole face of the dam to any required height. Such a bank would have a much greater weight per cubic yard than stone ballast.

It would be a water-tight sea-wall in itself, with a continuous bond, and it would have the greatest power for resisting a back pressure than any rough stonework could possibly have. This work would be by far the most economical, as clay can be got to any extent close to the dam, and the ti-tree, with which the fascines must be made, abounds in the district.

The cheapest class of labour can be employed.

The present stone surface-pitching would have to be removed along the present water-line, and up the slope to the top level of the fascine bank, and the face of the present dam would have to be cut down into flat benches, upon which the base of the fascines embankment would be bedded.

I consider the question of piling at the toe of the dam to be quite out of character with the work, and it would be a dangerous, useless, and costly experiment.

The fascine embankment will be a costly work, but a work, in my opinion, that will give by far the best results, at about half the cost of rough stonework.

ALFRED WILLIAMS.

The Acting Engineer-in-Chief, 1/12/88.

Minute by The Acting Engineer-in-Chief for Harbours and Rivers to The Under Secretary for Public Works.

Subject :—Prospect Dam.

Harbours and Rivers Branch, Sydney, 30 November, 1888.

In reporting to you some days ago that there was an indication of a second slip on this dam, I confined myself to the question as to whether the contractor could be held liable or not. I now submit for your consideration, first, what I consider the cause of the slip, and secondly, what steps, in my opinion, should be taken to make the structure safe.

The dam, as you are aware, consists of an embankment of earth 30 feet wide at top, an inner slope of 3 to 1, protected with pitching, and an outer slope of 2½ to 1. In the centre of this bank a puddle wall has been erected 8 feet wide at top of bank, increasing in width on both sides by a batter of 1 in 8 as far as the original surface, and extending into the original ground to such a depth as was found necessary to get into a water-tight stratum. To show the care that was taken with this very important part of the work, it is only necessary to say that in one place the puddle wall was carried down to a depth of 45 feet below the original surface.

I may here be permitted to say that this embankment is built upon the most approved principles and in accordance with all recognized designs of such structures. The question may then very well be asked, why is it showing signs of weakness?

This is a point on which there may be various opinions; as having had some little experience on works of this sort I submit mine.

Before, however, going into details I would just briefly state what has taken place.

The first slip which took place before I took temporary charge of this office occurred at a portion of the embankment which is only about 35 feet high; the inner slope slipping in a horizontal direction about 25 feet. This was reported on by me on 7th August, and at my suggestion the matter was referred to Messrs. Whitton, Bennett, & Bishop, who had previously reported on this same slip, and the result was that a large quantity of stone was put at the toe of the bank with marked success, though at a considerable cost.

My attention was only drawn to the second slip (the one now specially under consideration) on the 22nd instant, when I took the first opportunity of visiting the works. To a casual observer there is not much to notice at this particular place. It is only when closely examined a slight rounding in the line of pitching is noticeable. The total outward movement being about 2" 6" with a depression at the top of the embankment. At other places on the top of the bank longitudinal cracks are to be seen at both sides of the puddle wall, extending in width from 2 inches to 8 inches and of various lengths, the extent of which it would be impossible to see unless the top of the bank was more opened up and exposed.

There is a decided rounding of the pitching extending over a length of some 1,000 feet of the straight portion of the embankment, but the officer in charge assured me the slope was originally built in that form, and that no change of any description has taken place at this place. If this be the case, which I have no reason to doubt, it is an important matter to bear in mind when I further on deal with what I consider to be the cause of the slips.

In the erection of this embankment, not only must it have caught a considerable quantity of rain, but also in making the puddle and forming the bank a quantity of water was used. This water had all to gravitate towards the centre, as in forming banks of this class it is usual to put the material in in layers with an inclination from the outside to the centre.

The outside slope being formed of coarse material, intermixed with stones, did carry away, and no doubt is still carrying away this water, and as a result has not shown the smallest sign of weakness. The inner slope is formed of selected materials, and thus devoid of this means of allowing the water to pass through, practically dams the water back.

As the whole length of the dam, some 7,000 feet, was built under the same circumstances in every way, the natural question suggests itself, why should a small portion of it, some 600 feet, and where the depth is only 35 feet, be effected, whereas other places, where the depth varies from 65 to 85 feet deep shows no sign of slipping.

For a solution of this, I think one must look to local causes, and I am reluctantly compelled to come to the conclusion that the material in the part of the bank which has given way is not as good as in other portions of the work, nor as good as it should be. In stating this, I wish it to be clearly understood, I am only forming my opinion from what is to be seen at the *present time*. I was not in any way connected with the work during its construction, and cannot therefore say what quantity of this inferior material may have been used, but that there is some of it in the bank is to my mind beyond doubt, as it can be seen here and there on the surface and in the disturbed portions of the work. The material I speak of is what a navy would call "sugar," it is white, has no consistency, and melts away when brought into contact with water.

Of course it is quite possible that this theory may be incorrect, and that it is only a matter of time till the whole of the inner slope gives way from inherent weakness in itself, but this I cannot believe to be the case. If such a very deplorable state of affairs should occur, it could only be from the existence of a large quantity of defective material, and with the supervision that was exercised over this work one can hardly imagine this possible.

The important matter to consider now is the remedy to be used. Though I do not consider the permanent stability of the dam is endangered, yet I am bound to say the matter is of serious import. If the quality of the material in the bank is of doubtful character, it would be very hard to say what might not occur if, after this long continued fine weather, we had heavy and lasting rains.

If this embankment was an ordinary one without any water to deal with in the reservoir, the remedy would be simple enough, viz., put in some trench drains and so get rid of the disturbing element, water; but we have got to deal with the matter as it stands, viz., with water for some distance up on the inside or defective slope, and which not only cannot possibly be got rid of, but must, if the rainy weather sets in, be allowed to rise and so secure a further supply of water for Sydney, which at present is low enough.

I am confident myself that the only way to deal with it under the existing circumstances is by placing some counteracting force at the toe of the dam of such a weight or extent as would counter-balance the tendency of the bank to slip out.

There are three ways this object might be obtained—

- 1st. By putting piling at the toe of the slope.
- 2nd. By placing a heavy water-tight structure, such as faggots and clay at the toe of the slope and filling in between it and the slope with the same class of material with which the embankment is constructed, and
- 3rd. By weighting the toe of the bank with stone.

With regard to the first (while I have used this remedy with complete success at a portion of the dam at West Maitland, which slipped on a greasy bed), I confess there are great difficulties in the way of adopting this plan in the present case. The embankment being of such large dimensions would necessitate a very strong and expensive system of piling with strut piles, braces, &c. This would all have to be put in under difficult circumstances, viz., with a lot of water in the reservoir, and would also entail the filling up of the space between the piling and the slope with heavy material.

As to the second system to make it effective, it would be necessary to carry the faggot bank above the highest high water, otherwise when the water fell in the reservoir below the level of this bank all the impounded water (and there would be a great deal of it, as the embankment would absorb a large quantity) would be pressing against the faggots, and having only the *weight* of the faggots as a resistance, would push them out.

Having

Having thought this matter over very carefully and anxiously, as of course one cannot get rid of the grave responsibility there is in having charge of such a work, I cannot suggest any better system than that now adopted, viz., weighting the toe of the bank with stones, it may seem a clumsy brute force sort of way of meeting the difficulty, but as it is impossible, no matter how bad the material in the bank may prove to be, to remove it now; it seems to me to be the only practical way of dealing with the matter.

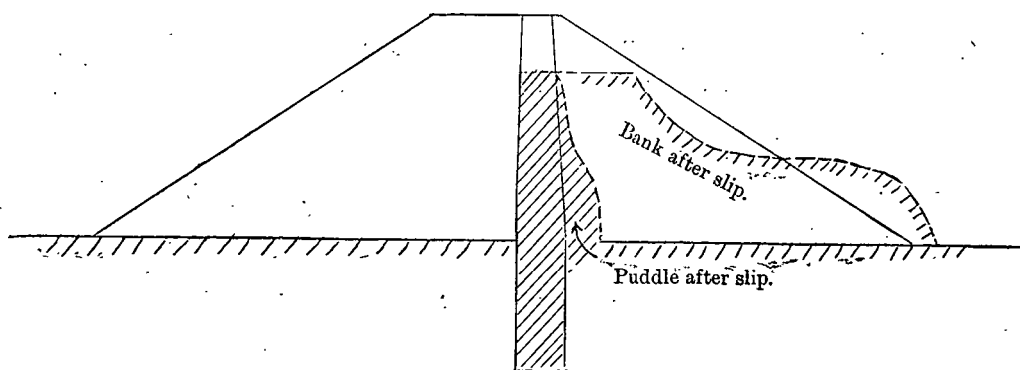
If, as I suppose, this defective material exists to some extent in the embankment, the water in the reservoir itself has no doubt, something to say in dissolving it, and assisted by the water from behind, causes the outward motion.

With regard to the puddle wall, which of course is the main feature in the embankment, which the outward motion of the slips would lead one to imagine, that it has been subject to a corresponding movement, I am of opinion it will be found that this, if not actually *not* the case, has only occurred to an unappreciable extent. I know from my own personal observation that when the first slip took place, which as I said before extended about 25 feet in a horizontal direction, the puddle wall only subsided vertically, there being little or no horizontal movement noticeable on the top.

And indeed a strong proof that this must be the case throughout, rests in the fact that no movement has taken place on the outside of the puddle wall. If this wall of puddle had gone over in a horizontal direction, some portion of the outer earthwork must have followed it.

What no doubt has taken place, is what I have represented in this sketch, and what, I may add, I proved by a shaft to have taken place in the bank before mentioned in Maitland, viz., the alteration of the shape of the puddle wall as shown in dotted lines, which far from doing any damage, actually made it wider on the original surface line.

ROBT. HICKSON.



Minute by The Secretary for Public Works.

Subject:—Prospect Dam.

Department of Public Works, Sydney, 3 December, 1888.

UNDER date of 23rd April last, Mr. Ryan, the engineer in charge, at Prospect, reported that a settlement had taken place of the puddle wall of the dam for a length of about 350 feet, between centre-line pegs numbered 51 and 55, to which, however, as it seemed to be a purely local one, he considered very little importance should be attached. On receipt of this report Mr. Moriarty visited the dam, and on the 26th reported the circumstances to me, stating that an allowance of 5 per cent. had been made in the height of the dam to provide against such a settlement, which, in works of the kind, is always looked for to a greater or less degree, and that the subsidence had not then reached the degree allowed. No further settlement having then taken place, he hoped the work had come to its proper bearings. Further reports having appeared in the daily papers as to the settlement, the matter was referred to in the Legislative Assembly on the 4th May. Upon this I wrote a minute, in which I pointed out the desirability, as tending to allay public apprehension, of obtaining engineering opinion on the subject from sources outside the branch charged with the construction of the work; and with that end in view, I directed Messrs. Whitton and Bennett to visit the dam, in company with Mr. Moriarty, and report separately on the matter. Shortly after the services of Mr. Bishop, an eminent hydraulic engineer, being available, he was commissioned by me to report also. In the middle of June the reports from these gentlemen were received. They all agreed that there was nothing in the settlement which had taken place that should raise doubt as to the stability and safety of the dam. These reports were laid before the House, and were ordered to be printed on the 20th June.

In the meantime steps were taken to remedy the settlement, but on the 7th August, Mr. Hickson, who had succeeded Mr. Moriarty in charge of the Department, reported that the subsidence was assuming such formidable dimensions that he deemed it his duty to again bring the matter under notice, with a view of again obtaining the opinion of Messrs. Bishop, Whitton, and Bennett, as to the best means to adopt to put a stop to any further slip. He stated that Mr. Moriarty had visited the dam with him, and had urgently advised that a row of piles faced with stones should be at once put in at the toe of the bank, but he was aware that difference of opinion existed as to the best course to adopt in the emergency. I immediately concurred in the suggestion of Mr. Hickson, and requested the gentlemen named to consult and furnish a joint report. On the 13th idem the report was received, but as Mr. Bishop differed from Messrs. Bennett and Whitton as to the remedy, though they all agreed as to the cause, that gentleman furnished a separate report.

Messrs. Whitton and Bennett considered that the foot of the slope should be weighted with large stones to prevent any further settlement or moving forward. Mr. Bishop, however, was of opinion that the better and more economical course to pursue was to continue loading the embankment, as had already been begun, as the slide would then go on until the proper angle of repose had been obtained. As, however, Messrs. Darley and Hickson were of the same opinion as Messrs. Whitton and Bennett, as to the course to be pursued, I finally considered their recommendation should be adopted, and it has been carried out.

On

On the 24th ultimo it was verbally reported to me that the second slip, to which reference has been made in the newspapers, had occurred. I immediately despatched Mr. Hickson to report, and on his return I conferred with him and Messrs. Whitton and Bennett, and requested them to immediately visit the dam and report to me. They proceeded to Prospect on Saturday, and on my arrival at the office this morning I at once sent for them in regard to the matter. During the discussion which took place they informed me that there was no danger to be apprehended from the condition of the dam. They stated that, to a casual observer, the slip would not be noticeable, but they concurred that great care would have to be taken in dealing with the matter. If this were done, however, they considered that no danger need be apprehended in regard to the stability of the dam. They pointed out that the remedial measures taken had been perfectly successful, no movement having taken place since the toe of the embankment had been fully protected with stone.

Tuesday, 4th December.

Mr. Hickson's report on the Prospect dam I now submit for the information of my colleagues; but I am informed Messrs. Whitton and Bennett cannot promise their reports until to-morrow, or possibly the day after. I may mention that I have engaged Mr. Gordon, a well-known engineer of Victoria, to report on the matter, and I expect him here in a few days. I have also commissioned Mr. Mestayer, late hydraulic engineer of the South Australian Government to visit the work and report also. This gentleman will enter upon his duties at once.

JOHN SUTHERLAND.

J.W., 4/12/88. J.W.B., 4/12/38.

Memo. by The Acting Engineer-in-Chief for Harbours and Rivers.

Re quantity of water in Prospect dam.

	Gallons.
Total quantity of water in Prospect reservoir up to 28th November, 1888	5,950,000,000
Total quantity available by gravitation	1,700,000,000
Quantity coming in to Prospect immediately before the late rains was reduced to, per day	500,000
Quantity now coming into Prospect—	
2nd December	18,000,000
3rd December	28,000,000
Quantity going to Sydney, per day	10,000,000

ROBT. HICKSON,
4/12/88.

Engineers-in-Chief J. Whitton and W. C. Bennett to The Secretary for Public Works.

Sir,

Sydney, 5 December, 1888.

Acting under your directions, we again visited the Prospect reservoir, accompanied by Mr. Hickson, and carefully examined the embankment where the second slip has occurred.

This slip is on the first bend of the embankment going north, between pegs 42 and 47, extending for a length of 300 feet, and is about 700 feet from the first slip, upon which we reported in August last. [*See accompanying tracing.*]

We are informed that the movement was first noticed about three months ago, and appeared in the shape of a slight opening on the top of the bank, on the back line of the puddle-wall. This opening increased at a very slow rate, until about two or three weeks ago, when the top settlement assumed a more rapid and defined form.

Mr. Ryan reports as follows:—"The depth of water at present in the centre of the movement is about 24 feet. The recorded horizontal movement, by instrument test to 30th November, amounts to 1' 2 $\frac{5}{8}$ " in eight days. The total horizontal movement is about 2' 3". "The vertical movement on range pegs on slope is not perceptible, which proves that to the present the slide is horizontal only. The embankment has been to its finished height at this point for five months."

The height of the bank is 49 feet.

When the first slip occurred, upon which we reported on 13th August last, a very feasible reason was given to us why a slip at this point might have been expected, viz.:—"That the lower portion of this bank having been saturated with water for a considerable time before the upper portion was formed, the weight thus added was sinking into and sliding upon the wet surface of the original and lower portion of the embankment."

On examining this second slip the pitching is seen to be out of line and slightly bulged forward towards the water; a settlement has also taken place at the top of the embankment, with cracks varying in width from a few inches to a foot, and of various lengths.

The depth to which these extend cannot be ascertained without opening out the bank.

It was pointed out during our inspection that a rounding of the pitching had taken place on the highest portion of the dam, where the depth is from 60 feet to 80 feet; upon a straight portion of it, about 4,000 feet in length; but this we noticed on our first inspection in June last, and so far as we could ascertain no movement since that date has taken place; but from what we have now seen of the material used in the bank at No. 2 slip, observations should be taken with instruments to ascertain if any movement is now perceptible.

The resident engineer told us on our first visit, when pointing out this rounding to him, that it was done intentionally so as to provide for the necessary settlement which must take place in the embankment.

The No. 2 slip appears to us to have been occasioned by excessive moisture, either from rainfall during the wet season of 1887, or, as we are told, by the constant leaking of the contractor's water-pipes which

which were used for the puddle-wall. The bank adjoining the puddle-trench was formed in layers, 6 inches in thickness, sloping towards the puddle-wall, and thus all the water falling upon this slope would gravitate towards the puddle-trench. This probably excessive moisture would not in itself have caused the slip, and we must therefore look at the material of which the embankment is formed.

This material appears to be composed of red and white clay, the latter being used in too large a proportion, and as this is thoroughly saturated with water it is not of sufficient consistency to retain its position in the bank.

The directions in the specification as to the manner in which these banks were to be made are most complete, and as we are told the work was carried out in strict accordance with it we can only conclude that the inferior clay used, together with the quantity of water with which the bank is saturated, is the cause of the slips.

The recommendation we made with reference to the manner of treating the first slip, viz., by weighting the toe of the bank with large stones, appears to have been successful, as, although the work is not yet completed, the motion of the slip has been arrested, and no movement has been perceptible for some weeks. We recommend either that a similar course be pursued with the second slip, or that weighting only from the top be adopted until the bank has found its natural slope, as no danger to the bank need be apprehended, so long as the puddle-wall remains unbroken. Piling would be useless as the depth of water at the toe of the slip is 25 feet.

The design of this dam and the careful selection and application of material provided for in the specification are in strict accordance with all the best and most successful works; and the introduction of special superintendents, skilled in the execution of such works and trained under the ablest acknowledged head of this branch of engineering in England, and the use of material which, under ordinary circumstances, is admittedly of a superior character, if used in proper proportions, should have commanded success in the construction of these works.

Nevertheless some portions of the work have failed to the extent of slipping in two places on the western or inside slope of the east embankment, and this we can only attribute to the undue proportion of white (or pipe)-clay in this part of the embankment (shown on tracing as Nos. 1 and 2 slips), combined with the complete saturation of the clays of which the bank is formed.

It is impossible to say what other slips may take place in the embankments of this dam, as we were not present during the construction of the works; but we can confidently state that nothing has yet occurred which, in our opinion, could justify any other assumption than that the dam is at the present time perfectly safe.

The works must, however, be carefully watched, so that should any indications of further slips appear they may be promptly dealt with, and the best means adopted to render the dam safe and effective for the purpose for which it was designed.

We have, &c.,

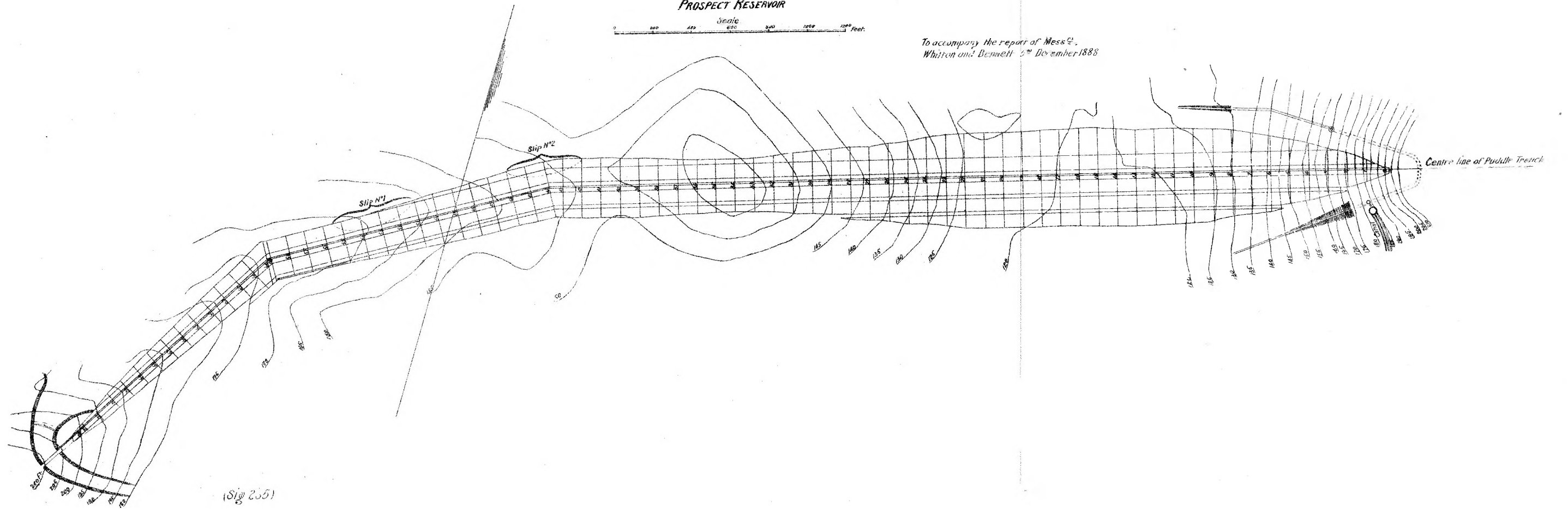
JOHN WHITTON,
WILLIAM C. BENNETT.

[One Plan.]

Ground Plan of Embankment
PROSPECT RESERVOIR

Scale
0 100 200 300 400 500 Feet

To accompany the report of Messrs.
Whitton and Bennett 5th December 1888



(Sig 205)

1888.

LEGISLATIVE ASSEMBLY.

NEW SOUTH WALES.

SYDNEY WATER SUPPLY.

(FURTHER REPORTS AND MINUTES AS TO THE CONDITION OF THE PROSPECT DAM.)

Ordered by the Legislative Assembly to be printed, 12 and 13 December, 1888.

Engineers-in-Chief J. Whitton and W. C. Bennett to The Secretary for Public Works.

Prospect Dam.

Sir,

Sydney, 11 December, 1888.

We know of no way of ascertaining whether the puddle-wall has broken or not above the level of the water in the reservoir, but so long as the water is retained in the reservoir without any discharge through the embankment the puddle-wall up to that height may be considered perfectly safe.

We have no reason to believe that the puddle-wall is not in perfect order, but the fact can only be determined by the water being admitted to a greater height. The officers superintending the work only could give a reliable opinion on this point, and to strip off the inside slope of the dam to examine the condition of the puddle-wall would be fraught with the greatest possible danger to the whole embankment.

On carefully considering the steps to be taken with reference to the disturbance No. 2 (which can hardly at present be called a slip) we think that weighting the toe with stone in a similar manner to that done to No. 1 slip will be the best course to adopt under present circumstances.

If the puddle-wall has been properly made we have every confidence in the ultimate security of the dam.

We have, &c.

JOHN WHITTON.

WILLIAM C. BENNETT.

Minute by Mr. Assistant Engineer Hickson.

Harbours and Rivers Branch, Sydney, 12 December, 1888.

Subject :—Forwarding Mr. Williams' report and plan for remedying the defects in the Prospect Dam.

I FORWARD herewith, for the information of the Minister, a plan and report of Mr. Williams, showing how he proposes to remedy the defects in the Prospect Dam. It is, in my opinion, nothing more or less than a new dam inside the present one, with this serious defect, that instead of its being founded on a solid foundation it is founded on what is supposed to be an unsound inner slope.

If this inner slope is fit to carry the structure Mr. Williams proposes it is certainly fit to stand by ss/2452. itself, and therefore is quite safe in its present form.

Mr. Williams proposes removing a portion of the top of the present dam, which "he considers a source of danger and quite unnecessary," and place it on the inner slope, or, in other words, he takes this material off the part of the dam which has never shown any sign of settlement and places it on a part that has sunk, and may, if it is proved to be made of inferior material, sink more.

To carry this out Mr. Williams proposes running the water out of the dam for three months, and arranging the time when the rivers are in full flood, so as to keep a constant supply of water to Sydney. Mr. Williams does not explain how this time is to be arranged. I fear it would be an exceedingly difficult thing to do, and rather a dangerous experiment as regards the water supply for Sydney. I am confident under no circumstances should a drop of water more than is required for Sydney be allowed to escape out of the reservoir.

I recommend that these papers be sent to the gentlemen now engaged by the Minister reporting on this dam.

B.C., Under Secretary for Public Works.

ROB. HICKSON.

Submitted.—J.B., 12/12/88.

Most undoubtedly; and all the original plans and papers as well. In fact everything on the subject, and every source of information, should be placed at their disposal. My object is to get the fullest inquiry, untrammelled in every respect, no matter what the result may be.—JOHN SUTHERLAND, 12/12/88.

[Enclosure.]

[Enclosure.]

PROSPECT DAM.

MEMO.—I herewith beg to submit with this supplementary report three sections, showing the formation of the fascine embankment, which I propose to construct along the whole face of the dam.

They show the top of the dam to be 10 feet lower than the present level, as I consider this top weight to be a source of danger, and to be quite unnecessary.

The width of the dam on the high level water-line is now 70 feet.

I propose that this shall be made to 140 feet, and thus lessen the top weight by 160·166 cubic yards.

The fascine embankment would be 25 feet high, with a base of 20 feet, and a face slope of half to one.

The fascines would be neatly made of ti-tree bush, clipped to a uniform face, and laid in alternate layers as headers and stretchers, each layer to be carefully bedded with puddle clay, well tramped down.

This work would have a neater appearance, and be stronger and better in every respect than the cheaper but very efficient kind of slop mud banks that I have constructed at Cook's River.

The durability and strength of a bank of this kind is beyond all question, as it would be only a repetition of the great Dutch dykes that resist the waves of the German ocean, and upon the strength of which rests the security of large cities.

The whole of the present pitching above the low permanent water level would have to be removed. This could again be used for the erection of a strong parapet wall along the face of the work, to form a bust wall that would break the wash of the waves when the water in the reservoir was at its full height. And it can also be used for road making.

The present surface of the bank would have to be cut down into broad level benches, commencing at the low permanent water line, and this work would necessitate the drawing off of the water to this level for about three months.

This can be done without interference with the City water supply, by arranging the time when the rivers are in full flow. The bottom line of the fascine work once in place, the water could then be allowed to accumulate as the embankment progressed.

To build this embankment at a lower level is unnecessary, neither is it required to throw in loose stone below this permanent water line, as such work would only displace a nearly equivalent weight of water which is weighting the toe of the embankment almost as well as any work that could be placed there for weight purposes.

The water to this level will never be disturbed. The work in hand is to secure the bank, upon which the water is always fluctuating, from bulging or slipping. Suppose the water to be at its highest level, and soaking for many months into the face of the bank, and then this water is drawn off again to its lowest level, there would remain the old grounds of fear and risk of the work again slipping.

My design is to avoid this by placing the work on a greater base, and reducing the top crushing weight, and to form an irresistible water-tight face that will give the required weight and stability to the embankment, and so place the security of the dam beyond the possibility of a doubt, and set at rest for ever all anxiety and risk to the lives and properties that are annually increasing in this important district below this great pen of water.

My estimate of the cost of this additional work, as shown on plan, is £66,205.

To the Acting Engineer-in-Chief.

See separate reports herewith, M.P., 88/2452.—W.S.

ALFRED WILLIAMS, 11/12/88.

The Secretary for Public Works to A. Bennett, Esq.

Department of Public Works, Sydney, 11 December, 1888.

My dear Mr. Bennett,

You will have observed from the papers which have been laid upon the Table of the House that I have appointed two engineers outside the Department—one having only recently come to the Colony, and the other a resident of the sister colony of Victoria—for the purpose of inquiring into the present state of the Prospect Dam. I have given them the utmost freedom of action, and have instructed them as far as possible to keep themselves from the influence of the Department, and report to me the true facts of the case, whatever they may indicate.

My object, however, in writing to you is to ask you to be so kind as to assist me in this matter. From the interest your paper has taken on the subject of the Prospect Dam, it is clear that you must have obtained a great deal of information, and much valuable information, on the subject; and I have now to ask that you will be so good as to place this information, so far as you are able, at the disposal of the two gentlemen who have been appointed for the inquiry, namely, Mr. Mestayer, late hydraulic engineer to the South Australian Government, and Mr. George Gordon, an engineer of eminence in Victoria.

I have instructed these gentlemen to obtain information from every possible source, and it is for this reason that I ask you to be so good as to place any information you may have at their disposal.

I feel sure that, from a national point of view, you will accede to my request; and if you will furnish me with the names of those who have supplied you with information, I will take care that their evidence shall be taken and considered. My only object is to elicit the truth.

I am, &c.,

JOHN SUTHERLAND.

P.S.—To show the extent of the power entrusted to these gentlemen, I enclose you copy of the instructions to Mr. Mestayer, in similar terms to which instructions are being prepared for Mr. Gordon.

Minister's
Minute, dated
3rd December,
already printed

Minute by The Secretary for Public Works.

Department of Public Works, Sydney, Friday, 7 December, 1888.

Subject:—Prospect Dam—The report of the experts, Messrs. Whitton, Bennett, Hickson, and Williams, dated 5th December, 30th November, and 1st December, respectively.

I HAVE carefully read over these reports, and with regard to Mr. Williams have called upon that gentleman to furnish me with an estimate of the cost of the remedial works which he proposes as well as a statement as to whether his recommendations, if adopted, would involve the emptying of the reservoir, a point of prime importance at the present time.

With respect to the report of Messrs. Whitton and Bennett, they point out that there is no danger to the dam, so long as the puddle wall remains unbroken. As this is a matter of vital importance, I want to ascertain definitely whether this has taken place or not. I should gather that in the opinion of these gentlemen it has not, but the consequences impending if the other view is correct, are so serious, if not appalling, that no time should be lost in setting at rest this all important point.

I have therefore to ask Messrs. Whitton and Bennett to be so good as to address themselves to this question, with the view of allaying public apprehension, and as to the measures to be taken to secure

secure the present slip for which two courses have been proposed, viz., either to weight the toe, as was done in the case of the first slip, or to weight only the top until the bank had found its natural slope. I should be glad to know definitely which course Messrs. Whitton and Bennett recommend. I shall be glad of as early a reply to my questions as possible.

JOHN SUTHERLAND, 10/12/88.

B.C., Messrs. Whitton and Bennett.—J.B. Very urgent, 10/12/88.

FURTHER Correspondence respecting the Prospect Dam,
ordered on the 13th December to be appended to the
Papers previously laid upon the Table.

The Editor, *Evening News*, to The Secretary for Public Works.

Town and Country Journal and Evening News Office,
Market-street, Sydney, 12 December, 1888

Dear Sir,

Mr. Bennett desires me to acknowledge receipt of your letter and enclosure of yesterday and to say that he will be only too happy to supply your officers with any information in his power in reference to the condition of the Prospect Dam, in the security of which he takes a deep interest.

Such members of the staff of the *Evening News* as have reported upon the dam will willingly see Mr. Mestayer and Mr. Gordon, and afford those gentlemen whatever assistance they can to facilitate their investigations. At the same time I should mention that all information which representatives of the *Evening News* have obtained has been published in that journal and commented upon, and I assume that such information and comments touching a subject of such great importance have been preserved in your Department.

Should that not, however, be the case I have an index by me that will enable me to lay my finger at any time upon the various reports, &c., that have appeared on the subject in the *Evening News*. These I will be glad to point out to any accredited officer of your Department who may desire to see them..

I may add that it is very gratifying to Mr. Bennett and myself, as it must be to the public, to observe the steps you have taken to have a thoroughly independent examination made by competent engineers, of the dam, with a view of ascertaining its actual condition and so set the public mind at rest, if possible, as to its stability.

I have, &c.,

JAS. A. HOGUE,
Editor, *Evening News*.

The Secretary for Public Works to The Editor, *Evening News*.

Dear Sir,

Sydney, 12 December, 1888.

I have to thank you for your letter of this date, in which you offer to place your services at the disposal of the engineers I have appointed to inquire into the present state of the Prospect Dam, and I shall take care to request them to avail themselves of your kind offer.

My only desire is to get at the true facts of the case from whatever source I can obtain them. I have, from the first, been fully impressed with the necessity of the most searching investigation.

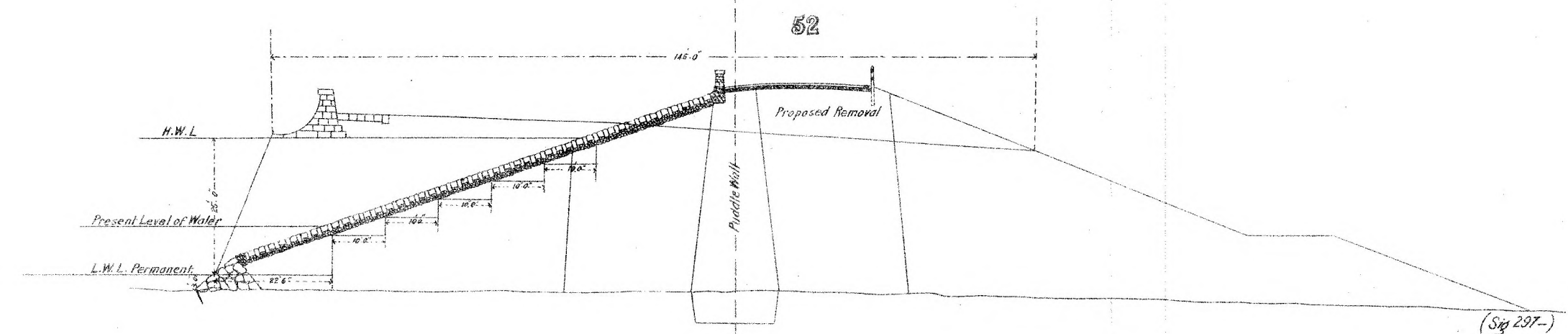
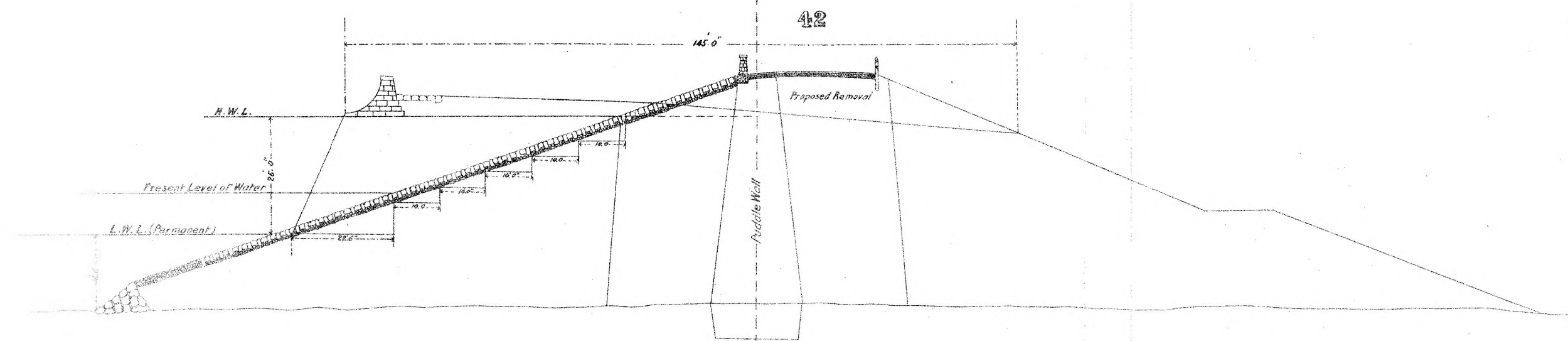
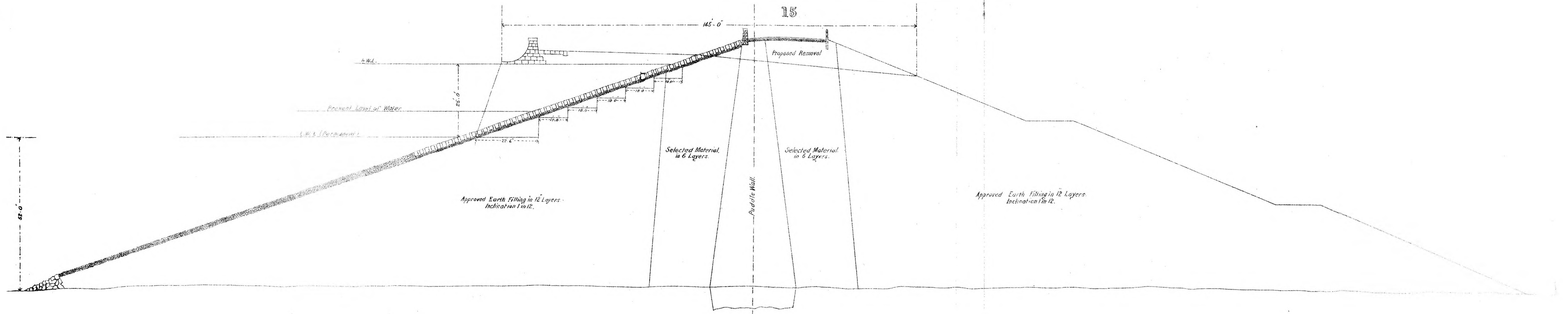
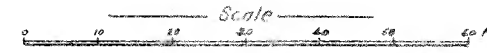
Yours faithfully,

JOHN SUTHERLAND.

[One Plan.]

CROSS SECTIONS PROSPECT DAM

SHewing THE PROPOSED FASCINE EMBANKMENT AND THE
LINE OF THE REDUCED LEVEL OF THE DAM



Alfred Williams
Consulting Engineer
Hudson River
11-12-36

(Sigs 297-)

1888-9.

LEGISLATIVE ASSEMBLY.

NEW SOUTH WALES.

SYDNEY WATER SUPPLY.

(REPORTS, &c., ON THE PROSPECT DAM BY MESSRS. GORDON AND MESTAYER.)

*Ordered by the Legislative Assembly to be printed, 15 January, 1889.**[Laid upon the Table of the House, further reports, minutes, and correspondence in connection with the Prospect Dam.]*

PROSPECT DAM.

15 January, 1889.

I HAVE carefully read and considered the reports which have been furnished by Messrs. Gordon and Mestayer in connection with this important matter. A perusal of all the correspondence will, I think, show that I have neglected no opportunity of obtaining information from every source which has been open to me in relation thereto.

I have from the first been fully impressed with the necessity of ascertaining all the facts of the case, and making them public without a single reserve, and this, I think, I have accomplished.

A perusal of the reports obtained will, I think, show that if the measures recommended by the two able engineers which I have employed are carried out no fears need be apprehended of the ultimate success of this great work. I have now to direct Mr. Hickson to carry out as quickly as possible the works recommended by these gentlemen, and if I have not an opportunity of doing it myself, I would urge my successor to place all the papers on the Table of the House at his earliest convenience. With regard to the termination of the contract recommended by Mr. Gordon, I have taken steps to secure this, but I have been met with the statement on the part of the contractors that there are outstanding claims unsettled, amounting to something like £33,000. This is the first time I have heard of their existence, and upon making inquiries of the Harbours and Rivers Department I am told that they are also unaware of it. The whole matter requires careful investigation.

JOHN SUTHERLAND

Report on the Prospect Dam.

By G. GORDON, M. Inst., C.E., 7 January, 1889.

THE points on which I am desired by the Honorable the Secretary for Public Works to report are:—

- I. On the dam and subsidiary works as a whole; whether the design is in accordance with the best engineering knowledge, and whether the work has been faithfully carried out according to the design.
- II. The present condition of the dam.
- III. The kind of material of which it is composed, and its adaptability to the purpose for which it has been used.
- IV. The cause of the movements, and their significance as bearing on the stability of the dam.
- V. The best course to pursue under the circumstances.

2. Having made a personal inspection of the dam, and had levels, measurements, and borings, and an examination by a diver made in my presence, and having examined the persons named in Appendix II, and inspected original drawings, &c., I have given the subject my most careful consideration, and I now have the honor to report as follows:—

1.—The Dam and Subsidiary Works as a whole.

3. Assuming the scheme of bringing the Nepean water into Sydney, of which the Prospect Dam forms an important part, to have been, after full consideration, finally adopted as the best, I am of opinion that the general design of the dam and its subsidiary works leaves nothing to be desired. It is in full accordance with examples of similar structures by some of the most eminent engineers in England, and in some particulars, I think, it is in advance of several important modern works in Europe. It seems to me complete in all its parts, simple in design, and therefore easily worked. As far as the general design is concerned, it seems to me to have been departed from in constructing the works only in two particulars; the connecting main has been laid on the lower instead of the upper side of the dam, and the brickwork stop in the tunnel has been purposely left out. Both are, I think, improvements.

4. I shall have occasion to refer to the specification again under III; I would here remark that so far as it applies to the dam it seems to me to be rather too strict and explicit for a work of this magnitude, the conditions of which had in part to be ascertained as the work proceeded, and not to leave enough latitude to the engineer. At the same time I admit that high authorities could be cited in favour of every clause in it. But for such a work the specification should be made applicable according to the spirit or intention and object of the design, rather than to its literal expression in the specification and plan, and it seems to me that in some particulars it would under this specification have been difficult to exercise a desirable latitude without coming into collision with the contractors. Judging by the evidence, I am of opinion that the contractors carried out the work as nearly as possible according to the specification, and in fact that they were very strictly kept to it, although Mr. Ryan, the executive engineer, and other witnesses, say there was a constant battle going on between the officers of the Department and the contractors. This is by no means an unusual state of affairs on large works. All the evidence, both of contractors and others goes to prove that Mr. Ryan was unremitting in his attention to the work and scrupulously exacting as to the conditions of the specification. There are on every work some occasions on which deviations from the specification are unavoidable, owing to the weather or other accidental causes.

5. As to the tower, tunnel, and outlet works generally, I had an opportunity of seeing them in progress in August, 1884, and was impressed by their substantial character and the care that was being taken in their construction. As they seem now to be in perfect order I shall not need to refer to them again.

II.—The Present Condition of the Dam.

6. The first slip at No. 54, which began in April last and continued up to November 12th, appears now to have been very nearly stopped in its horizontal movement by the deposit of stone on and outside the lower part of the slope in the middle portion of the slip. While the filling up of the slip went on in July and up to August 6th, the forward horizontal movement was as much as 1 foot per diem. After the 7th August it averaged 1·08 inches per diem to the 31st, and during the whole of September it only moved 1 inch. In October and part of November the movement was dependent on the work of filling and trimming going on on the inner slope, the aggregate movement up to November 12th being 20 inches. Since that date sometimes no movement has been detected for days together, but the bank has not yet quite attained a state of equilibrium, inasmuch as movements of $\frac{1}{8}$ " to $1\frac{1}{2}$ " in a day have been measured, amounting in the aggregate to $6\frac{1}{2}$ " from November 12th to December 20th. The forward movement of the stone filling which was observable for some time in the axis of the slip, and which reached a total observed amount of $10\frac{1}{2}$ ", has almost ceased, no motion being detected from the 27th November to the 18th December, except $\frac{3}{8}$ " on the 11th December. There is still some forward movement at the ends of the slip where the stone filling is incomplete.

7. From the sections shown to me that had been taken from time to time it is evident that this slip has a forward rolling motion, the toe having apparently resisted for some time any tendency there may have been in the lower part of the bank to slip forward. The motion is roughly indicated by arrows on the section at 54 on plan No. 1 attached.

8. As the front bank slipped away from the nearly vertical puddle wall, it is probable—indeed it may be said to be certain—that the latter subsided under its own weight into the space thus formed in front of it. It is extremely plastic, and it is recorded that the level of the top was found on the 2nd May, 1888, to have gone down 5 feet. After being remade, it went down 3 feet to 21st June, and 6 feet and upwards to 22nd September, when it was again fully rebuilt, but had subsided about 5 feet up to the 20th ultimo.

The Second Slip.

9. The second slip at T.S., No. 44, was first observed in November last, and observations of the daily movement were begun on the 23rd of that month. Before my arrival Mr. Mestayer had put down two bores, called No. 1 and No. 2, on the 7th and 10th December, respectively, at the reduced levels of 185·87 and 186·50, the water level in the reservoir being 178·79 and 178·75. On the 14th December

December I put down a bore, called No. 4, in the axis of this slip, at the R.L. of 179.59, near the water's edge, the water level being 178.72. This bore was put down to the original bottom at about 26 feet. At 14 feet (R.L. 165.57) water was met with which rose 4 ft. 6 in. in the bore (to R.L. 170.0); below that, at 16 feet, we found stiff dry yellow clay. At 20 feet it was slightly sandy. The water then rose to 1 ft. 5 in. below W.L. of reservoir or R.L. 177.22. On examining the same day No. 1 bore, the water was met (in the shape of thick slurry) at R.L. 172.62, and in No. 2 (clean water), at R.L. 177.42, with slurry at 174.25. On again trying the level of the water in No. 4 it was found at 174.24. As, in boring, this level was pierced in dry clay, and as the level of water first struck was considerably lower, also because in boring Nos. 1 and 2 no water was met with, although it afterwards rose in the bores to the heights above-mentioned, I conclude that there is no wet stratum on which the bank slides, but that the movement is in the whole mass, and the excess water is distributed through it. In all these bores the clay was generally similar, being of various colours, with a considerable admixture of white clay; in general it was stiff and dry, sometimes hard, and evidently, from the water not percolating into No. 4 from the reservoir, quite water-tight from the outside, although there is water higher up in the bank which finds its way into the bore-holes.

10. A bore, No. 3, was put into the puddle wall at the top of this slip. The puddle was thoroughly well worked, and very smooth and plastic, but to my mind not stiff enough. On the augur being withdrawn the bore-hole partly collapsed before the tool could be put down again. It is said by Inspector Davis that this was put in harder than that in the lower parts.

11. The puddle wall has subsided vertically 14.82 feet, or 12.73 below the intended ultimate level. The horizontal movement of the puddle wall has not yet been ascertained at this place, but it must have moved forward with the inner slope. The total horizontal movement of the face from 22nd November to 20th December is stated at 4.46 feet, and it was pretty uniform, averaging nearly 2 inches a day.

12. On the 19th December I sent Mr. Cameron, diver, down the slope at this place to examine the face of the bank and the toe. As well as could be measured with a steel tape down the slope from a mark above water, it was found that the top of the stone dyke had moved forward about 3 feet. The diver reported that the form of this slip is quite different from that at 54. There is no steep face to the bank and pitching near the bottom, but the toe appears to have been pushed out horizontally, the outer slope of the dyke being flatter, and the original surface of the bottom being forced forward and raised like a blister. This action extends both ways from section 44 as far as he could go, probably 200 feet on each side, but it diminishes each way, and there is more disturbance towards the east than towards the west. The broken stone between the dyke and the pitching is not thrown up or disturbed; the slope seems to the diver to be pushed out bodily, and the stones of the dyke are displaced. There were a good many loose stones which seemed to have come from the rough stone above the dyke, but they may have come from the dyke itself. The top of it is not of a uniform height, being 2 or 3 feet higher in some places than in others. The diver shifted the gear to section 47, and found the toe similar to the last place, but there was less bulge in the ground. In some places the dyke is twisted. Going from section 47 towards the first slip the action seemed to die out, but there were still indications of it. The results of the diver's examination are sketched on section 44, where the disturbance is at its greatest.

See sketch on drawing, Appendix E.

Plan 2.

13. Although the section of this slip is quite different from that of the first, it is, I think, probable that the movement of the bank began in the same way, and is due to the same cause; but in the first slip the foundation and the toe offered greater resistance, and caused the slipping clay to rise and roll over the dyke, while in the second the toe offered comparatively no resistance to the greater weight behind it, the bank being nearly one and a half times as high as at the first slip. In both cases the bank is seeking a flatter slope.

At and near Section 18.

14. On the 14th December I desired that a bore, No. 5, should be put down next day at section 18, which is nearly the highest part of the dam, and the cores kept for inspection on the 17th. They showed that the bore went through similar clay to the former bores. The bore was about a foot above the water level. Muddy water was struck at 10 ft. (about 168 R.L.), which in about three minutes rose to the top of the hole. When the men left off on Saturday the water was about 11 ft. below the surface of the reservoir. On removing the plug on Monday the water rose and ran over. At 8 to 10 ft. soft clay was met with, "as soft as the puddle in No. 3 bore," which at 4 ft. I found like soft putty, and at 6 ft. rather softer. On Monday the 17th the bore was put down to 42 ft. (the length of the rods), and finished in very stiff brown and gray clay. When the rod was taken out from 42 ft. depth the water stood at 3 ft. 6 in. from the top of the hole, or 2 ft. 7 in. below the reservoir water. I have shown this bore on drawing No. 3, as also the two additional bores Nos. 6 and 7 put down by Mr. Mestayer after I had left, in order to show the different levels at which water was struck, and at which it settled afterwards in the bores (see paragraphs 9 above and 26 below).

15. On the 17th the diver was sent down at No. 19, and reported that the toe was intact, and just the same as when he was down last for Mr. Bishop in May; but in about 12 ft. of water he came on a step or ridge in the rough stone which seemed to have been disturbed and had a wavy appearance. On the 20th the diver went down (by my instructions) at No. 17. At the bottom he found some loose stones which were not there when he was down in May last, they seem to have come from the rough stone; there are also some very loose stones in the dyke itself. Between 16 and 17 there is a great oozing out of white clay, of which the diver brought a specimen, extending some distance, and completely covering the slope. It runs over the bank "like paste" in some places, and extends pretty well up to shallow water. He noticed very little spuing at No. 19 when he was down on the 17th. He does not think this spuing runs down to the bottom. At 19 he got on the clean original bottom, and at that point there was no disturbance. He found places where there was some spuing when he was down for Mr. Bishop, but cannot remember where they are, as he made no notes at the time. At Nos. 16 and 17 he also found the ridge or step which he found at 19; it is not continuous but irregular, and not in a straight line. He did not find it where the spuing had taken place. None of this spuey material is found at the second slip, or between it and the first.

16. The puddle wall at No. 18 has subsided 4 ft. 7 in., or to 9 in. below the intended ultimate level. It has moved forward 2 ft. 4½ in. It is evident, therefore, that the bank of this place is not quite stable, although the movement is as yet very much less than at the slips. The curb at this section is

75 ft. 6 in. from the centre line, and it was intended to be 73 ft., and the line of curb seems to the eye to be somewhat bulged outward from the north end of the dam all along, but this cannot be verified by instrumental measurement, as no exact records exist of its original position. There is a curve in the rough stone toward the water side looking from the east bank, where it leaves the solid, but this is also subject to the remark just made.

At Section 5.

17. The puddle-wall is here in its right position—horizontally. It has subsided 1 ft. 9 in., that is to say, it is not yet quite down to the ultimate level, so that there is nothing to show that any undue movement has taken place at this place.

18. The rear slope of the dam seems to be in perfect order. The contractors were engaged at the time of my visits in soiling the slopes, but I could see nothing to cause any suspicion of undue or unequal settlement, nor has such, so far as I have been able to learn, ever been stated to exist.

19. The dam is at its present level quite water-tight, the leaks that have been said to exist are entirely imaginary.

20. I do not believe that the puddle-wall is fractured or cracked in any part, or that it is possible it should be.

III.—The kind of material of which the dam is composed, and its adaptability to the purposes for which it has been used.

21. The two materials we have to deal with under this head are the puddle in the middle of the dam and the clay of which the inner slope of the dam is built up. The former is made of the best, indeed the only clay available; and it has been well worked and made into a perfectly water-tight puddle. It is to my thinking not quite stiff enough; but as it is a "short" or friable clay, not in the least tough, it is better that it should be rather too soft than too stiff. I believe it would be found sufficiently dense in the lower parts of the wall. One of the difficulties the resident engineer says he had with the contractors was the too great quantity of water used in its manufacture. On the other hand, the contractors say the clay was of such a sticky and adhesive nature that the cutting and cross-cutting with spades specified and insisted on could not be done without a large quantity of water. In addition to this, the trench was subject to be flooded by leakage from the pipes supplying the water on the dam, and by the rainfall on the inner slope, which, according to specification, had a reverse slope of 1 in 12, and from which the surplus water had to be carried across the puddle before it could reach the drains in the outer slope. The contractor's engineer, Mr. Moline, also says that owing to the puddle being brought up in perfectly horizontal layers (longitudinally) it was difficult or impossible to thoroughly drain off surplus water. In July, 1885, the resident engineer wrote strongly to the contractor respecting the too lavish use of water. Although this is the only written objection on the subject, the letter implies, I think, that this had been the subject of verbal complaints. (Appendix III.)

22. I believe that though it may be liable to greater subsidence than was reckoned on in its higher parts, and may in this way give trouble, it is perfectly safe in regard to being watertight.

23. The inner slope is principally, if not entirely, composed of clay from the flat behind the reservoir. Wherever bores have been put down they show a similar material—brown, yellow, red, and white clay. It cannot be said to be a good material for a bank, even if the most objectionable part (the white clay) had been excluded; and I am informed it was so mixed up with the other that it would not have been possible to exclude it from the dam. There is better material in Prospect Hill, and a good deal of it has been used apart from that required to bare the stone in the quarry. Some of it is mixed with stone, but some is free from it. These seem to be the only materials available.

24. Had these different materials been put in alternately in thicknesses of, say 3 feet each (3 layers of 12 in.), they would I think have made a very good bank. The evidence is somewhat conflicting on the question why only clay was used. Mr. Ryan says the contractors were at liberty to use earth from any of the places mentioned in the specification. Mr. Moline, while admitting that Mr. Ryan objected to pure clay being used, says he would not allow the earth from Prospect Hill to be brought on the work in trucks, or any stony or gravelly material to be used in the inner slope, relying on clause 17 of the specification. This is one case in which I think the specification binds the Resident Engineer too much, although Mr. Ryan says his chief allowed him every reasonable liberty. There are difficulties in modifying the contract *vis-à-vis* of the contractors.

25. I think the plan of depositing the material in the bank in layers sloping inwards, 1 in 12, is not suitable to this material, because, as the outer part of the embankment was always higher than the part next the trench, all the water falling on the bank in storms, as well as that specified to be used, is confined between the puddle wall and the slope, and cannot escape except to a small extent by evaporation. The practice of engineers differs in this respect, as well as regards the use of water in consolidating earth work. I think it would have been impossible to avoid the use of white clay entirely in this bank, and, therefore, I think alternating horizontal layers of clay and a more free material should have been adopted. (See para. 24.)

IV.—The cause of the movements and their significance as bearing on the stability of the Dam.

26. I think the causes of the movements are:—First, the character of the material employed in the inner slope, which will not stand at a slope of 3 to 1. Secondly, an excess of water used or allowed to accumulate in the inner slope of the dam—its presence in excess of what the clay will retain being shown by the filling of the bore-holes from a higher level than that of the reservoir water—and the excess tending to cause the material to take a flatter slope and to do this irregularly, and, so to say, in patches. There exists an erroneous impression that the water in the reservoir is destroying the bank, and that therefore its entire disappearance or dissolution is only a matter of time. The material is not washed out (except to a small extent in the case of white clay, see para. 15), but it is shifting in order to obtain a flatter slope. I think more vertical subsidence will take place in the puddle-wall than has been allowed for in the higher parts, and also generally, because it is said that the bank was not so well consolidated by carting and rolling for 3 feet or so on the inner side of the trench under the water-pipes, thus giving an opportunity for the puddle to squeeze laterally and compress this wet and ill-rammed

ill-rammed ground. Near the first slip the progress section shows that there was a deep depression here in the puddle wall, and I was informed that the water in the trench had to be dammed back in steps on the puddle, and that it sometimes got into the trench where it was being put in; and although it is possible to attach too great importance to this fact, I believe that this circumstance has increased at this place the over-saturation of the inner slope. I consider the rear slope of the dam perfectly stable; the inner slope is not so, nor is the puddle wall at present, but I think the inner slope can be brought to a state of stability, when it will serve its purpose of supporting the puddle wall.

27. In the meantime I do not think there is any risk of the dam breaking, even under a considerably greater depth of water than there is at present, or of any loss of water and consequent scarcity in Sydney.

V.—The best course to adopt under the circumstances.

28. What seems to me most urgently needed at present is the stoppage of the second slip, the first having been nearly brought to a stand-still. In my opinion this can only be done by reducing the slope of the bank, and opposing weight to its present tendency to slip. The broken stone used at the first slip would, I think, have been better deposited from a staging outside the toe, and clear of the shifted material, and I believe this is recognised by the engineers, but they were without the necessary appliances. Immediate action was needed, and it was not anticipated that new slips would take place. In deeper water I think barges or rafts towed by small steamers should be employed. It is impossible to say at present how much of this work will be needed, seeing that the place where the toe is most perfect is in the deepest part of the dam, where the work is oldest, and the greatest opportunities of slipping have existed; but there seems no doubt at all that it will be required from T.S., thirty-five, or so nearly up to the first slip, a distance of 1,600 feet, and for this part of the dam I would recommend *that the work be put in hand at once*, if it has not already been begun. I fear it will be necessary for a much greater length, for in whatever way the now slight movement at 18, and the oozing out of bad material at 16 and 17 will develop themselves. A flattening of the slope above L.W. to 4 to 1 will be necessary, and to do this under water a deposit of heavy material to form the foot of the new slope seems indispensable.

29. I regard the drawing off of the water in the reservoir as out of the question altogether; and even were it not so as regards the supply to Sydney, any incipient slip would be encouraged and new ones started—while, in all probability, the cheaper rate at which a new toe could be formed with dry materials would be more than balanced by the additional amount of damage to be made good.

30. The outer mound of stone of all sizes mixed being formed, the space between it and the present slope could be filled with a cheaper material—such as quarry-chips or screenings and strong earth deposited in bags and covered with broken stone. I have sketched the plan I would recommend on plan No. 4 attached to this report.

31. The precise mode of dealing with the bank from 15 to 20 can only be decided after the nature of the movements now beginning there have been ascertained. If the toe-dyke remains unmoved, and no bulge appears in the bank under the curb, I think the oozing can be stopped by a deposit of screenings; the slope above L.W. (170.0) to be flattened to 4 to 1, in the manner shown on plan 5 by red lines; the screenings covered with quarry rubbish and earth in bags supported by a mound of rubble 10 feet high and 6 feet wide on top; but if the bank shows a tendency to slip in the same way as at 44 or 54, then a much larger mound and a flattening of the slope under L.W. will be necessary. This I have shown on the same drawing in blue lines, and it will be seen that if it is ever found necessary it will be an addition to the deposit of screenings, which I would recommend to be put on at once unless the oozing out of clay is found to have ceased. In making this new slope of 1 to 4 above L.W. it may be possible to avoid taking up much of the pitching by giving it time to settle. It will be well not to raise the water in the reservoir higher than will give an ample reserve for Sydney, because, if raised, the water would, in my opinion, retard any movement that may be going on with the water at its present level, and make its true character more difficult to determine, while, if the movement were altogether checked by the rise of the water, it would certainly reappear on its being lowered again in summer; neither is it necessary to permanently finish off the crest of the dam. The width of the crest is reduced in front by 8 feet, but if it be desired to keep the 30-foot width on top, which, I think, is more than is necessary, it may still be got by adding to the rear slope at the top without making the slope too steep.

32. A slight movement in a high part of the dam would probably be best detected by the horizontal movement of the puddle wall, for the longitudinal cracks along the top might be caused by its vertical subsidence, especially where the trench was very deep, the added percentage having only been reckoned on the height from the base of the bank, and not for the whole height of the puddle; and I would therefore recommend that trenches be cut across the dam at every alternate T section at least, and the position of the puddle wall both as to level and horizontal position with reference to the centre line be observed daily, as also the position and levels of a series of pegs on the slope at each trench down to the curb measured and recorded in the accurate and careful manner adopted by Mr. Jacobs in observing the present slips. Beyond the water lines soundings should be taken. By this means any movement in the body of the dam, apart from subsidence, can hardly fail to be detected. (It should be stated that neither the contractors or their engineer, nor the resident engineer, suspected any slipping while the dam was being constructed. Mr. Davis, inspector, says he noticed that the inner slope took more filling than the outer, but he does not appear to have attached much importance to this.) Further, that if the services of Mr. Cameron, diver, are available, he should examine the face of the dam below water, going down at such distances as would allow him to cover the whole of the length, and reporting fully what he finds each time, and to do the whole work at least twice and oftener if any change is observed the second time.

33. The setting of the pitching and other work on the dam should be discontinued, and I would suggest that the present contract should be terminated by mutual agreement. The work remaining to be done by the contractors is neither important nor of much value, and the bank should, while these investigations are going on, be entirely in the hands of the officers of the Department; indeed if my recommendations are adopted it would be necessary to stop traffic on account of the trenches.

34. When cracks appear they should be dug out so as to allow of their being filled in and well rammed from the bottom to the top, but I do not think this work is of very great urgency in dry weather until the slipping has stopped. It is well however to prevent any more rain-water getting into the dam.

Where

Where the cracks are caused by the subsidence of the puddle wall, *i.e.*, when they occur between it and the earth filling front or rear. I think they should be filled up by forcing the puddle to expand laterally by weighting it on the top.

35. With such a watertight material as is used in the front slope I do not think there is any necessity for the puddle wall going higher than the H.W.L. or R.L. 195'00.

Estimate.

36. An estimate of the cost of the remedial measures must necessarily be contingent on the behaviour of those parts of the dam in which the movement is as yet uncertain (see paragraph 28 above). I therefore divide the estimate into five parts, of which the first, amounting to £12,050, refers to the work I have designated as urgent (paragraph 28). The second and third are contingent on the state of the dam as found in. If it slips as it has done at 44, No. 3 must be added to No. 2, not substituted for it, and that part may cost from £23,850 to £42,400. No. 4 is not urgently needed at present; No. 5 is.

37. I would state while in order to save time Mr. Mestayer and I conducted this inquiry together, as regards borings, diving operations, and also in taking some of the evidence, our joint work stopped there; and we have not conferred together on any of points III, IV, or V, referred for our separate and independent reports.

38. I have much pleasure in saying that all the persons to whom I applied for information, who were more immediately connected with the work, whether as engineers or contractor, seemed to be anxious to give all the information in their power, and I have to thank them for their willing co-operation with me in this inquiry.

Summary.

39. It may be convenient if I state briefly the results of my inquiry under the different heads.

- I.—*The general design of the Dam* and subsidiary works is in accordance with the best engineering knowledge, and the only ways in which the spirit of the original general design have been departed from are, in my opinion, 1st, a too close following of high authorities in the construction of such works, and 2nd, the choice of material.
- II.—*The present state of the Dam.*—The only part of the dam which seems to be perfectly stable is a short length at each end, and while the amount of movement in the highest part of the dam is as yet slight, it requires most careful watching. The slip at No. 54 seems to be now at rest, and that at No. 44 approaching that condition, but if the bank were made up, or the water lowered, it would probably again begin to move.
- III.—*The material* composing the inner slope of the dam is too clayey and, while quite water-tight, will probably cause a good deal of trouble and expense before it finally assumes a permanent form. The puddle in the wall is highly plastic and quite water-tight, but rather soft.
- IV.—*The prime cause of the movement* is the too clayey nature of the material forming the inner slope and the imprisonment of an excessive quantity of water in the bank during construction. This, I believe, can be remedied, but at a considerable cost. The state of the dam need not cause any alarm for its ultimate safety or stability, or any apprehension of a scarcity of water in Sydney, but prompt action is necessary.
- V.—*The best course to pursue.*—To terminate the present contract in order to allow of a thorough examination of the bank which should be undertaken *at once*; to stop the pitching of the slope; to construct at once a rubble bank from No. 35 to No. 51, or thereabouts, outside the toe and fill in behind it with suitable heavy material to a slope of not less than 4 to 1 below low-water and to reduce slope above low-water also to 4 to 1. To begin a similar rubble wall wherever there is any sign of the toe moving or of the slope bulging, and to continue in such places the treatment recommended at 35 to 51; to load the puddle wall; to let the treatment of the portions of the bank, where white clay is oozing out on the surface, depend on the movement or stability of the bank, and where there is any considerable amount of this oozing to cover it with screenings immediately; to allow the water to rise in the reservoir sufficiently to afford a proper reserve, but not higher, until the movement of the bank is checked; to use the greatest dispatch in carrying on the repairs.

G. GORDON,
M. Inst. C.E.

APPENDIX I.—ESTIMATES.

Estimate No. 1.

For repairs from T.S. 35 to T.S. 51, recommended at once (para. 28).

	£	s.	d.
Rubble mound, 25,718 cubic yards, at 6s.	7,715	8	0
Screenings, 1,185 " " 7s.	414	15	0
Filling, 9,130 " " 4s. 6d.	2,054	5	0
Rubble on face, 2,667 " " 6s.	800	2	0
Contingencies, 10 per cent.	1,065	10	0
	£12,050	0	0

Estimate No. 2.

For flattening slopes of dam and stopping oozing out of white clay from T.S. 5 to T.S. 35 (para. 28).

	£	s.	d.
Rubble mound, 17,222 cubic yards, at 6s.	5,166	12	0
Screenings at back of do. and over 100 ft. × 500 ft. × 2 ft., 5,037 cubic yards, at 7s.	1,762	19	0
Rubble stone face, 12,333 cubic yards, at 6s.	3,699	18	0
Filling below L.W., 40,000 } 49,000 cubic yards, at 4s. 6d.	11,050	0	0
" above " 9,000 }			
Contingencies	2,170	11	0
	£23,850	0	0

Estimate

Estimate No. 3.

Repairs between T.S. 5 and T.S. 35, supposing bank shows signs of moving (para. 28); additional to No. 2.

			£	s.	d.
Rubble mound,	37,811 cubic yards, at 6s.	...	11,343	6	0
Screenings at bank,	1,500 " " 7s.	...	525	0	0
Filling,	22,177 " " 4s. 6d.	...	4,989	16	6
Contingencies	...	...	1,691	17	6
			<hr/>		
			£18,550	0	0

Estimate No. 4.

(a) Alteration of top of dam, 10,200 cubic yards, at 2s.	...	1,020	0	0	
(b) Replacing puddle—					
Excavation, 5,000 cubic yards, at 2s.	...	£500			
Puddle, 4,000 " at 4s. 6d.	...	900			
			<hr/>		
			1,400	0	0
(c) Trimming, &c. (say) 5,000 cubic yards, at 1s. 9d.	...	487	10	0	
Contingencies	...	292	10	0	
			<hr/>		
			£3,150	0	0

Estimate No. 5.

Trenches for examination and refilling same (para.), 1,000 cubic yards,					
at 2s. 9d.	...	137	10	0	
Sutidries	...	502	10	0	
			<hr/>		
			£640	0	0

Immediate Requirements.

No. 1...	...	12,050	0	0	
No. 2...	...	23,850	0	0	
No. 5...	...	640	0	0	
			<hr/>		
			£36,540	0	0

Prospect Reservoir.

REPORT on the Embankment of the Prospect Reservoir and Works in connection therewith; made in pursuance of instructions received from the Honorable the Secretary for Public Works, by L. L. MESTAYER, Assoc. M. Inst. C.E., Hydraulic Engineer.

R. L. Mestayer, Esq., A.M.I.C.E., to The Honorable The Secretary for Public Works.

Sir,

I have the honor to report that, upon receiving your instructions, I made immediate arrangements to inspect the Prospect Reservoir embankment, and undertake the investigation with which you had entrusted me.

These instructions (*Appendix A*) may conveniently be resolved into the following divisions, viz. :—

- I. To visit the Prospect Dam and report upon its present condition.
- II. To ascertain the kind of material that has been used in its construction, and its adaptability to the purpose for which it has been employed.
- III. To point out:—
 - (a) The cause of the movements that have taken place.
 - (b) Their significance as bearing on the stability of the structure.
 - (c) What will be the best course to take under the circumstances.
- IV. To report on the construction of the dam and subsidiary works as a whole, whether the design is in accordance with the best engineering knowledge on the subject and whether the works have been faithfully carried out according to the design.

I propose to consider each division separately in the order named, and it may not be amiss for me to mention in this place that, having visited these works in March, 1887, and again early in June of last year, I had, prior to undertaking this investigation, some personal knowledge of the character of the work and the manner in which it had been executed.

I.—The present condition of the Dam.

On the 5th of December last, I visited the works, and after a careful examination of the plans, sections, and specifications of the reservoir and subsidiary works—especially of the plans and sections that had been prepared of those portions of the embankment that had given way, and the records of observations that had been taken up to that time—I went carefully over the ground with the resident engineer, Mr. R. H. Ryan, and took note of all the information he had obtained relating to the movements.

My last visit to the works was made on the 2nd instant, and the report which I now have the honor to present, is based entirely upon information and evidence obtained at various times, and from many different sources, during this period.

I found on examining the embankment, that considerable movement had occurred at three different positions, which were altogether in excess of anything which could have been produced by natural subsidence of the materials of which the embankment had been formed, viz.:—

- (a.) The first slip between sections 51 and 55, where a large section of the water slope, about 300 feet long, had moved bodily forward 27 feet. This forward movement was naturally accompanied by extensive subsidence of the top portion of the embankment between the puddle-wall and inner slope, and the formation of extensive fissures running longitudinally above the puddle-wall which (owing to the support from the embankment being withdrawn) had subsided about 17 feet and followed the moving portion of the embankment.
- (b.) A second slip between sections 42 and 46, which had at that time reached a total forward movement of 152 feet, accompanied by subsidence of the inner portion of the top of the embankment and the formation of fissures running longitudinally over the outer and inner edges of the puddle-wall, similar, but to a much lesser extent to those formed at the site of the first slip.
- (c.) Extensive subsidence of those portions of the top of the embankment between the puddle-wall and the water slope from sections 4 to 30, accompanied by the opening of fissures varying from a few feet to several chains in length, some of them being from 10 to 14 feet in depth, and from 1 to 18 inches in width.

The subsidence of the earth at this point, had, up to the time of my first official visit to the works, been ascribed to natural settlement of the material.

This being the deepest portion of the embankment, the results of the natural settlement would necessarily be more strongly defined than at the more shallow portions of the embankment; but, although recognizing the force of this argument, I was struck by the similarity between the fissures that had opened here and those at the other point, where decided slips had taken place, and finding that up to that date no regular observations had been taken at this latter point to ascertain whether any forward movement was taking place, I instructed Mr. Ryan to have daily observations taken for this purpose, similar to those being made at the side of the two first-mentioned movements. This has been done regularly since that date, and the result is that no movement has been detected during the last four weeks; but, in order to ascertain whether any movement other than subsidence had taken place previously at this—the deepest—portion of the dam, I have had sections taken and plotted upon the original sections to which the work was constructed, and these show clearly that a forward movement has taken place, amounting to a maximum of 18 inches at section 18, and extending right and left of this, the total length moved lying between sections 15 and 21.

The fact of this movement having occurred is further confirmed by the examination of the bank under water by the diver.

In order to ascertain the condition of the interior of the bank, I have had borings put down at eleven different points, and in Appendix B is given the results in detail. Generally speaking, they indicate that the bulk of the embankment is solid and dry; but in most cases there are indications of the presence of moisture in some one portion or other of the embankment in quantities more than sufficient to exercise a most injurious influence upon the materials of which the bank is composed.

As the depth of water on the inner toe of the embankment varied from 20 to 50 feet, I could not personally examine it, but the services of a diver were placed at my disposal, and with his assistance a careful examination has been made of that portion of the embankment under water, extending from section 16 to section 50.

This examination has fully confirmed the fact of a forward movement having taken place at section 18, a bulge occurring on the slope about 36 feet from the waters edge, as though the upper portion of the bank had slid forward upon the lower. No movement of the stone dyke at toe of embankment was observable at this point.

The examination of the water slope of the embankment by the diver also revealed the fact of the slip at section 44 being different in character from those at section 18 and section 54. In these two latter cases the upper portion of the bank has moved forward upon the lower portion, the plane of movement lying apparently at a point about 40 feet below the top of the embankment at section 18, and about 29 feet below the top of the embankment at section 54, the stone dyke at the toe of the embankment retaining its original position at both these sections, but at the former place (section 44) the stone dyke has been forced from its position, driving the ground before it and opening cracks of many feet in length in the solid ground in front of the moving portion, some of the cracks being, the diver states, "large enough to take in the whole of a man's leg."

The stone dyke all along this portion was very much distorted, many of the stones displaced, and several of them forced completely out of the dyke, which appeared from its form to be gradually overturning.

Between sections sixteen and seventeen—almost the deepest portion of the embankment—a large amount of soft material had spued out of the bank. Samples of this were brought up by the diver, and consisted principally of white and pale yellow clay of the consistency of stiff paste.

The diver reports having seen a little of this in one or two other places, but not in noticeable quantity, as at this particular portion of the embankment.

In order to ascertain the condition of the puddle-wall I have had the ground opened and the puddle-wall exposed at different points. The original line of the puddle-wall was then set out, and measurements carefully taken to the inner edge. It was thus found that the puddle-wall at section 18 had moved inwards (towards the water) about 2 feet 4 inches and had subsided 459 feet, being 7 inches more than had been originally allowed for.

At section 5 it had subsided 173 feet, being 7 inches less than the 5 per cent. allowed for, and the centre of the puddle-wall was in its original position, showing that no movement other than natural subsidence had taken place at this point.

At section 24 the puddle had subsided 3 ft. 9 in., being 4½ inches more than allowed for in the construction of the wall.

This excess of subsidence of the puddle-wall beyond the percentage allowed, is just what might have been expected, and will go on for some time yet, as it appears from the evidence given by Mr. Ryan that the 5 per cent. addition was made only on the height of the puddle-wall above the ground line, and that no allowance was made for subsidence of the material in the trench.

This

This I consider an error of judgment, the portion of puddle-wall in the trench being very moist, and exposed to a pressure from the material above ground of from 2 to 5 tons per square foot, will certainly be compressed to a greater or lesser extent, especially where the strata passed through are at all porous.

Samples of the puddle-wall were taken out at each place and carefully examined. The whole of them were very uniform, and showed every indication of the puddle being of first-class quality, thoroughly well worked, but of a softer consistency than I should have considered advisable.

I have carefully examined the back of the embankment, but can find no indication in any portion of it, of any movement other than natural subsidence. Particular attention was given to the lower portion of this side of the embankment owing to rumours that had been circulated of a leak having occurred at or near the deepest portion; but there is nothing to justify any such statement—in fact everything goes to prove the direct opposite; and I have no hesitation in asserting positively that there is not the slightest leak through the puddle-wall up to the present time, nor is there anything to indicate the slightest probability of such an occurrence in the future. Dry stone drains were built in this portion of the embankment to remove the surplus water from it during the time of its formation, and to serve as outlets for the portion of rainfall absorbed after its completion. The water now trickling from the foot of the back slope at two or three places in every case issues from the outlets of these stone drains, and is not more than would naturally be looked for, considering the large area of bank exposed to the weather, and the heavy rains which have lately fallen.

When I first examined the embankment on the 5th of December last there was no flow of water from any of these drains, but on the 19th of December there was a slight stream from the two draining the deepest portion of the embankment.

The whole of the ground at the foot of the embankment, except at the outlet of these drains, is perfectly dry and firm; and none of the witnesses whom I have examined have been able to indicate any point—except the outlets of these drains—where any moisture has at any time been noticed.

When the back slope of the embankment is turfed, very little, if any, water will find its way down these drains.

In Appendix C is given the total movement at each of the places where any slip has occurred, and also the daily movement since I have had the work under observation.

II.—The kind of material that has been used in the construction of the embankment, and its adaptability to the purpose for which it has been used.

This division of my investigations has a most important bearing upon the questions I have afterwards to consider, viz., the causes of the movements and their significance—and has consequently received my most careful attention.

I have spared no pains to obtain the fullest information from all sources, and all the evidence I have obtained from persons totally unconnected with either the Government Department or the contractors goes to confirm the particulars given me by the Resident Engineer and by Mr. Shand the contractors' representative. There is consequently no conflict of evidence so far as regards the materials used.

The puddle-wall consists of carefully-selected yellow and red clays, excavated from the flat immediately below the embankment.

That portion of the embankment next to the puddle-wall consists of selected material taken from the same place as the puddle, and consists principally of yellow and red clays, similar to that of which the puddle was formed, worked in 6-inch layers.

The remainder of the embankment has been formed of somewhat similar materials, from the same site, together with a large amount of earth from the hill at the east end of the embankment and the material excavated from the puddle-trench.

This was all carefully inspected before being deposited, the finer material being deposited on the water side of the embankment, and the stone and coarser material at the back, all of it being worked in 12-inch layers, and every endeavour appears to have been made to thoroughly consolidate each layer by rolling and diverting the traffic over every portion of it in turn.

These layers were all formed with an inclination of 1 in 12 towards the puddle-wall.

The puddle is of a quality fully equal to any I have seen in the colonies. It is not quite as tough as puddle is usually made in England; but that is to be accounted for by the different character of the clay, none of the clays that I have yet seen in the colonies being as strong or suitable for puddle as the majority of the clays found in England.

The material, however, employed here is undoubtedly of very good quality, and quite suitable for forming a sound and perfectly water-tight puddle-wall.

I have taken samples from the puddle-wall, both by means of open cuttings and by boring into the heart of it; and all the samples, although taken from very different points and from various depths, are remarkably uniform, and prove that the puddle is of exceedingly good quality; but it has been put in softer than I consider necessary.

It is with very great regret that I find myself unable to speak as well of the material used for the embankment, especially for that side of it next the water.

The bulk of this portion is clay, taken from the same side as the clay for the puddle, and all the material which was not considered suitable for puddle was brought into the bank.

I do not consider that clay alone ever makes a good bank. It would be much better if mixed with an equal bulk of coarse gravel. In this particular case a considerable portion of the material consisted of inferior clay and decomposed shale, whilst the earth from the hill at the east end of the embankment contained a quantity of what appeared to be a dark, almost black, clay, resulting apparently from the decomposition of the diorite rocks; both this and the inferior light-coloured clay from the flat are unsuitable for the water-face of the embankment, as in the presence of water they run down to slurry of a specially slippery nature.

The borings which I have taken fail to show the presence of these inferior materials in beds or patches of any depth, and from the care that has unquestionably been taken to ensure complete mixture and thorough

thorough consolidation of the whole of the materials, I should not have anticipated anything different; but as these materials form a by no means small proportion—in some places amounting to one-fourth of the whole—I cannot but believe that they have appreciably affected the water-resisting capability of the remainder of the material, and in the presence of any large quantity of water the mixed material would not naturally stand at a slope of 3 to 1.

So far as the back of the embankment is concerned, I consider the materials quite suitable for the purpose, as even if the grey and black clays existed there in a much larger proportion than in the water-side of the embankment no evil result could ensue, owing to the draining of the bank by the stone drains and the admixture of rougher and coarser materials, which would have a tendency to prevent the formation of any plane of movement such as appears to have been formed where the slips have occurred.

All other materials that have been used in the construction of these works are, in my opinion, of the very best quality, and in every way suitable for the purposes for which they have been employed.

III.—(a) The causes of the movements. (b) Their significance as bearing upon the stability of the structure. (c) The best course to take under the circumstances.

(a) I have no doubt that the principal cause of the movements is excess of water in the embankment, which has acted upon the inferior materials (the white and black clays already referred to), disintegrating and decomposing them, and forming a slippery surface, inclined to the horizon at an angle insufficient to support the upper portion of the embankment.

This water can have obtained access to the embankment in three different ways, viz. :—

1stly. Upwards from the ground, as suggested by Mr. Gipps, in consequence of the puddle-wall having blocked the passage for the flow of the underground water through the porous strata intersected by it, and causing an accumulation of water at a pressure sufficient to enable it to force its way between the puddle-wall and the side of the trench, or through the ground underneath the embankment.

2ndly. By percolation of the water in the reservoir through the water-face of the embankment.

3rdly. By the accumulation in the embankment of rain falling upon the working-faces during the progress of the work, and sinking into the subjacent layers, partly also from the excess of water used in forming the puddle, and leakage from pipe supplying the puddlers.

It was asserted by one of the witnesses (Mr. Lamond) that the movement was caused by water in the ground which rose and fell as though subject to tidal influence, and he considered that this water was acting upon the puddle-wall, converting it into "soup," and causing the whole mass to settle down bodily. A direct settlement, however, will not account for the movements which have occurred, and would, moreover, have affected the back of the embankment quite as much as the front portion.

The oscillations of water-level referred to by Mr. Lamond have not been observed by other witnesses, not even by the man who had charge of the trial-shafts, and even if existing could not have had the effect suggested by Mr. Lamond.

If the movements are due to water in porous strata underlying the reservoir breaking through the ground under the embankment owing to the action of the puddle-wall in arresting the natural flow, one would expect that the movements would in all cases be alike, and that the planes upon which motion has taken place would be at or near the same level as compared with the natural surface of the ground; also that borings put down through the embankment would all strike water at the junction of the bank with the original ground surface; but so far from this being the case, the bottom is in all cases where it has been reached by boreholes, hard and dry, water being met with many feet above the surface.

If the water were finding its way up through the puddle-trench, it would be found in greater abundance in the boreholes nearest to the puddle; the exact reverse is, however, the case.

Also, at the site of the slips at sections forty-four and fifty-four, where the greatest movement has occurred, no water-bearing strata were cut through, the puddle-trench being exceptionally dry at this part.

The gravel bed in which only was any quantity of water encountered underlies the deeper portion of the embankment, where the movement has been but small; and the water in the embankment at this part is 47 feet 6 inches above the original surface.

I conclude, therefore, that the water is not coming from the ground, nor is it coming up the puddle-trench.

If the water is finding its way into the embankment from the reservoir, it would necessarily follow that the level of the water in the different boreholes would stand at the same level which should correspond with that of the water in the reservoir; also that of two boreholes on the same section, one near the water and the other near the puddle-wall, if any difference did occur, the water should stand at a lower level in the hole near the puddle-wall than in that near the water, owing to the frictional resistance of the material through which the water had to pass.

Here, again, however, the facts show the exact opposite; the boreholes on section eighteen giving a water-level in the hole nearest the puddle-wall of 9 inches *above* that in a hole 25 feet nearer the water. Again, in sinking the first borehole on section eighteen (Appendex B, Bore No. 5), the water rose above the surface of the ground, continued flowing for some minutes, and the following morning, when the plug closing the hole was removed, the water rose above the ground and overflowed, although the ground at this point was 9 inches above the level of the water in the reservoir.

This fully proves that the water met with is not forcing its way into the embankment from the reservoir.

The only remaining alternative is that the water has accumulated in the embankment during its construction, and all the facts observed in connection with the movements, together with the results obtained from the boreholes, which I have put down, can be completely explained on this hypothesis; while the evidence given by different witnesses fully establishes the fact of a very large amount of water—chiefly due to the wet season of 1887—having fallen on the exposed work.

The natural disadvantage of having such an exceptionally wet season had undoubtedly been aggravated by the unsuitable nature of some portions of the material, and also by the manner in which the embankment

embankment was formed, viz., in layers sloping inwards to the puddle-trench, in consequence of which the whole amount of rainfall was thrown inwards to find its way into the puddle-trench, or downwards into the lower portions of the embankment by absorption and percolation through surface cracks and irregularities, which were bound to exist in spite of the means taken to consolidate the material.

The difference in the height of the different planes of sliding would, in this way, be accounted for, since different lengths of the embankment having been carried up at different times, the water would manifestly settle at different levels; especially as the varying quality of the materials employed would result in the formation of layers of varying resistance to the passage of the water, and varying also very much in their capacity for absorbing it.

During the very dry weather immediately succeeding the wet season of 1887 the work on the embankment was pushed forward very rapidly, 21 feet being made up during the first seven months of 1888 at section 15 and other portions at similar speed.

This rapid piling on of pressure has squeezed the super-saturated portions of the embankment comparatively dry, forcing the water away from near the puddle-wall—where, the embankment being highest, the pressure of course is greatest—towards the water-face of the embankment. This water, forced in all directions through the material composing the embankment under considerable pressure, has disintegrated and decomposed the weaker and inferior clays and decomposed shale; and where many of these water-ways—small individually—intersected or even traversed the same plane, the cohesion of the mass of earth has been reduced to such an extent as to render it incapable of supporting the strain thrown upon it, and a forward movement has taken place.

The water having been gradually driven from the puddle-wall to the water-face is to a certain extent retained there by the pressure of the water rising in the reservoir, and that portion of the bank would consequently become more disintegrated and softened than that nearer to the puddle-wall, and its effective resistance to the thrust behind it proportionately reduced.

The mechanical action of the water has, I believe, been the principal cause of the movements that have taken place, but the evidence given by Mr. Mackay goes to indicate that this action has probably been much intensified by the chemical decomposition of some portions of the material, notably the white and black clays, which under the influence of moisture rapidly oxidise, and in so doing increase considerably in bulk. My own observations on the behaviour of these materials when exposed to the influence of water and air entirely confirm this, and the expansion of the clays, due to their chemical decomposition, would call into action a force tending to move the bank bodily towards the water, even if the angle of repose were more than has been provided for. If the movement is due to this action alone it will soon cease, and when that occurs the bank will rapidly consolidate.

From a careful consideration of all the facts I have gathered, and the evidence obtained, I conclude that the movements have been occasioned by the combined action of six different causes, none of which alone would, under ordinary conditions, have injuriously affected the stability of the embankment, but which, when found united at any particular section, would have been sufficient to overcome the natural cohesion of the material and produce a greater or lesser amount of motion, depending primarily upon the amount of moisture present, and, in a secondary degree, upon the relative intensity of the different causes, more especially upon the proportion which the inferior white and black clays bear to the bulk of the material, and the consequent energy of the action occasioned by their disintegration and decomposition.

This conclusion is, I consider, materially strengthened by the fact of the greatest movement having occurred at the site of the first slip. During December, 1887, and January, 1888, there was a large accumulation of water at this point, owing to the damming back of the water from the excavation for the puddle-trench between sections 57 and 59; this water being prevented from reaching the puddle-trench could not be drained off at all, and the whole of it had to sink into the bank or dry up. That the greater portion of it sank into the bank is certain, and I have not the slightest doubt that the magnitude of the slip, which has occurred at this point, is due entirely to the excessive saturation received by this portion of the embankment at that time.

Causes operating to effect the movements, arranged in the order which I consider best represents their relative effect.

- 1st. The large amount of water contained in the water-face of the embankment, arising principally from exceptional rainfall during 1887, and to a smaller extent from excess of water used in puddling.
- 2nd. The inferior character of some of the materials employed, more especially the white clay from the flats below the embankment, and the dark decomposed diorite from Prospect Hill.
- 3rd. The chemical decomposition of these materials under influence of excess of moisture.
- 4th. The inclination of the formation layers towards the puddle-wall by which the rainfall was directed into the work.
- 5th. The rapid construction of the embankment during 1888, by which the pressure was brought too rapidly upon the wetter portions of the interior.
- 6th. The rising of the water in the reservoir, which, preventing the gradual draining of the embankment, has increased the decomposing and disintegrating action of the contained water.

(b.) The significance of the movements as bearing on the stability of the structure.

If the view I have taken of the causes of the movements is correct there is evidently ample scope for very wide divergence of opinion as to their significance and the greater or lesser probability of their creating a permanent source of weakness of the whole of the embankment. Very much depends upon the comparative influence of each cause, and more especially upon the result of the prolonged action of water upon the inferior materials.

Before forming any definite opinion on the subject, I endeavoured to collect all the facts that could be obtained in any way bearing upon the subject, and although the time which has been occupied in this investigation has not been sufficient to enable me to assert positively that there is not the slightest fear of the movements rendering the structure insecure, there is the greatest probability, short of actual certainty, that no further movements will take place, and that no serious injury has been caused to the embankment by the present movements which will imperil its safety.

I do not consider that there is any reason to anticipate further movement through increasing the depth of water in the reservoir; on the contrary, the increased pressure brought to bear on the water-face of the embankment will be in a direction opposed to the present line of movement, and, while checking this, will also tend to compress the material, and—provided that all forward movement is arrested—will bring together the drier surfaces immediately above and below the present planes of movement, thus rendering the whole more homogeneous.

All the borings indicate that the great bulk of the material is firm and comparatively dry, so much so that it would bear the addition of much more water than can by any possibility exist in it at the present time, if only the water were uniformly distributed instead of being concentrated at a few places as at present.

I believe that this uniform distribution of the water will be effected by gradually increasing the pressure upon the water slope of the embankment, and that the excess of moisture now present at the sites of the slips, and probably also to a lesser extent in other portions of the work will, under the influence of continued pressure be disseminated throughout the drier portions of the material and gradually absorbed. There is not, in my opinion, the slightest probability of the water penetrating the embankment to any depth, the material is of too compact and now absorbent a nature for this to be possible, and the surface being protected by the broken stone, and pitching from all wave action will be proof against the greatest pressure that can be brought to bear upon it when the reservoir is filled to its utmost capacity.

When I visited the works on the 2nd instant, a strong wind was blowing, causing a considerable wash all along the face of the inner slope. Two witnesses—Mr. Gipps and Mr. Rutherford—have stated that under similar circumstances they found the water near the bank so thick and cloudy from suspended clay that it was quite unfit to drink. I made a careful inspection of the water and did not at any place find any indication of this, the water being as clear at the edge of the bank as it was in the centre of the reservoir, showing that the lighter portions of the material which had caused the cloudiness observed by these witnesses having been washed away the surface was now quite unaffected by the wash of the water.

The spueing out of the white clay observed by the diver between sections 16 and 17, and to a lesser extent in other places, is, in my opinion, the result of the surface action of the water, owing to a larger proportion of this material being immediately underneath the broken stone at these points; and this material being the most readily acted upon by the water, has expanded and forced its way through the stones.

This action will certainly occur at all places where any of the white clay will come to the surface of the inner slope, but will not in any way affect the strength of the embankment.

That the movements of the embankment have not injured the puddle-wall is certain, the material of which it is composed being in such a plastic condition that it will adapt itself readily to the varying pressure without cracking.

The only portion of it which has given way to any extent is at the site of the first slip, where it has subsided and filled up the space left by the forward movement or that portion of the embankment. When this is filled up solid and the puddle-wall carried up again to its proper height, the wall will be as strong here as at any other part of the work.

Most of the longitudinal cracks and fissures that have been observed along the top of the embankment, have doubtless been occasioned by the forward movement of portions of the embankment, many however, especially those over the back edge of the puddle-wall, are due solely to natural subsidence.

The material of which this dam has been constructed is about the very worst that could have been used if a perfectly regular and uniform subsidence were to have been attained. The puddle-wall will settle gradually and comparatively uniformly, not so the embankment. The rolling, watering, and kneading it has received from the traffic has so far consolidated it that it will allow the puddle-wall to shrink completely away from it before settling.

As this occurs, gaps will be formed under the surface and down the back and front edges of the puddle-wall for many feet in depth, when suddenly, owing perhaps to rain softening the surface; perhaps to a little heavier traffic than usual, the crust of earth overlying the fissure breaks down and a crack opens of greater or lesser extent.

There is nothing to fear from this so long as the cause of the cracking is subsidence only, and since the nature of the material forbids any hope of the bank-settling completely for many years, it necessarily follows that the appearance of the cracks along the top of the embankment must be expected for some time to come.

Under ordinary circumstances the formation of surface cracks should not occasion any anxiety. Seeing, however, that a large portion of this embankment is in a condition of unstable equilibrium, or at all events very closely approximating thereto, any formation of surface cracks must be carefully watched, and accurate instrumental observations maintained to determine whether they are due to subsidence only, or whether they must be considered as indications of further movement in the bank.

(c.)—*The best course to take under the circumstances.*

In considering the various means which might be adopted to stop any existing movements, prevent others from taking place, and make good the injuries which the embankment may have sustained by those that have already occurred, it is necessary to determine first of all whether existing circumstances will permit of lowering the water in the reservoir sufficiently to expose the whole of the embankment where the disturbances have occurred.

To do this would mean practically emptying the reservoir, so far as its functions of supplying the city is concerned.

If the quantity of water coming down the aqueduct was considerably in excess of the daily consumption in Sydney—ten million gallons in twenty-four hours—this might have been done, the 30-inch main below the reservoir being capable of delivering nearly 50 per cent. more than this; but on examining the records of the intake I found that the daily supply from the aqueduct had frequently fallen below 1,000,000 gallons in twenty-four hours.

I concluded therefore that lowering the water was out of the question, and that the *best course to take under the circumstances* must be such as can be carried out successfully, without interfering with the present supply to the city.

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This latter condition has largely influenced the recommendations which I have the honor to make, as, could the water have been drawn off, I should have advocated a very different method of dealing with the work.

At the site of the first slip, sections 51.50 to 55.50, the present distorted embankment should be at once cut down to an uniform slope from the top inside edge to the horizontal bench formed by the stone which has been tipped over the lower portion, the water slope to be finished to the original section down to this level; the horizontal benching, where of exposed earth, to have a 3-in. layer of stone, broken to a 3-in. gauge punned into the earth, a final layer of 12 in. of broken stone, similar to that now on the water slope, being spread over the surface.

The top of the embankment to be carefully examined, all unsound and loose parts opened up by trenches, which must be refilled with the gravelly soil from the Prospect Hill excavation, mixed with the material excavated from the trenches and from the slope of the bank, the filling to be in 6-in. layers, watered and rammed as solid as possible.

The puddle-wall where it has sunk to be brought up to the 200-foot level, thus allowing a slightly larger margin for settlement than before.

I do not consider it necessary to tip any more stone at the toe of the bank, as movement has ceased for some weeks, and the recent borings show that dry material now exists in places which were wet when the first borings were made in July last by Mr. Bishop.

The bank itself has consequently a greater resisting power than it had at that time. Added to this, the weight of stone already deposited is largely in excess of any thrust that can theoretically be brought upon it, although, owing to its being loosely packed, its effective resistance is far less than that of masonry of equal weight, or even of carefully-built dry rubble.

I do not consider that carrying up the embankment to its full height will cause any further movement other than that due to fully consolidating those portions of the embankment which have been loosened, and possibly a slight amount due to settling and compacting the stone.

At the site of the second slip, section 42 to 46, I do not think a more efficient system can readily be adopted for arresting the movement than depositing stone in front of the dyke and upon the toe of the embankment.

This stone, however, must not be tipped from the bank, but taken in boats or rafts and deposited directly on the place it is to occupy. By this means fully three-fourths of the quantity that would otherwise be required will be saved, time and expense largely economized, and the weight concentrated at the spot where it will be most effective. The quantity required will not, I believe, exceed 3,000 cubic yards, but in order to allow for the difficulty of depositing it in position I have taken the quantity at 4,000 yards in preparing the estimate of cost.

About 400 square yards of the pitching will have to be taken up and relaid and the top of the embankment treated similarly to that at the site of the first slip.

The movement at section 18 has not been sufficient to render any readjustment of the pitching necessary, and unless some further movement does take place—which I do not consider probable—I should not advise any interference with the present slope, but simply make up the embankment to its proper level, and open out all fissures and unsound places, making them up solid with similar material, and in the same manner as already described.

If, however, any further movement occurs at this point it will have to be dealt with in quite a different manner from that adopted in the other two cases; the plane of disturbance is about 10 feet below the present water-level, and could be reached by a trench which would allow of the water causing the slip being pumped out.

This operation would be both difficult and costly, although from the small depth at which the fault occurs it could, I am satisfied, be executed without danger. The water once removed there would be no chance of the slip recurring, and the trench could be filled in as solid as any portion of the embankment.

I have not given an estimate of this work, as it forms no part of my proposals for dealing with the embankment in its present condition, but it is put forward as the probable solution of a possible but very remote contingency.

I consider it of importance that the top of the embankment should be made sound without delay; the cracks now existing being merely blinded with loose material serve as channels to convey the rain falling on the surface into the interior of the bank, where it is not required, and can be productive of nothing but harm. A careful watch should be kept for any indications of cavities forming in future from the unequal subsidence of the materials, and immediate steps should be taken to fill them up solid with suitable materials.

This being a duty distinctly devolving upon the contractors, under Clause 24 of the general conditions of the specification, and in no sense to be considered as arising out of the movements upon which I have been instructed to report, I have not taken its cost into account in preparing my estimate. (*Appendix F.*)

IV.—To report on the construction of the dam and subsidiary works as a whole, whether the design is in accordance with the best engineering knowledge on the subject, and whether the works have been faithfully carried out according to the design.

The design of these works is undoubtedly in accordance with the best engineering knowledge on the subject, and, taken as a whole, they could not be better calculated to serve the purpose for which they are intended.

I have carefully studied the specification and contract-drawings, and closely examined every portion of the works.

The specification is clear and precise in its terms, and taken in conjunction with the contract drawings, contains provision to meet any contingency liable to arise, and every particular necessary for the satisfactory carrying out of the contract.

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The contractors have carried out their portion of the work in a thoroughly sound and substantial manner, and the serious disturbances which have occasioned so much anxiety and apprehension regarding the stability of the structure, are most certainly not due to any laxity of supervision on the part of the engineers, nor to any attempt on the part of the contractors to evade their responsibility.

When discussing the causes of the movements, I stated that sloping the layers of material of which the embankment is composed, inwards towards the puddle trench was, in my opinion, one of the causes which had to some extent operated in inducing them. It is but right that I should mention here that some of the first engineers in this branch of the profession advocate this particular method of forming embankments, while others of equal standing prefer to form them in horizontal layers. Taken by itself there is nothing to object to in this mode of construction, and with some soils it has decided advantages:

The special conditions which have combined to render this mode of construction so unsuitable in this present instance could not have been foreseen at the time the work was commenced.

It would, in my opinion, have been preferable to fill the deeper portions of the puddle trench with cement concrete up to an uniform level; the puddle wall would then have been of an uniform height throughout the work, instead of varying from 20 to 75 feet in depth below the ground surface as at present.

The method of working the puddle also by cutting and cross-cutting, is not, in my opinion, so well adapted as pugging to produce a puddle of first-class quality. Much more water has to be used, and there is great risk, especially with some kinds of clay, of the material becoming injured by the excess of water, and its toughness and consequent suitability for the intended purpose materially impaired.

The strict supervision on the Prospect Works appears to have been sufficient to guard against this; but the samples of puddle I examined were decidedly softer than any I have used in my own practice, and judging from them there can be no doubt that the puddle in the lower portions of the trench must be softer still.

This is to some extent an advantage in this particular case, the additional plasticity of the puddle allowing it to follow the movements of the bank without cracking, and so long as the puddle wall remains unbroken, it will be impossible for water from whatever source it may arise to penetrate to the outer slope of the embankment.

The whole of the work in connection with the outlet tunnel, valve tower, and waste weir, is of the very best description, and could not, in my opinion, be improved upon either in design or execution.

It has been my aim in the foregoing Report to comply as closely as possible with the instructions of the Honorable the Secretary for Public Works, to give "a plain unvarnished statement of all the facts," I have ascertained respecting the construction and execution of these works; and to state as concisely as possible the opinions I have arrived at upon the several points submitted to me.

I cannot conclude this report without acknowledging the great assistance I have received in making this investigation from the officers in the Public Works and the Harbours and Rivers Departments. All the resources of these Departments were placed unreservedly at my disposal, and any application I made for information, plans, or documents in their possession was fully and promptly responded to.

My special acknowledgments are due to those gentlemen who—some of them at considerable personal inconvenience—attended to give evidence on various matters coming within their personal knowledge, and it is matter for congratulation that although evidence has been obtained from so many and such varied sources, and from persons whose interests were in some instances diametrically opposed, the discrepancies are so few and unimportant in character.

11th January, 1889.

I have, &c.,
R. L. MESTAYER.

APPENDICES.

J. Barling, Esq., J.P., Under Secretary for Works,—

Sir, Beresford Chambers, 52, Castlereagh-street, Sydney, 13 January, 1889.

Re Prospect Dam, I have the honor to forward herewith the complete appendices referred to in my report on the above work, including the estimate, Appendix F, a copy of which was forwarded to the Honorable the Secretary for Public Works on Saturday morning.

I have, &c.,
R. L. MESTAYER.

APPENDICES.

- A.—INSTRUCTIONS.
- B.—COPIES OF BORINGS.
- C.—TABLE SHOWING DAILY MOVEMENTS.
- D.—SECTION AT T.S. 54.
- E.—SECTION AT T.S. 44.
- F.—ESTIMATE.

(A.) INSTRUCTIONS.

Minute by the Secretary of Public Works.

Subject :—Slip at Prospect Dam.

Department of Public Works, Sydney, 3 December, 1888.

WITH reference to the correspondence I have had with Mr. Mestayer, A.M.I.C.E., this afternoon, at which I requested him to visit the Prospect Dam, and make a report to me on its present condition, and to his acceptance of the Commission, I now wish to give specific instructions for his guidance. He will notice from reading the papers, and from the information which I have given him, that further movements have

have taken place in the Prospect embankment which have been the subject of many newspaper articles and have caused a considerable amount of apprehension in the public mind. I have already instructed Messrs. Bennett and Whitton to report on the subject, and they have visited the dam and are now engaged in preparing their report.

As the matter, however, is so important that it would not be right for me to leave one stone unturned in arriving at the true facts of the case, I have thought it desirable to call in the aid of experts who are unconnected with the Department. I understand that Mr. Mestayer is an engineer of considerable standing, especially in matters appertaining to hydraulic engineering.

I wish him, therefore, to at once visit the Prospect Dam, and carefully examine its present condition, and also to ascertain the kind of material that has been used in its construction, and its adaptability to the purpose for which it has been used. I wish him to point out the movements which have taken place, their significance as bearing on the stability of the structure, and what, in his opinion, will be the best course to take under the circumstances.

I wish him to give me a report on the construction of the dam and subsidiary works as a whole, and whether, in his opinion, the design is in accordance with the best engineering knowledge on the subject, and whether also the works have been faithfully carried out according to the design.

In carrying out these duties, as I wish to get an entirely unbiassed opinion on the subject, he will consider himself quite independent of either the officers of the Harbours and Rivers Department or of the engineers outside the Department who have previously reported on the subject.

Mr. Hickson and all the officers of the Department will be so good as to give Mr. Mestayer every assistance in the way of answering questions he may put to them, and will place at his disposal any plans and other information which they may possess, or which may be in the Departmental records.

I wish Mr. Mestayer to undertake this work at once, and shall be glad if he will as quickly as possible take in hand the duties confided to him, in the carrying out of which I desire, especially to impress upon him their great importance, and the necessity for giving a plain unvarnished recital of the facts as they present themselves to his investigation.

JOHN SUTHERLAND.

(B.)

BORE-HOLE No. 1.—Borings taken at T.S. 44, 13 December, 1888.

Hole 58 ft. 9 in. from centre of puddle trench. Reduced level of ground 179.57; reduced level of water in reservoir, 178.79.

	3 ft. yellow clay.
	5 ft. do shales.
	7 ft. do and blue clay ¹
	9 ft. do do
	11 ft. do red, and blue clay.
	13 ft. do do
	15 ft. do do
	17 ft. do and red clay.
Wet clay level ...	19 ft. do do showing wet.
	20 ft. do do
	21 ft. do do
	23 ft. do do
	25 ft. do clay.
	28 ft. do do
	31 ft. do and blue clay.
	33 ft. red clay and gravel bottom.

NOTE.—At 19 ft. a narrow band of what appeared to be a dark sandy clay was met in what was moisture. December 8th, at 11.30, I put a rod down this hole and found 24 feet of slurry and water.

BORE-HOLE No. 2.—Borings taken at T.S. 44.25, December 10th, 1888.

Hole 58 ft. from centre of puddle trench, 7 ft. 9 in. above W.L. Reduced level of ground 186.50; reduced level of water in reservoir, 178.75.

	2 ft. 6 in. red clay.
	4 ft. yellow and white sandy clay.
	6 ft. red and blue clay.
	8 ft. yellow and blue clay.
	10 ft. do do
	12 ft. yellow, blue, and white clay.
	14 ft. do do
	15 ft. yellow and blue clay.
	16 ft. yellow and blue clay; particles of dark clay through.
	17 ft. yellow and blue clay.
	18 ft. yellow clay.
	19 ft. do
20 ft. 9 in. wet clay level ...	20 ft. do
	21 ft. do
	22 ft. do
	23 ft. do
	24 ft. do

NOTE.—At 20 ft. 9 in. there appeared to be wet clay showing on the rods, which did not show itself until we had bored to the 23 ft. level.

BORE-HOLE

BOREHOLE No. 3.—Borings taken at T.S. 44. 13th December, 1888.

Hole on centre line of puddle-trench; reduced level of ground, 198·77; reduced level of water in reservoir, 178·72.

13 ft. 6 in. level of puddle	4 ft.	yellow and blue clay, dry and loose.
	6 ft.	do do do
	8 ft.	do do do
	10 ft.	yellow sandy shale and clay, dry and loose.
	14 ft.	puddle.
	15 ft.	do
	16 ft.	do
	18 ft.	do
	20 ft.	do

BOREHOLE No. 4.—Borings taken at T.S. 44. 13th December, 1888.

Hole 80 ft. 5 in. from centre of puddle-trench; reduced level of ground, 179·57; reduced level of water in reservoir, 178·72.

	3 ft.	yellow and red clay.
	6 ft.	do do
	8 ft.	do do
	10 ft.	yellow clay.
	12 ft.	do and shale.
	14 ft.	do (water).
	16 ft.	yellow sandy clay and shale.
	18 ft.	red shale and clay.
	20 ft.	yellow and white sandy clay.
	22 ft.	yellow, red and white.
	24 ft.	yellow and blue clay and shale.
	26 ft.	yellow clay and gravel (surface).

NOTE.—The water rushed in at the 14-ft. level when the rods were put down the second time.

BOREHOLE No. 5.—Borings taken at T.S. 18. 15th December, 1888.

Hole 79 ft. 1 in. from centre of puddle-trench; reduced level of ground, 179·44; reduced level of water in reservoir, 178·71

Water level	4 ft.	dark black clay.
	6 ft.	yellow sandy clay.
	8 ft.	do do (wet).
	10 ft.	yellow and black clay and ironstone gravel water.
	11 ft.	red and blue clay and gravel.
	14 ft.	red, blue, and yellow sandy clay.
	16 ft.	yellow and blue sandy clay.
	18 ft.	do do
	20 ft.	yellow, blue, and white clay.
	22 ft.	yellow, red, and brown clay and shale.
	24 ft.	do do do
	26 ft.	do do do
	28 ft.	do do do
	30 ft.	do do do
	32 ft.	do do do
	34 ft.	yellow and blue sandy clay and gravel.
	36 ft.	yellow and blue sandy clay.
	38 ft.	do do do
	40 ft.	do do do
42 ft.	yellow and sandy clay and gravelly loam.	

NOTE.—At 10 ft. upon drawing the rods the water rose with a rush, and rose over the surface of the hole, and continued running about 3 minutes. Dec. 17, —Upon drawing plug the water ran over surface of hole and rose about 9 in. from 1 o'clock to 2 p.m.

BORE-HOLE No. 6.—Borings taken at T.S.; 18, December 27th, 1888.
Hole 30 ft. from centre of puddle-trench. Reduced level of ground, 196.56; reduced level of water
in reservoir, 180.79.

4 ft.	yellow clay and gravel.
7 ft.	do and brown clay.
10 ft.	brown sandy clay.
12 ft.	do gravelly clay.
14 ft.	do clay.
16 ft.	do and yellow clay and gravel.
18 ft.	do do do
20 ft.	yellow sandy clay.
22 ft.	do do
24 ft.	do do
26 ft.	do do
28 ft.	do do
30 ft.	do do

December 28th.—At 15' 6" upon putting the auger down brought up soft mud and water which rose to 15' 7".

December 31st.—Slurry 15' 4" from surface.

January 2nd, 1889.—Slurry 15' 9" from surface.

January 3rd.—Slurry 15' 8" from surface.

BORE-HOLE No. 7.—Borings taken at T.S. 18, December 27th, 1888.
Hole 55 ft. from centre of puddle trench. Reduced level of ground, 187.73. Reduced level of water
in reservoir, 180.79.

3 ft.	yellow and black clay.
5 ft.	do do
7 ft.	do do sandy clay.
9 ft.	do sandy clay.
11 ft.	do do
13 ft.	do and black sandy clay.
15 ft.	do sandy clay.
17 ft.	do do
19 ft.	do do
20 ft.	do do

December 27th.—Cut the water at 19' 6", and it rose to 8 feet from the surface.

„ 28th.—Water 7 feet 10 inches from surface.

„ 31st.—Do 7 „ 3 „ do do

Jan. 2nd, 1889.—Do 7 „ 1 „ do do

„ 3rd. „ Do 7 „ 1 „ do do

BORE-HOLE No. 8.—Borings taken at T.S. 24, December 28th, 1888.
Hole on centre line of puddle trench. Reduced level of ground, 195.17. Reduced level of water in
Reservoir, 180.79. This boring was put down to determine the depth of puddle. Puddle was struck
at 8 ft. 6 in.

BORE-HOLE No. 9.—Borings taken at T.S. 24, December 28th, 1888.
Hole 30 ft. from centre of puddle trench; reduced level of ground, 195.17; reduced level of water
in reservoir, 180.79.

4 ft.	yellow sandy clay.
6 ft.	yellow and black clay.
8 ft.	yellow clay.
10 ft.	do do
12 ft.	do do
14 ft.	yellow and blue clay sandy.
16 ft.	do do
18 ft.	yellow clay sandy.
20 ft.	do do
22 ft.	do do
24 ft.	do do
26 ft.	do do
28 ft.	do do
30 ft.	do do

material, such as stone, is placed on top of earth undergoing the chemical changes, and under the conditions mentioned, the result will be to press out the lighter portion of the material—which analyses, in this case, let me see, is nearly one-half of the whole—the stone sinking downwards by the displacement. Where the soil is in contact with water, as in the case where slips outwards have occurred at the Prospect Dam, the process is very rapid, the light stuff being literally strewed out upon the water, where it is forming ugly blemishes upon the magnificent proportions of the huge earthwork.

I would suggest that, as the changes going on in the embankment cannot be stopped, the better course would be to meet the alterations as they go on, and so aid in the process of absolute solidity. This can be done by using water from the reservoir to soak—not to saturate—the soil. This would increase the process of oxidization, the sinkage and shrinkage being met by applying loamy soil, which would be washed into any small cracks or crevices. Large gaps and slips could not occur under this course of treatment. Thus the material of the embankment would solidify gradually downwards upon the solid earth below and against the puddle-wall behind. The said puddle-wall is, to every visible appearance, a most solid and perfect work.

Examination of the whole earth embankment along the inside face of the dam shows that the changes mentioned have occurred most rapidly where the greater proportion of loose clay-matter has been deposited, and where the westerly winds have had fullest opportunity for exerting their influences. This is just what might be expected. If all the bank facing the water had been of loamy earth no such rapid changes would have been likely to occur; and it might be worthy of consideration whether, where such masses of material have to be dealt with, it would not be a desirable course to have chemical analyses made, in order to have a knowledge of the changes which must occur when the stuff is moved and placed under different conditions from its natural state. Where clay has to be dealt with, so intricate and obscure is much of it in composition, that investigation of the kind seems to me a very necessary proceeding to ensure safety.

In order to meet the fretting or withering action upon the earthwork slope by the water in the reservoirs, when moved into wavelets by the winds, I would suggest that slabs of colonial hardwood—which does not float, being more dense or heavier than water—would answer the purposes of protecting the moving earth below. They would be fastened so as to lie upon, without pressing or shifting, the material under them; and as the stuff settled down solid the stone cubes could be laid in position, as being the very best material for the purpose.

I have now the pleasure of submitting the foregoing for your attention and consideration in such manner as you may consider most fitting, either in a private or public sense. I do not intend doing anything more in the matter. My desire has been to try and help to get at the cause of the troubles at Prospect Dam. The leisure of a brief holiday and the use of the apparatus in the Agricultural Department here have made the investigations possible and pleasant. I will be glad to give any further information in my power either to yourself or to any of the professional gentlemen concerned whom you may entrust with the same. I will be in Sydney during Wednesday, Friday, Saturday, and Sunday, January 2, 4-6. I leave for Port Macquarie, Monday.

I have, &c.,

ANGUS MACKAY, I.C.S.,
Inst. Agriculture, B.T.E.

Sir,

Department of Public Works, Sydney, 2 January, 1889.

I have the honor to acknowledge the receipt of your valuable and interesting letter of the 31st ultimo, in regard to the nature of the clay and soil used for forming the puddle-wall, and for making up the sloping embankments of the Prospect Dam, and to convey to you the thanks of the Secretary for Public Works.

I am desired to say that Mr. Sutherland will be glad to avail himself of your offer to give evidence on this important subject, and to ask you to be so good as to call at this office at 2 o'clock p.m. to-morrow (Wednesday), in reference thereto.

I have, &c.,

J. BARRLING,
Under Secretary.

ANGUS MACKAY, Esq., F.C.S.,
Technical College, Sydney.


Appendix II to Report of 7th January, 1889.

NOTES of Evidence taken *in re* Prospect Dam by G. Gordon.

1. I examined the following persons, and I give below the substance of the information obtained from them:—

	Page.
1. Mr. Moline, engineer to the contractors	21
2. Mr. Shand, manager for the contractors	21
3. William Nicholas, who was in charge of the borings made by my orders, and was an inspector on the works	21
4. Mr. Ryan, resident engineer	21
5. Mr. J. A. Hogue, editor <i>Evening News</i>	21
6. Mr. Stewart Wearne, correspondent of the <i>Evening News</i>	22
7. Mr. Rutherford	22
8. Mr. E. Jackson, brick and masonry inspector	22
9. Mr. Davis, inspector	22
10. Mr. Lamond	22
11. Mr. Weston (by letter)	23
12. Mr. Murray (examined by Mr. Mestayer in my absence)	23
13. Mr. Cameron, diver	23
14. Mr. Bramston	23
15. Mr. F. B. Gipps, C.E. (examined by written questions)	23
16. Mr. Buckett	23
17. Mr. Mayer	23

2. The evidence, except in the case of Mr. Weston, was taken down by Mr. Robinson, shorthand writer, and written out in duplicate for Mr. Mestayer and myself (except that of Messrs. Moline and Shand, whose evidence was taken down by another shorthand writer). I examined Messrs. Moline, Shand, and Ryan separately from Mr. Mestayer. The others we examined together, except Mr. Murray, who was examined by Mr. Mestayer only, and Mr. Gipps, whose evidence I got in answer to written questions put through Mr. Mestayer.

3. Mr. Louis Moline, 15/12/88, stated that he took charge of the works for the contractors about August, 1884, and was there till February, 1887; when he took charge there had been a great flood, and the puddle-trench got filled with water; the same year the flume in the lowest part of the valley burst, and the trench was again filled with water; it was baled out and all the slush taken out before work was resumed; a second flume at a higher level by 14 feet was put in at sections 24 to 25; after that the bank was kept high enough to collect any storm-water that might come in; the second flume was kept in for a considerable time afterwards, the trench and bank being properly stepped down, leaving an opening for an approach to the flume; a trench was dug in the solid and filled in in 6-in. layers when the flume was removed; the channel through the rear half was filled with stone; the material for the bank was chiefly got from the flat below the dam; none was taken from the upper or water side of the dam; there was not a sign of a slip; the material varies a good deal; Mr. Ryan objected to pure clay being used, but the whole country is clay, and the contractors could not help themselves; the bank was always watered as specified; it was watered by means of water-carts; a line of pipes was laid on the inner (or north) side of the puddle-wall, and the puddle was watered by hose from them; these pipes leaked or burst sometimes; the puddle would hold water "like a cup"; the frequent storms of rain did more than anything else to put water on the bank, and after rain it would lodge in the bank; sometimes the horses could not travel over it for a day or so; Mr. Ryan insisted on the clay in the puddle-wall being brought up in quite level steps, longitudinally, thus ; this made it difficult to drain

off surplus water from long lengths; Mr. Ryan often urged that less water should be used in the puddle, but it could not be chopped with less; the centre (middle) part of the dam is harder than that put on more recently; in 1886 cracks 2 inches wide occurred, owing to the subsidence of the puddle-wall; a deep part at No. 54 was pumped out after a heavy flood; does not think that has anything to do with the slip; the filling was both rolled and carted over; the specification was adhered to—"we could not get away from it"; considers the clay chopping needless, and that more water was put into the clay than was needed; the work was nearly all day-work; the clay-puddle was all day work; contractors objected to the water being let into the reservoir so fast; thinks that if the dam had not been filled so quickly there would have been a better chance for the water to get out of the bank; thinks there was less friction than usual between the engineer and the contractors; occasionally had to appeal to the chief engineer, who upheld the decision of his officer.

4. Mr. Robert Shand managed for Mr. M'Guigan (the contractor); after his death acted as executor; previously to this had never managed a contract for M'Guigan, but was more a confidential clerk; had charge of correspondence, pay, &c.; does not know that any part of the dam is different from any other part; so far as he knows the specification was adhered to to the letter; Mr. Ryan was very strict as regards that; the bulk of the material of the bank was got from the flat; it was all pretty much the same, and it was pretty well distributed; had a scheme for running a line into the hills and bring material down on to the bank; drained the surplus water into the stone drains in the rear half of the bank; was warned to give plenty of water both to puddle and bank; unless closely watched men will put more water on than ordered for ease in chopping; there was a man (now dead) who had nothing to do but to regulate the supply of water (Barge); puddle put in under his and Davis's inspection; both men were brought out from home; contractors had only to follow their directions; the men were entirely under their orders; the weather varied—1887 was very wet, last year dry; in 1884 or 1885 were stopped for want of water; got on very well with the engineer until lately, and carried out instructions; now there is a dispute about extras; often complained of undue strictness.

5. William Nicholas, inspector, took charge, first, at the 162-foot level; was on the trench, not on the bank, on the wet season; the contractors got rid of most of the water by draining into the stone drains; sometimes work had to wait, principally in the trench work.

6. Mr. Ryan, resident engineer (from beginning of work): Did not make the design of the work; it was made in the office, as also the specification. Work was carried out as far as possible according to the specification. The material of the dam at No. 18, where the flume was, is the same as the rest, and the puddle was brought up the same way; had a constant battle with the contractors; sometimes puddle was too wet; sometimes layers of banks too thick; sometimes surface soil was brought on to bank. After heavy rain men did not run water off as soon as possible. Complained of rainwater and of constant bursting of pipes flooding the work, but only once in writing (copy of memo. of July 20, 1885, attached). The slip was first noticed (22/4/88) nearly at No. 54, and bulging was noticed on the 24th; communicated with Mr. Moriarty. It was decided to change the section of the puddle-wall at the top where it was not at its full height, by making a set off of 4 feet on the inner side at 195 R.L. The puddle-wall, where settlement had long been going on, was opened on 2nd May, 1888, and found at 194.65; refilled it to 199.57; reopened again June 21st, when it was 196.39; rebuilt it then, and afterwards at different dates between September 5th and 22nd, when it was 182.70; rebuilt to 199.41; stone filling in front of slip was begun on 28th August, 1888; measurements of slip were made from nearly the commencement; no movement of stone since 26th November at middle of slip; still putting stone at ends of slip, where there is a slight movement. About 5,800 cubic yards of stone has been deposited up to 20th November; saw no sign of movement during construction of dam; were stopped for want of water previous to heavy rains in 1885; there was nothing unusual at any time; there was at 54 a quantity of water that had to be dammed back.

7. The Honorable the Secretary for Public Works forwarded to Mr. Mestayer and myself copies of correspondence that had passed between him and Mr. Bennett, proprietor of the *Evening News*, and we called on him to ask if he had any information he could furnish us with. Mr. Bennett referred us to the Editor, Mr. J. A. Hogue, and we saw him on the 18th December. Mr. Hogue informed us that Mr. J. Norton, now no longer connected with the paper, had furnished most of the information that had appeared in the *Evening News*. Mr. W. Stewart Wearne, now at Prospect, had also written several of the later reports. Mr. Hogue also gave us the names of Mr. Buckett, publican, near Prospect, Mr. Rutherford,

Rutherford, who was a sub-contractor on the works, Mr. Ives, M.L.A., Mr. Davies, M.L.C., and Mr. Gipps, C.E., as persons who could supply information. Mr. Rutherford furnished the information in *Evening News* of 3rd December, and predicted collapse of dam. Mr. F. B. Gipps gave information on which it was stated (2nd May, 1888) that portions of the puddle-wall consisted of rubble and rubbish. Mr. J. Norton wrote all the articles up to end of June. All the information supplied had appeared in the *Evening News* of April 23rd, 24th, 25th, 28th, 30th; May 2nd, 10th, 11th, 12th, 25th (report by Mr. Gipps); June 8th, 9th, 15th, 21st; July 31st; August 1st. It was found afterwards, on going through the file of the *Evening News*, that on July 28th, November 26th, 29th, December 1st, 3rd, 7th, 10th, 12th, 13th, and 14th the subject was treated of.

8. Mr. Norton.—I sent a telegram to Mr. Norton, asking him if he were disposed to give evidence, but I received no reply until on the 21st he came to Mr. Mestayer's office. He said he was too busy to give any information until about the end of the next week, but he would send a letter and state when and on what terms he would do so. As I left Sydney on the 22nd, I have no evidence from Mr. Norton.

9. Mr. Mestayer and I also wrote to Messrs. Ives and Davies; Mr. Ives replied, but he had no definite information to give as to the mode of construction of the dam; Mr. Davies did not reply.

10. Mr. S. Wearne.—On the 19th December, Mr. Mestayer and I examined Mr. Stewart Wearne at Prospect, and it appeared that most of the reports given by him to the *Evening News* were founded on information given him by Mr. Buckett, publican, and Mr. Rutherford, sub-contractor, and that he could not speak to many of the alleged occurrences from personal observation. Some of the statements, as, for instance, that the water was undermining the dam, were only expressions of his own opinion; he made no measurements of the slips, but "judged approximately"; he saw that some of the pitchers were displaced through the bulging; some dimensions (in article of August 1st) were given him by Mr. Rutherford; the statement that "the embankment was commenced straight off without cutting the natural surface" was information supplied to him (there is direct evidence to the contrary); in the paper of December 1st "leaks in the dam" were mentioned; Mr. Wearne stated that at this time a small stream of water appeared which had not appeared before (on this see Mr. Rutherford, page 22); he did not ascertain whether the small stream came from the stone drains; is not an engineer, and he wished the proprietors of the paper to send up a professional man, but this was not considered necessary. The article of December 3rd, in which it was stated that there was a small stream of water coming from the dam, was written by Mr. Norton; he is not an engineer, and knows less about the subject than he (Mr. Wearne) does; with regard to the disappearance of a horse and dray in the dam, Mr. Wearne did not see it; the horse sank up to the shoulder.

11. Mr. Wearne did not give Mr. Rutherford's name at this time, but said he would write to him for permission to do so; he had other informants.

12. Mr. Rutherford, Mr. Wearne's informant, was examined on the 21st; he was a sub-contractor, and did the pitching of the dam; he knows nothing of the construction of the dam; he did not notice anything wrong with the dam when he started the pitching; there was no bulging of the slope then; does not remember the date when he first noticed the slip; he told Mr. Copeland, one of the Inspectors, who disbelieved him; the pitching there was not finished, and he was shifted to another place; he had nothing to do with the construction of the dam, and only saw it when he rode past it; he did not see the earlier portion constructed; he did not, as stated in the *Evening News*, predict the collapse of the dam; what he said was that there would be a slip; it had begun, and he thought it would increase; has been about a year on the bank; has noticed the water very muddy for about a chain out all along the bank, when a breeze was blowing on to the bank; thinks the clay is too "soapy"; knows Mr. Wearne, of the *Evening News*, and corrected some information for him which he had got from a publican near Prospect; the information was very inaccurate; the "tunnels" spoken of are cracks, 8 or 9 feet deep; the extreme width he saw was 18 in. at the top; if anything of any greater size had opened he would have been sure to see or hear of it; has never heard of a horse and cart going down into one of the cracks, and if it had happened he must have seen or heard of it. Mr. Wearne asked him, some time ago, about the water flowing from the back of the embankment; told him he did not think it was from the dam; "it cannot be a leak"; the articles in the *Evening News* were certainly very highly coloured; they were what might be expected from a reporter wanting to create a sensation; while he was there about 20 feet of the bank (in height) was constructed, and it appeared to be done very thoroughly in 6-inch layers; nothing to lead him to believe there was anything wrong done; there were rows between the contractors and inspectors about not having sufficient water in the dry weather; there was not sufficient water in the puddle; has been on two or three dams in Victoria; never saw a bank so well constructed as this; the whole fault is in the clay; is sure the curb is not in the same position that he laid it in; thinks it fully a foot nearer the water; it was set out sometimes by Mr. Jacobs, sometimes by the contractors; thinks the contractors were compelled to do their work well, there were so many inspectors; Mr. Ryan and the contractors were always quarrelling.

13. Mr. E. Jackson, brick and masonry inspector:—The stone dyke at the toe was built simultaneously with the bank; they grew together; the embankment was made up against the dyke.

14. Mr. Davis, Inspector:—Came to the work in October, 1881; was specially brought out from England, where he had had experience in dam-making; has tested the puddled clay here under a small stream of water 1 foot high for twenty-four hours; it had then a slight dish in it; the contractors did everything we wanted, and they seemed willing to abide by the specification; we could not find much fault with them; after heavy rain the water used to lie about, but the contractors brought it into stone drains and ran it off; the (inner) bank is a watertight bank; the bank is moving; about eighteen months ago I found the bank had settled a good deal; when water got accidentally into the puddle-trench it was completely taken out; Mr. Moriarty thought we were getting the puddle too soft, but "I showed him that as the trench was rough it was necessary to be soft in order to fill in thoroughly"; his orders were to get the puddle so that the men could barely stand on it, and it was brought up soft "so that you could not sink into it with your boots"; it was made harder as it approached the top.

15. Mr. Lamond was examined on the 20th December; he was on the dam from the beginning to the finish; drove the engine of the contractor's sawmill. (He afterwards said he left on 14th July, 1883.) Mr. Lamond made a long statement in support of a theory of his that the puddle-trench should not have been put down lower than the water level in the ground, and that the damage is caused by this water causing the puddle to swell and lift the top; that water level was 15 feet from the surface; the water

in

in the trial shafts was salt; thinks the puddle at the bottom of the trench is like soup; did not see how it was worked in the trench; puddle-wall and bank were about 12 or 13 feet high when he left; the puddle-wall was about a foot below the bank; saw no sign of water working up when puddle was put in; the salt water never came to the surface; it was 15 feet below it.

16. Mr. Weston stated in a letter that he was employed on the tunnel works from 1883 until their completion; he had nothing to do with the puddle-trench, but has often heard contractors complain of the strictness of the engineer as to the preparation and placing of the puddle; has had considerable experience on public works in England, and never was under an engineer so strict and attentive to his duties as Mr. Ryan.

17. Mr. Weston's name was given us by Mr. Murray, another sub-contractor on the tunnel works; I was not able to be present when Mr. Murray was examined by Mr. Mestayer; many of his statements are directly contradicted by the evidence of all the other witnesses who speak to these points; I attach no importance whatever to Mr. Murray's evidence on this account; Mr. Ryan had to request the contractors to dismiss him from the work.

18. Mr. Cameron, diver, attended on the 21st and recapitulated his report of the first two days' operations, and reported what he had found on the 20th December; I have stated fully the result of his examination of the work in paragraphs of my report, and shown it on plans 1 to 3.

Mr. Bramston attended to offer a suggestion of a mode of supporting the dam, a modification of one which, he said, had been successfully applied to a miners' dam at Eaglehawk, Victoria; he proposed a breakwater of screw-piles and cylinders or concrete blocks on the inside of the dam, and near it, but not touching it (instead of the log breakwaters used at Eaglehawk). It was explained to him that the circumstances being quite different the plan would not be applicable in this case, and he expressed himself as satisfied.

19. Mr. F. B. Gipps, C.E., was in Victoria when I was in Sydney, and I wrote to him saying I would leave with Mr. Mestayer a number of questions which I would have put to him. To these and others put by Mr. Mestayer I received Mr. Gipps' replies on the 7th instant. He had visited the dam occasionally, perhaps two or three times in the year from the beginning; he saw the puddle put into the trench; he denies entirely Mr. Hogue's statement (*see page 6 ante*) that he was responsible for the statement in the *Evening News* that portions of the puddle-wall consisted of "rubble and rubbish"; he never made such a statement, and says it is incorrect, having seen the puddle-wall from its inception; considers the puddle well made, and of good material; thinks decidedly that the material in the inner slope was inferior; it was almost entirely clay or soluble shale; never saw on the inner slope any layers of any great extent entirely of white clay; considers the dark clay from Prospect Hill worse than the white clay; has seen layers of both these clays in the dam, but cannot say that they extend to any great width or depth; the clays appear to be intimately intermixed; never saw the bank or puddle in a wet or sloppy condition; thought too little water was used; never noticed any tendency in the bank to slide before the first slip took place; has noticed all along the bank that the wash caused by the wind makes the water very thick; has seen nothing to lead him to suppose that the contractors had not carried out their work properly. Mr. Gipps goes on to state his theory of the cause of the slips, viz., that the ground water rises under hydrostatic pressure between the puddle-wall and the bank; this is inconsistent with the facts that water is sometimes found in the bank at a higher level than the water in the reservoir, and that on the other hand most of the bores were put down through dry clay.

20. Mr. Buckett, publican, was examined by Mr. Mestayer. Mr. Buckett's name was given to us by Mr. Hogue, of the *Evening News*. He objects to his name appearing in the papers; Mr. Buckett says that what he has to say is only what he heard from the workmen; he knows nothing about "rubble and rubbish" in the puddle-wall, and never heard of it; has seen nearly the whole of the work, but did not watch it closely; sometimes he was not on the bank for a month, sometimes two or three times a week; tells only what has been told to him; knows nothing of the work, and cannot say anything as to the truth or otherwise of what was told him; he thought the dam was unsafe when the first slip took place; he says the ground at the front toe, near the second slip, was very spuey; could not ride over it in wet weather; saw trenches opened in the bank at the first slip; in some places the stuff was dry and had no solidity; thinks soakage coming from the outer toe is from the drains; never saw or heard of a stream of muddy water coming away from it; while the work was in progress the bank was often flooded, and also the puddle-trench; the puddle was so soft that the men could barely walk on it.

21. Mr. Mayer was also examined by Mr. Mestayer. He knew nothing about the dam but what he had read in the papers, and had never seen it; he attended to suggest a remedy, which consisted in the application to the face of the slope of a layer of ti-tree confined between ironbark barks, kept in place by means of wood or iron "girders," and covered with ironbark slabs, 2 inches apart. Mr. Mayer's suggestion is applicable to the protection of a slope from the wash of water, but would not in any way counteract the internal movement of the dam.

G.G., 7/1/89.

APPENDIX III to REPORT of 7/1/89.

MEMORANDUM from R. H. Ryan to R. Shand, Esq., for Contractor.

Harbours and Rivers Department, Prospect Reservoir Works, 20 July, 1885.

I WISH to direct the serious attention of contractor to the manner in which the puddle in embankment is at present prepared and finished. The disposition to have it imperfectly cut and the tendency to use too large a quantity of water is clearly manifest.

For contractor's information and guidance as to what is required I may inform him that the puddle, when finished in place, should be of the consistency and compactness, as nearly as may be, of well-prepared brick-clay as same is placed in the mould in the process of hand brick-making, should not be left sloppy or miry, but to finish in a tough, dense, and somewhat putty-like condition. As this is the portion of the work which must keep back the water, any divergence of the puddle from this state may have a result totally disastrous to you as also to others concerned in the undertaking.

G. Gordon,

G. Gordon, Esq., to The Under Secretary for Public Works.

Sir, Colonial Chambers, 86, Collins-street West, Melbourne, 8 January, 1889.

I have the honor to forward, under separate cover, sealed and addressed to the Honorable the Secretary for Public Works, my report on the Prospect Dam; also in separate cover, five plans to illustrate it and Appendices II and III to Report, being an abstract of the evidence. I had already prepared the greater part of this before I knew that the evidence was to be printed, and I intended it for the information of the Honorable the Minister, and not for publication. Although superseded by the evidence itself, it may yet be convenient.

Mr. Moline has no objection to his evidence being published.

I purpose, in accordance with your letter of the 2nd instant, to go to Sydney on my return from Gippsland, unless I hear from you to the contrary. Please telegraph.

I have, &c.,

G. GORDON.

Received this day and handed unopened to Mr. Sutherland.—J.B., 10/1/89. Specially submitted for instructions.—J.B., 10/1/89. I do not think it will be necessary now for Mr. Gordon to come to Sydney.—JOHN SUTHERLAND, 11/1/89. Telegraph to above effect.—J.B., 11/1/89. Telegram sent.—11/1/89. Put with papers.—J.B., 11/1/89.

R. L. Mestayer, Esq., to The Under Secretary for Public Works.

Re Prospect Dam.—Mr. W. A. Harper's evidence.

Dear Sir, Beresford Chambers, 52, Castlereagh-street, Sydney, 15 January, 1889.

Mr. W. A. Harper is ill and, for the present, confined to his bed. His brother called this morning and promised to let me know as soon as he was well enough to come to town, so that an appointment might be made when he would attend and give any information in his power.

I am, &c.,

R. L. MESTAYER.

Submitted.—J.B., 15/1/89. Seen.—J.S.

R. L. Mestayer, Esq., to The Under Secretary for Public Works.

Dear Sir, Beresford Chambers, 52, Castlereagh-street, Sydney, 9 January, 1889.

I have just received the cutting from *Daily Telegraph* of 5th instant sent from your office. I saw this report of Mr. Harper's at the time, but did not think it called for any special action such as examining Mr. Harper as a witness, seeing that the report itself contains Mr. Harper's views very fully and clearly stated. If you still think, however, that it would be advisable to examine Mr. Harper, I will write and ask him to call on me as soon as possible.

I am, &c.,

R. L. MESTAYER.

I am so anxious to obtain information from any and every source which is open to me that I think the evidence of this gentleman should be obtained, as it is the only way to give it a proper bearing on the subject of Messrs. Gordon and Mestayer's inquiry and investigation.—JOHN SUTHERLAND, 9/1/89.

Write.—J.B., 9/1/89. R. L. Mestayer, Esq., A.M.I.C.E., 10/1/89. Put all the papers together.—J.B., 10/1/89.

The Under Secretary for Public Works to R. L. Mestayer, Esq., A.M.I.C.E.

Sir, Department of Public Works, Sydney, 10 January, 1889.

With reference to your letter of the 9th instant, enclosing a report made by Mr. W. A. Harper, A.M.I.C.E., on the condition of the Prospect Dam, which appeared in the *Sydney Daily Telegraph* of the 5th instant, and inquiring whether that gentleman should be called to give evidence in connection with the inquiry now being conducted by Mr. Gordon and yourself, I have the honor to inform you that Mr. Secretary Sutherland is very anxious that every possible item of information in respect of the Prospect Dam procurable shall be obtained and considered by you when drawing up your report, and to request that you will be so good as to place yourself in communication with Mr. Harper accordingly.

I have, &c.,

J. BARLING,

Under Secretary.

Extract from *Telegraph*, Saturday, 5th January, 1889.

THE PROSPECT RESERVOIR.

THE following report on the Prospect Dam, by Mr. W. A. Harper, A.M. Inst. C.E., was made at the request of Messrs. Want, Johnson, & Co. on September 20, after the first slip. Mr. Harper was asked to furnish an entirely independent report, he being hampered with no conditions whatever:—

"I do myself the honor to inform you that in accordance with your instructions I visited the works on Wednesday, September 6, with Mr. Chapman, to report on the present state of the embankment, and the following will give you my views on the character of the works:—

"First puddle-wall.—This work has been perfectly constructed of the finest clay throughout of the best quality in the district, and under the most rigid supervision. I have no hesitation in saying that (with the reservation that the best clays procurable are not of first-class description) the construction of the wall is such that no fears of its safety need ever be entertained, providing the bank which supports it remains intact. I examined portions of the wall now exposed, which show it to be a concreted mass of impervious clays so well laid and wrought that no pressure would cause the slightest percolation through it. It is homogeneous in density, and considerably exceeds the theoretical thickness required for a wall constructed of first-class materials, deposited on the most approved principles. With this fact laid down,

viz.,

viz., that the construction of the puddle-wall is perfect, it is surprising to find that in one portion of the bank the wall has subsided over 6 ft., and in order to understand the reason of this very serious depression one must direct his attention to other causes which have so disturbed the continuity of its mass in this one particular locality.

"Second embankment.—The outside mass is composed in all reservoir dams of any ordinary materials, in many cases entirely of surface loams; in the case of the Prospect the material used is procured from large cuttings in the adjacent hills, and is the inferior or second-class earth of quite suitable character for the work. No slips or extraordinary subsidence occurs throughout its whole length; in fact it remains, as it should, seeing the number of years it has taken to deposit, almost at its permanent level.

"The inside mass presents quite a different appearance; it is cracked in many places for a chain in length, and in some cases a series of parallel cracks occur at the same place, clearly indicating a gradual subsidence of the lower layers since the admission of the water. This I do not consider of serious importance, for undoubtedly the whole of the lower layers, as the superincumbent mass becomes more saturated, will gradually consolidate, and in such a huge body of material it is not surprising that local surface disturbances may appear from time to time, becoming less frequent until the whole mass becomes charged with the maximum quantity of moisture it will absorb. At the same time I consider a properly-laid embankment where the deposition has extended over a number of years should not subside essentially after completion, if the material is suitable, laid in thin layers, thoroughly saturated when laid, and well consolidated by continuous wheeling and pulverising.

"At a point where the height of the dam is comparatively small, about a quarter of a mile from its northern end, a very serious disturbance has taken place. The whole inner face of the embankment (for a distance of about 300 ft.) has been violently projected into the reservoir, and also the whole of the inner portion of the bank at this point has slipped, and now bulges out at least 8 ft. beyond the line of the present water-level. This slip has caused the portion of the bank opposite it to subside at least 6 ft., and has so torn away the puddle-wall, which is still evidently in a semi-consolidated condition in its lower portions, that the wall itself has also subsided, with bank, some 6 ft. in the centre.

"The diagrams appended hereto illustrate the present condition of bank at this point. I consider this slip a very serious misfortune; I cannot see any special reason (in the meantime) why this particular spot should have given way; and consider it quite as probable that any portion of the inner mass may act in a similar way; in fact, the deeper portion of the bank should be more liable to slip at a lower level, on account of the greater weight it carries. The same conditions apply to the whole work, similar material, and the same process of laying along its whole length. The system of depositing the material in continuous layers prevents the accumulation of any particular class of earth in one place, and insures homogeneity in character over the whole surface.

"The problem to solve is, why this particular part of the bank should act in this manner while the balance remains, with the exception of the surface cracks before mentioned, in apparently a stable condition. I hold that there is no reason for the disturbance being peculiar to this locality, and must draw the conclusion that any part of the remainder may, at any time while the process of saturation is proceeding, begin to act in a similar manner; and without fearing any immediate danger to the structure on account of the superior nature of the puddled core, I consider the method being carried out of repairing the breach is most unjustifiable and dangerous. The first duty was undoubtedly to lower the water as much as possible, not necessarily below the outlet level, and carefully investigate the cause of the mishap by cutting a cross-sectional trench through the dam at the centre of the slip.

"This could have been done without much expense and carried down to the necessary level, and the line of slip carefully ascertained, to enable a reliable conjecture as to the cause being formed.

"The work now being done I consider worse than useless, viz., the tipping of most expensive stones pell-mell over the projecting portion into the water—it may be literally termed throwing money into the sea; and in addition to its uselessness in preventing a continuation of the slip, I consider it the very best way to assist such depression by extending it further and sinking more rapidly. Had the stones been systematically deposited from the toe upwards, they would have assisted matters materially, but I doubt then even their efficacy in holding back a slipping bank. The cause of this depression and its line of fracture still remains unknown. The bank is still slipping, the subsidence being fully 9 inches during the twenty-four hours prior to my inspection, as clearly shown by the levels on the surface drains cut the day before.

"Time alone will prove how much further this subsidence may still extend. It is possible that the complete saturation of the mass may soon cause it to assume its permanent angle of repose; but this in no way undervalues the urgent necessity for at once determining the secret cause of this unnatural bulging out.

"One naturally directs his attention in attempting to conjecture the possible reasons of the fault to the class of materials employed and the work of the contractor. As to the latter, all doubts of bad workmanship may be at once set aside, for there is a permanent resident engineer-in-charge, with a full staff of assistant engineers and inspectors, so that each load of material deposited has been most rigidly supervised. The onus of construction is thus thrown entirely on the engineer-in-charge, who has undoubtedly adhered strictly to the instructions laid down in his specifications.

"As to the quality of the material, I have serious misgivings. It is an inferior loamy clay, subject, on account of its composition, to very great expansion and contraction, according to the quantity of moisture allowed to enter it.

"It is most unstable, and has no plasticity, becoming semi-liquid with the addition of a very small quantity of moisture, and porous when dry. I consider it one of the worst materials that could possibly be used in a bank, and, in my opinion, should have been protected from the possibility of absorbing too much moisture by a puddled lining of approved clay between it and the layer of broken metal on which the pitchers are laid. The cost of this layer would have been small, and I have used a puddle lining 18 inches thick to protect similar material, with the result that no water ever entered the main body of the bank.

"The metal layer and pitching is carried out in a most superior manner—better I have never seen. The stone is of first-class quality, and the pitchers are larger than I have ever seen used.

"A proper investigation at the point before-mentioned would probably at once prove beyond all doubt the agencies at work, and dispose of the unpleasant uncertainty existing as to the future of the structure

structure. In addition, the original lines of the work might be still adhered to, the protuberance removed and restored to its original shape, and the everlasting eyesore dispensed with, which, under the present scheme of patching, will remain as a permanent stigma on the engineers of a work which, on account of its magnitude, would otherwise be classed as one of the great undertakings of modern engineering."

NOTE.—We are informed that 42 to 44 has slipped, as predicted by Mr. Harper, who indicates that the remainder may at any time, while the process of saturation is proceeding, begin to act in a similar manner.

Refer to Mr. Mestayer, who, I understand, will examine Mr. Harper.—J.B., 7/1/89.

Minute by The Under Secretary for Public Works.

Subject :—Prospect Dam.

Department of Public Works, Sydney, 5 January, 1889.

It was suggested by Mr. Mestayer, A.M.I.C.E., before whom Mr. Angus Mackay, F.C.S., of the Technical College, Sydney, gave evidence to-day in regard to the nature of the clay and soil used for the formation of the Prospect Dam, respecting which he had submitted a report, that it was desirable Mr. Mackay should officially visit the dam for the purpose of taking samples of the material used in connection therewith, and making an analysis thereof. Mr. Mackay intimated that he could not be released from his engagements for a period of six weeks. Mr. Mestayer, however, expressed the opinion that, notwithstanding this lapse of time, it would be better to have the result of that gentleman's analysis in order that the investigation into the whole matter may be complete.

J.B., 8/1/89.

Appd.—J.S., 7/1/89. Write.—J.B., 8/1/89. Angus Mackay, Esq., F.C.S., 9/1/89. Seen.
Resubmit on 16 Feb., 1889.—R.H., 12/1/89.

The Under Secretary for Public Works to Angus Mackay, Esq., F.C.S.

Sir,

Department of Public Works, Sydney, 9 January, 1889.

With reference to your call at this office on the 5th instant, when you expressed your willingness to officially visit the Prospect Dam as soon as you could be released from your engagement, in order that you may take samples of the material used in connection with its formation, and make an analysis thereof, I am directed to inform you that the Secretary for Public Works will be glad if you will proceed to the dam as soon as you can make it convenient to do so, and furnish him with the result of your investigation.

I have, &c.,

J. BARLING,

Under Secretary.

G. Gordon, Esq., to The Under Secretary for Public Works.

Dear Sir,

Colonial Chambers, 86, Collins-street West, Melbourne, 29 December, 1888.

I said I thought I would send in my report about the end of this week. That was before I knew I was to send an estimate. As I have not yet received the cross-section I want for this purpose, it will be next week before I can be ready. I have finished the draft of my report, but I will not write it out till I get Mr. Gipps' evidence, which I expect daily; not that I think it will induce me to alter the report, as I know from the report in the *Evening News* what his views are, but there may be something in his evidence requiring attention. If some of my recommendations are adopted the closing of the contract will be a necessity.

With the compliments of the season.

Yours, &c.,

G. GORDON.

The cross-sections will be sent to you to-day.—*Pro A. Engineer-in-Chief, J.S., B.C., 31/12/88.*
Under Secretary, Public Works. Please see that they go without fail to-day.—J.B., 31/12/88.
Sent, 31/12/88.

G. Gordon, Esq., to The Under Secretary for Public Works.

Dear Sir,

Colonial Chambers, 86, Collins-street West, Melbourne, 4 January, 1889.

I have written to Messrs. Ryan, Moline, and Shand, asking their permission to have the evidence published. I have no doubt about their being quite willing. I have asked Mr. Ryan and Mr. Shand to inform you directly. I do not remember to have told the other witnesses whom I examined in company with Mr. Mestayer that the evidence was only for my own information.

I had not expected to be wanted so soon again in Sydney, and I have an engagement for next week in Gippsland—a water supply or irrigation scheme,—but I shall be glad to go over on my return. By that time Mr. Sutherland will have read my report, and if there is anything in it needing explanation I shall be glad to afford it. If the matters on which Mr. Sutherland wishes to see me refer to anything other than the dam will you kindly mention what they are, that I may be prepared.

Yours, &c.,

G. GORDON.

I wish to see Mr. Gordon chiefly about the dam, but when he is here will consult him about locking the Darling, concerning which we have further information. The time mentioned by Mr. Gordon will suit.—JOHN SUTHERLAND, 7/1/89. Write.—J.B., 7/1/89. Geo. Gordon, Esq., C.E., 8/1/89.

G. Gordon

G. Gordon, Esq., to The Under Secretary for Public Works.

Dear Sir, Colonial Chambers, 86, Collins-street West, Melbourne, 31 January, 1888.

I enclose evidence of Moline and Shand. I thought it better to send the original, and I have kept a copy. The pencil notes are mine, as some of the evidence would not be quite intelligible to any one who did not hear it and the questions that were put.

Yours, &c.,
G. GORDON.

P.S.—I told all the witnesses connected with the works whom I examined that the information they gave was for my own use only, and not for publication.—G.G.

R. L. Mestayer, A.M.I.C.E. Geo. Gordon, Esq., M.I.C.E., 2/1/89. Register and place with other papers.—J.S., 7/1/89.

The Under Secretary for Public Works to R. L. Mestayer, Esq.

My dear Sir, Department of Public Works, Sydney, 2 January, 1889.

I have to-day received from Mr. Gordon the notes of evidence taken from Messrs. Moline and Shand. Mr. Gordon says he gave a promise that the information should not be made public, and by direction of Mr. Sutherland I have written to Mr. Gordon asking him to obtain the permission of the witnesses to have their evidence printed and placed with the reports.

Mr. Sutherland desires me to say that he wishes all evidence taken to be made public, as he thinks it is of the utmost importance to expose everything to the public view with regard to the Prospect Dam.

Yours, &c.,
J. BARLING,
Under Secretary.

P.S.—The evidence is enclosed herewith.

The Under Secretary for Public Works to G. Gordon, Esq.

Dear Sir, Department of Public Works, Sydney, 2 January, 1889.

I have to acknowledge the receipt of your letter of the 31st ultimo with the notes of evidence of Messrs. Moline and Shand. I also note your postscript, in which you state that you informed the witnesses that the evidence they gave was for your use only, and not for publication. With reference to this, Mr. Sutherland desires me to say that he wishes any evidence taken in connection with the subject of your inquiry, made public, and he will thank you if you will have the goodness to obtain the permission of the witnesses to have this done in the present case.

I presume we shall have the pleasure of seeing you in Sydney again in the course of a few days. There are matters Mr. Sutherland will be glad to see you upon.

Yours, &c.,
J. BARLING.

Mr. E. Limond to The Secretary for Public Works.

Dear Sir, 63, Church-street, Newtown, 21 December, 1888.

I waited on Messrs. Gordon and Mestayer yesterday, 12 noon, when not only my statement was unbelievable, but I was told it was all lies about water being under the puddle. I cannot rest under this imputation; but shall take other steps to prove to the public that my assertions are correct. The *Evening News* has not published my evidence as yet.

Yours, &c.,
EDWIN LIMOND.

I have seen Mr. Gordon about this, and he absolutely denies the truth of these allegations.—J.S., 21/12/88. Resubmit.

New South Wales Electric Telegraph, 29 December, 1888.

J. Barling, Esq., Public Works Office.

Your message of to-day to Edwin Limond, 63, Church-street, Newtown, is undelivered. Address is vacant. H.J.S.P., Manager.

Shall we search for him?—J.B., 31/12/88. Find him.—J.S., 31/12/88.

Telephone message from Newtown Police, 2nd January, 1889, 3 p.m., to Inspector-General of Police.

MR. EDWIN LIMOND resides at No. 73, Church-street, Newtown. He is a most respectable man, and lately worked at the Prospect Reservoir.

Telegraphed to Limond, 2/1/89.

Tell him to call at 11 a.m., Monday, and the Minister will then take his evidence.—J.B., 29/12/88. Edwin Limond, Esq., 29/12/88.

PROSPECT DAM.

MINUTES of evidence given by Mr. Limond, at the Public Works Office, on 3rd January, 1889.

Present:—Mr. Barling, Under Secretary for Public Works; Mr. Bennett, Commissioner and Engineer-in-Chief for Roads and Bridges.

MR. BARLING, addressing Mr. Limond, said:—You have expressed your willingness to give evidence to the Minister on the subject of the slip which has occurred at the Prospect Dam, where I believe you have been working, and you have attended before Messrs. Gordon and Mestayer for the purpose, but not being satisfied with the way you were treated by those gentlemen, you have attended, at the request of Mr. Sutherland, to give your evidence here. I may mention that Mr. Sutherland has been called away to the Executive Council, and is, therefore, unable to examine you personally, so he has asked me to take your evidence, which he will read after it has been transcribed. Mr. Bennett is here to ask you any questions upon engineering matters. I may add that any expenses incurred by you in coming here will be cheerfully paid. Will you now be good enough to state what you know about the matter.

Mr.

Mr. Limond said :—Here is the reference I received from Mr. McGuighan, for whom I went to work at the Prospect Dam about Christmas, 1882. The puddle-trench was then about being commenced. I was engaged to build a saw-mill for cutting timber, required for the trench and the buildings. I chose a site for the mill about 2 chains from the puddle-trench, in order that I might get water from one of the trial-shafts that was there, several of these shafts being about 50 feet deep, so I was told. In all these shafts there was water about 15 feet from the surface. I got the engine in position and started to work, but was unable to use the water for more than a week, as I found it was salt; but during the time we did use it we had to raise and lower the pump by which it was obtained several times, as the water rose and fell, as if under tidal influence. I then stopped using the water, and had fresh water brought to me for the engine. They kept sinking the puddle-trench. I was told by Mr. McGuighan the depth was to be 15 feet, but I was astonished afterwards to see them sinking deeper and below the water-line in the trial-shafts. One day I spoke to Mr. McGuighan about it, and asked him if they were not doing wrong going so deep; he answered and said he thought so too, but he was going according to the specifications. So they sunk to about 30 feet, some parts more than this, down to the silicate reef, engines being kept all the time pumping to keep the trench clear of water. Having got to the reef, the puddle was put in with clay, carted in with drays. When I left in July, 1883, the wall or embankment was up to a considerable height above the level of the ground. Therefore, I say, the puddle-trench was made too deep; the bottom is like soup, being thoroughly impregnated with the water which is there, and the moisture rising through the heavy dry clay, upwards, is causing it to swell and shift; it is that which is moving the whole of the bank. Any working-man who has worked upon clay-works will see in a moment that what I am stating is a fact. The only way to prove it is to sink a trial-shaft in the side of the by-wash, and drive in the level of the puddle-trench to the bottom of it, and see if my words are not true. If they are not true, I will forfeit my life. I am positive that, allowing for soakage and drainage, there is at least 10 feet of water standing at each side of the walls. I also noticed that in the heaviest rains the water never rose in the shafts to the surface.

EDWIN LIMOND,
4/1/89.

Mr. Bennett.] What were you engaged at previous to your going to work at the Prospect Dam? I was previously, for fifteen years, in New Zealand, on the diggings, and on water-works, road-making, and bridge-building.

What big dams were you employed upon? Waimea Water-race and Reservoir, the Leviathan Dam and Water-race, and Hohnnui Water-race and Dam. At the Waimea Water-race one of the dams was over 100 feet high and built of stone, and another was considerably higher. The other two were of clay and about 60 ft. or 80 ft. in height, the facings of the dams being of piles with clay thrown on the surface.

What have you been doing since you left the dam? I left to manage a mill, and in the interval I went to Spears', at Woolloomooloo Bay, where I lost two of my fingers. I then went 'bus-driving. Afterwards I was with Hudson Brothers for about four or five months. Since then I have been driving a cab, which I am now doing.

With reference to the rise and fall of the water in the trial-shafts you spoke of, did you attribute it to tidal influence? Yes.

Did you observe any alteration in the time of the rise and fall? Yes; it shifted every day like the tide. Others observed it besides me. One was Mr. Rothery, an engineer and fitter, who is still on the works.

Mr. Barling.] You were saying to me this morning that you considered the shingle met with in sinking the puddle-trench to be the bed of an old river or creek? Yes.

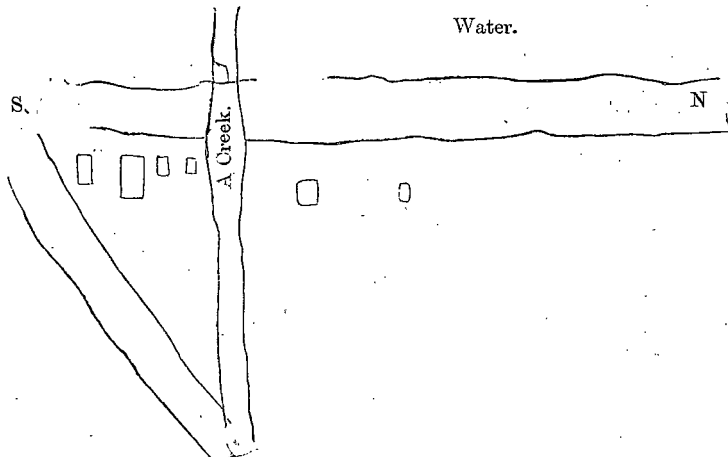
What was the width of it? The width of the old creek-bed was about 5 or 6 chains, cutting the dam at right-angles.

What do you consider should be done to remedy the matter? In my opinion nothing can be done to save the old wall. I suggest that a wall 8 or 10 feet thick be built 30 or 40 feet in front of the present embankment, the outside of stone and the inside of concrete, the foundations to be sunk 10 or 12 feet; it should be built at an angle of 1 in 4 or 1 in 5, and be well backed up with earthwork. I estimate the cost of this at from £70,000 to £80,000. I am positive that the influx of water after a heavy rainfall will cause the bank to give way, as the outlets are not sufficient, and before the by-wash could be reached the dam would be gone.

MINUTES of further evidence respecting the Prospect Dam, given by Mr. Limond before the Honorable the Secretary for Public Works and the Under Secretary for Public Works, at the Public Works Office, on Monday, 7th January, 1889.

Mr. Sutherland.] Since giving your evidence in regard to the slip at the Prospect Dam you have visited the dam, and you now wish to correct some of the evidence that you gave. Will you now state what you wish to correct, or desire to add to your previous statement? In stating the depth of the trench I made an error; I said 35 feet, but I find from the plans* in the possession of Mr. Shand, which have been shown to me by that gentleman, that the depth varies from 45 feet to 75 feet, and a depth of 45 feet at the bed of the old creek of which I have spoken.

*Appendix C.



With

With regard to the wall I suggested should be built, I desire to say that I abandon that idea altogether, unless it is carried the whole length of the embankment. I think the securing would be better done from the inside. When I was at the dam yesterday I found that water was oozing from the embankment near the scouring outlet close to the bed of the old creek. I took a bottle of the water, which I have brought with me.

EDWIN LIMOND.

By the directions of the Minister, an officer of the Department was instructed to accompany Mr. Limond to Prospect, and obtain a properly-certified bottle of the water he referred to as oozing from the embankment. This was done on the 8th January, and the water so obtained was sent to Mr. Hamlet for analysis on the 9th January.

The Under Secretary for Public Works to A. Bennett, Esq., *Evening News* Office.

Sir,

Department of Public Works, Sydney, 29 December, 1888.

With reference to your leader of the 27th instant, on the subject of the Prospect Dam, in which the following statement appears, viz. :—"An application was made to us by Mr. Mestayer a few days since for the names of those who had written certain reports in the *Evening News*, and also the names of those persons who had given our reporters the information on which some of their statements were founded; but so far as we know, not one of those, who may be termed the *Evening News* witnesses, has been examined." I am directed by Mr. Secretary Sutherland to ask if you will be so good as to mention the names of the witnesses you refer to, and whom you think have not been examined by the engineers appointed to inquire into the matter.

I am to say that Mr. Sutherland read the paragraph with very great surprise, as he has given the most emphatic instructions that all information obtainable should be considered, and if you will kindly give the names of the gentlemen you refer to, care will be taken that their evidence shall be received in the fullest possible manner, as it is the desire of the Minister to exhaust every channel of information on the subject that is available.

I am to add that Mr. Sutherland will consider it an especial favour if you will at your earliest convenience comply with this request.

I have, &c.,

J. BARLING,

Under Secretary.

J. Hogue, Esq., *Evening News* Office, to The Under Secretary for Public Works.

Town and Country Journal and *Evening News* Office,

Dear Sir,

Market-street, Sydney, 31 December, 1888.

In reference to your letter of 29th instant, I desire to point out that in the *Evening News* article you quote from the expression occurs, "So far as we know not one of those," &c., &c., "has been examined." I furnished to Mr. Mestayer, as far as I can now remember, the following names:—Mr. J. Wearne, Mr. J. Norton, Mr. F. B. Gipps, C.E.; Mr. Rutherford, contractor; Mr. Buckett, hotelkeeper; Mr. Ives, M.L.A.; and the Hon. John Davies, M.L.C.

Yours, &c.,

JAS. A. HOGUE.

All the gentlemen mentioned were written to the same day that Mr. Hogue gave me their names, and they were asked to give evidence in the course of the three following days. Mr. Rutherford came as requested; Mr. Wearne was examined by us at Prospect the following day; Mr. Gipps was in Melbourne, but called and gave his evidence as soon as he came back; Mr. Ives replied to the letter stating he had no evidence to give; the Hon. J. Davies has not replied to the letter, and Mr. Norton has refused to give any evidence. Mr. Buckett's evidence was only taken yesterday owing to a misunderstanding about the name, this not being the name given me by Mr. Hogue.

Be seen that they are all examined.—J.S., 31/12/88. Resubmit Wednesday morning.—J.B., 31/12/88.

The Under Secretary for Works to J. A. Hogue, Esq., *Evening News* Office.

Dear Sir,

Department of Public Works, Sydney, 3 January, 1889.

Mr. Sutherland desires me to acknowledge receipt of your letter of the 31st ultimo, in which, at his request, you gave the names of the witnesses whom you supposed had not been examined in regard to the Prospect Dam. I have only had an opportunity of seeing Mr. Mestayer to-day, and he has given me the enclosed memorandum with respect to the matter, from which you will see that your supposition that the *Evening News* witnesses had not been examined, is incorrect. With regard to Mr. Norton every endeavour has been made to obtain his evidence, but as yet without result, as will be seen from the attached copies of correspondence that has taken place, but Mr. Sutherland hopes that the letter sent him yesterday will have the desired effect.

I can assure you that Mr. Sutherland is leaving no stone unturned in obtaining information on the subject, no matter from what source it is to be derived, and where witnesses object to give their evidence to either Mr. Mestayer or Mr. Gordon he is prepared to take it himself.

I am, &c.,

J. BARLING.

[Enclosures.]

Copy of Memorandum by Mr. Mestayer on letter from Mr. Hogue, of 31st December.

ALL the gentlemen mentioned were written to the same day that Mr. Hogue gave me their names, and they were asked to give evidence in the course of the three following days. Mr. Rutherford came as requested; Mr. Wearne was examined by us at Prospect the following day; Mr. Gipps was in Melbourne, but called and gave his evidence as soon as he came back; Mr. Ives replied to the letter stating he had no evidence to give; the Hon. John Davies has not replied to the letter, and Mr. Norton has refused to give any evidence. Mr. Buckett's evidence was only taken yesterday, owing to a misunderstanding about the name, this not being the name given by Mr. Hogue.

Copy of Telegram addressed to J. Norton, Esq., on 27/12/88.

MINISTER will be glad if you can give your evidence respecting the Prospect Dam at once. Can you call at the office of Mr. Mestayer, Beresford Chambers, 52, Castlereagh-street, for this purpose, on Saturday morning at 10 o'clock. Any expense incurred will be paid by the Department.

J. BARLING,

Under Secretary for Public Works.

Copy

Copy of Reply from Mr. Norton.

In reply to your telegram, could not possibly come to Sydney to give evidence *re* Prospect Dam before to-morrow week.
Newcastle, 28 December, 1888.
J. NORTON,
"Terminus Hotel."

Copy of further Telegram addressed to J. Norton, Esq., on 29/12/88.

MINISTER will instruct Mr. Mestayer to proceed to Newcastle to take your evidence at an early time which may suit your convenience. Reply.

J. BARLING,
Under Secretary for Public Works.

Copy of Mr. Norton's Reply.

USELESS to send Mestayer here for my evidence, *re* Prospect Dam, as I decline to afford information before present Board, being doubtful of its utility and impartiality.
Newcastle, 31 December, 1888.

J. NORTON.

Copy of Mr. Sutherland's Minute thereon.

Seen. I regret that Mr. Norton refuses to give evidence, as we offered to pay all expenses.—JOHN SUTHERLAND,
31/12/88
Copy of letter to Mr. Norton 2/1/89, was also sent herewith.

The Under Secretary for Public Works to J. Norton, Esq.

Sir, Department of Public Works, Sydney, 2 January, 1889.
I am directed by the Secretary for Public Works to acknowledge the receipt of your telegram of the 31st ultimo, in which you say it is useless to send Mr. Mestayer for your evidence in regard to the Prospect Dam, as you decline to afford information on the subject. Mr. Sutherland very much regrets that you should have come to this conclusion. He is most anxious to obtain all the particulars possible, and will be obliged if you will consent to give evidence before himself at any convenient time which may be named by you.

I am to point out that the matter is of great national importance, and Mr. Sutherland thinks he is justified in appealing to your patriotism as a public man to give him all the information you can, as it is clear you have devoted very considerable attention to the subject, and have collected a mass of evidence which he thinks may be very useful.

I have, &c.,
J. BARLING,
Under Secretary.

Up to this date no answer has been received from Mr. Norton.—D.C.M'L., 15/1/89.

Telegram from Mr. J. Norton to The Under Secretary for Public Works.

In reply to your telegram, could not possibly come to Sydney to give evidence, *re* Prospect Dam, before to-morrow, Saturday, week.

J. NORTON,
"Terminus Hotel."

Telegraph that I will instruct Mr. Mestayer to proceed to Newcastle to take his evidence at any early time which may suit his convenience.—JOHN SUTHERLAND, 29/12/88. Wired, 29/12/88.

J. Norton, Esq., to The Under Secretary for Public Works.

USELESS to send Mestayer here for my evidence, *re* Prospect Dam, as I decline to afford information before present Board, being doubtful of its utility and impartiality.

Seen. I regret that Mr. Norton refuses to give evidence, as we offered to pay all expenses.—JOHN SUTHERLAND, 31/12/88.

The Under Secretary for Public Works to R. L. Mestayer, Esq.

My dear Sir, Department of Public Works, Sydney, 27 December, 1888.
Mr. Sutherland desires me to enclose for your information an extract of a leading article from the *Evening News* of this day's date upon the subject of the Prospect Dam.

I am further desired to point out to you the extreme importance of taking any evidence which may present itself to you in connection with the subject of your inquiry, however trivial or absurd it may appear to you as an engineer—because it is largely on statements of this character that the public mind has been exercised of late, and it is desirable to get at the source of the many statements which have been spread abroad with regard to the state of the dam.

I am, &c.,
J. BARLING.

The Under Secretary for Public Works to G. Gordon, Esq.

My dear Sir, Department of Public Works, Sydney, 27 December, 1888.
Mr. Sutherland desires me to enclose for your information an extract from the *Evening News* of this date, bearing on the subject of the Prospect Dam, and to ask that you will be so good as to come to Sydney again before sending in your final report. Mr. Sutherland further wishes me to point out to you the extreme importance of taking any evidence which may present itself, no matter how trivial or absurd it may seem to you as an engineer—because it is by such statements that a great deal of the uneasiness now existing in the public mind with regard to the dam has been raised.

I am, &c.,
J. BARLING.

[Enclosure

[Enclosure to two preceding letters.]

[Extract from the *Evening News* of Thursday, 27th December, 1888.]

THE PROSPECT DAM.

THE coming event of Messrs. Gordon and Mestayer's report on the Prospect dam has cast its shadow before, and the fore-shadowing is not a pleasant one to contemplate. Though the report has not been drawn up, the Minister for Works was able to tell the Assembly on Friday what the most important part of it will be when it does come. The *Hansard* report of what the honorable gentleman said contains the following:—

There are two gentlemen now holding a very serious inquiry into the state of the Prospect Dam, from its first foundation till the time they took evidence on the subject. They will not be prepared to give in their report before some time next week. I sent for Mr. Gordon to-day, and he assured me that there was not the slightest danger of the dam giving way. Alterations and a large expenditure of money will have to take place; and I have given instructions to those gentlemen, not only to make recommendations but also to state what will be the cost of carrying out the recommendations.

It appears from Mr. Sutherland's remarks that Mr. Mestayer agrees with Mr. Gordon, for speaking of the two gentlemen, he concluded by saying,—

They are certain that there is not the slightest foundation for the fear of the dam going.

This remarkable communication to the Assembly can have no other effect than that of destroying the confidence of the public in the report of Messrs. Gordon and Mestayer when it is produced. Their instructions to hold the investigation were issued on the 13th December, and assuming that they commenced work the following day, their inquiries into the state of the Prospect Dam from its foundation had extended over a week and a day when they assured Mr. Sutherland that there was not the slightest fear of it collapsing. It is true that, according to the Minister for Works, the investigation was not concluded when he saw Mr. Gordon; but what is of most importance is to know on what evidence Mr. Gordon and Mr. Mestayer came to the conclusion that the dam is in no danger. It may be taken for granted that they went out to see it; but for the practical purpose of their commission, looking at the embankment was, comparatively speaking, a waste of time. The Department has been taxing its resources during the last eight or nine months to patch the work up, and most probably when Mr. Gordon and Mr. Mestayer were taken to see it most of the cracks had been filled up, and unless it had burst through again the stream of thick yellowish water our reporter saw running from the base of the embankment on its lower side was stopped up. Looking at the work in its patched-up condition would therefore give the two gentlemen only a very imperfect idea of what has been going on in the way of cracks, slips, subsidences, and the actual flow of water through the embankment. What they required to do was to take the evidence of disinterested men who had been carefully watching the dam since the first slip was discovered, and if they have not done this the investigation on which they guarantee the soundness of the work is useless, and their opinions are not worth one penny of the money they will cost. An application was made to us by Mr. Mestayer a few days since for the names of those who had written certain reports in the *Evening News*, and also the names of those persons who had given our reporters the information upon which some of their statements were founded; but so far as we know, not one of those who may be termed the *Evening News* witnesses has been examined. If there has been any examination of witnesses at all, it has been carried on in a remarkably secret manner; and it is perfectly certain that during the few days that elapsed between the appointment of the two gentlemen and Mr. Gordon's statement to Mr. Sutherland it would have been impossible to take all the evidence necessary to enable them to give a definite opinion respecting the stability of the dam; but what is that opinion, as stated by Mr. Sutherland, worth? In the first place, it contradicts those of Mr. Hickson and Mr. Williams, two officers of the Department, who recently reported upon the condition of the embankment. The only interpretation to be put upon the opinions of those two gentlemen is that the dam is in a dangerous condition, so that the statement of Mr. Gordon that there is not the slightest fear of it giving way is in direct opposition on this particular point to the opinions of Mr. Hickson and Mr. Williams. Even the Engineer-in-Chief for Railways, who guaranteed the soundness of the work six or seven months ago as confidently as Mr. Gordon and Mr. Mestayer do now, reported to Mr. Sutherland the week before last that the dam now requires to be "carefully watched." Messrs. Gordon and Mestayer not only contradict Mr. Hickson, Mr. Williams, and Mr. Whitton, but, if Mr. Sutherland reported Mr. Gordon correctly, they contradict themselves. They say that "there is not the slightest danger of the dam giving way," but that alterations and a large expenditure of money will have to take place. If the dam is in no danger, what will this money have to be spent for? The fact is that every shilling Mr. Gordon and Mr. Mestayer may recommend to be expended will be for securing the dam, and will therefore be a contradiction of the statement that it is not in the slightest danger. We are dealing with the two professional gentlemen entirely on the basis of the speech made by Mr. Sutherland in the Assembly. The honorable gentleman may have misunderstood Mr. Gordon, but if he did not, and the verbal report submitted to the House is a correct one, the engagement of Mr. Gordon and Mr. Mestayer will only add another unsatisfactory chapter to the record of extravagance and blundering connected with the Prospect Dam.

The Under Secretary for Public Works to R. L. Mestayer, Esq.

Sir,

Department of Public Works, Sydney, 27 December, 1888.

I am directed by Mr. Secretary Sutherland to forward herewith a letter which has been received from Mr. James J. Maher on the subject of the Prospect Dam, and to inform you that a telegram has been sent to the writer requesting him to be good enough to attend at your office on Saturday morning at 10 o'clock, in order that you may take any evidence on the subject that he has to give.

I am to inform you that Mr. J. Norton, late of the staff of the *Evening News* has also been requested to attend at your office on Saturday morning at 10 o'clock to give evidence on the same subject.

Mr. Sutherland desires that the fullest information possible should be obtained from these gentlemen, and will be glad if you will take whatever evidence they are prepared to give.

I have, &c.,

J. BARLING,

Under Secretary.

[Enclosure.]

Dear Sir,

Beresford Chambers, 52, Castlereagh-street, Sydney, 29 December, 1888.

The bearer Mr. J. J. Maher has called upon me this morning, in accordance with the telegram sent to him by you, and given me his evidence as to what he considers the cause of the slip, and the remedy he proposes.

As I understood from you that Mr. Maher's expenses would be paid by your Department, I have given him this note to certify to the fact of his having attended as requested.

I am, &c.,

R. L. MESTAYER.

Submitted.—J.B., 30/12/88. Give him three days at 30/- per diem and his travelling fares, and say that if any part of his recommendation is adopted a substantial recognition will be awarded.—JOHN SUTHERLAND, 31/12/88. Mr. Mestayer,—What expenses do you recommend?—J.B., B.C., 31/12/88. See voucher 88-4,704 for £6 ls.—T.J.C., 10/1/89. Mr. Maher informed, 31/12/88. Maher has been paid.—Per A. Eng.-in-Chief, J.S., B.C., 12/1/89. Under Secretary for Public Works. Place with other papers.—D.C.M.L., 14/1/89. Attach to voucher.—J.S., 4/1/89. Mr. Cremen.

The Under Secretary for Public Works to R. L. Mestayer, Esq.

Sir,

Department of Public Works, Sydney, 22 December, 1888.

With reference to the instructions which have been given to you in regard to the work of reporting upon the Prospect Dam, I am desired by the Secretary for Public Works to request that you will be so good as to give a detailed estimate of any works which you may recommend should be carried out. I am to add that Mr. Gordon has been similarly instructed.

I have, &c.,

J. BARLING,
Under Secretary.

J. A. Hogue, Esq., Editor of *Evening News*, to The Secretary for Public Works.

Town and Country Journal and Evening News Office,

Market-street, Sydney, 12 December, 1888.

Dear Sir,

Mr. Bennett desires me to acknowledge receipt of your letter and enclosure of yesterday, and to say that he will be only too happy to supply your officers with any information in his power in reference to the condition of the Prospect Dam, in the security of which he takes a deep interest. Such members of the staff of the *Evening News* as have reported upon the dam will willingly see Mr. Mestayer and Mr. Gordon, and afford these gentlemen whatever assistance they can to facilitate their investigations. At the same time I should mention that all information which representatives of the *Evening News* have obtained has been published in that journal and commented upon, and I assume that such information and comments, touching a subject of such great importance, have been preserved in your Department. Should that, however, not be the case, I have an index by me that will enable me to lay my finger at any time upon the various reports, &c., that have appeared on the subject in the *Evening News*. These I will be glad to point out to any accredited officer of your Department who may desire to see them.

I may add that it is very gratifying to Mr. Bennett and myself, as it must be to the public, to observe the steps you have taken to have a thoroughly independent examination made by competent engineers of the dam, with a view to ascertaining its actual condition, and so set the public mind at rest, if possible, as to its stability.

I have, &c.,

JAMES A. HOGUE,
Editor, *Evening News*.

Answered. See letters sent to Messrs. Gordon and Mestayer on the subject.—J.B., 15/10/88.
Put away.

The Secretary for Public Works to J. A. Hogue, Esq., Editor, *Evening News*.

Dear Sir,

Parliament, New South Wales, Sydney, 12 December, 1888.

I have to thank you for your letter of this date, in which you offer to place your services at the disposal of the engineers I have appointed to inquire into the present state of the Prospect Dam, and I shall take care to request them to avail themselves of your kind offer.

My only object is to get at the true facts of the case from whatever source I can obtain them.

I have from the first been fully impressed with the necessity of the most searching investigation.

Yours, &c.,

JOHN SUTHERLAND.

The Under Secretary for Public Works to R. L. Mestayer, Esq.

Sir,

Department of Public Works, Sydney, 15 December, 1888.

I am directed to enclose for your information copies of correspondence, which has taken place between the Secretary for Public Works, and Mr. Alfred Bennett, proprietor of the *Evening News*, and have to request that you will be so good as to put yourself in communication with that gentleman, with a view to obtaining any information he may have at his disposal with regard to the Prospect Dam.

I have, &c.,

J. BARLING,
Under Secretary.

The Under Secretary for Public Works to G. Gordon, Esq.

Sir,

Department of Public Works, Sydney, 15 December, 1888.

I am directed to enclose for your information copies of correspondence, which has taken place between the Secretary for Public Works and Mr. Alfred Bennett, proprietor of the *Evening News*, and have to request that you will be so good as to put yourself in communication with that gentleman, with a view to obtaining any information he may have at his disposal with regard to the Prospect Dam.

I have, &c.,

J. BARLING,
Under Secretary.

The Under Secretary for Public Works to G. Gordon, Esq.

Sir,

Department of Public Works, Sydney, 10 December, 1888.

I am directed by the Secretary for Public Works to forward herewith for your information and guidance, a copy of the instructions which have been given to Mr. Mestayer, A.M.I.C.E., who as you are aware has also been appointed to inquire into, and report upon the condition of the Prospect Dam, and to request that you will be good enough to take them as referring to the inquiry entrusted to you. The object of Mr. Sutherland is to obtain a full and impartial statement of the facts of the matter as they appear to you as an engineer of experience, altogether unconnected with the Department having charge of the work.

I am to add that Mr. Hickson has been instructed to place everything required at your service; including original plans and documents, and all officers of the Department have been enjoined to give you all possible information, and to reply to any inquiries you may desire to make in the course of your investigations.

I have, &c.,
J. BARLING,
Under Secretary.

Copy of instructions to Mr. Mestayer which were forwarded herewith were laid on the Table of the House on the 6th December, 1888.

G. Gordon, Esq., to The Under Secretary for Public Works.

Dear Sir, 13 December, 1888.

I visited the Prospect Dam yesterday and examined the second slip and two boreholes put down by Mr. Mestayer on the 7th and 10th inst.

I should like to put down another bore in the same line, *i.e.*, in the axis of the slip near the water's edge, and another in the puddle-wall on the same line, and still another in the part of the dam that has not shown any inclination to slip. In order to save time I asked Mr. Ryan to have the places prepared for these, and also to have a trench dug across the top of the bank at a place I pointed out, so as to be ready for my putting down the bores to-morrow. Mr. Hickson says he can get me the services of a diver and I ask permission to employ one to examine the toe of the bank, and I ask authority for the works mentioned above and leave to examine the plans of the accessory works, and to get some tracings made.

Yours, &c.,
G. GORDON.

Mr. Hickson,—Please attend to this.—J.B., B.C., 13/12/88. Submitted.—J.B. Appd. I give Mr. Gordon the fullest authority to carry out his investigation in the way he thinks best.—J.S., 14/12/88. I have arranged for these matters as instructed by the Minister.—R.H., B.C., 18/12/88. Under Secretary for Public Works. Put with papers.—J.B. 19/12/88.

Treasury Minute.

Subject :—The Dam at Prospect.

The Treasury, New South Wales, Sydney, 28 November, 1888.

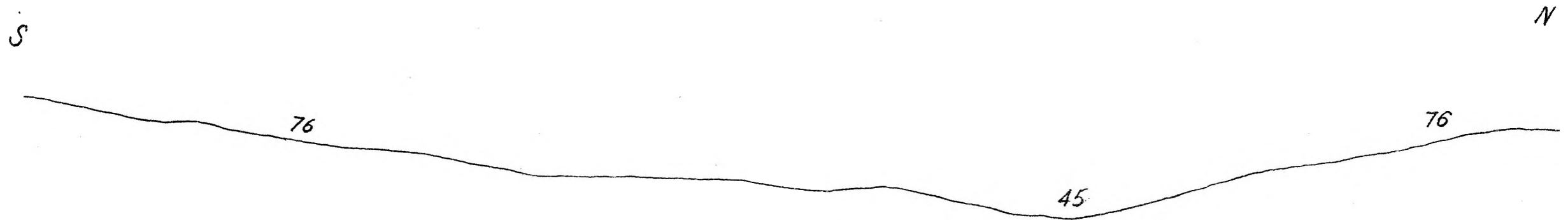
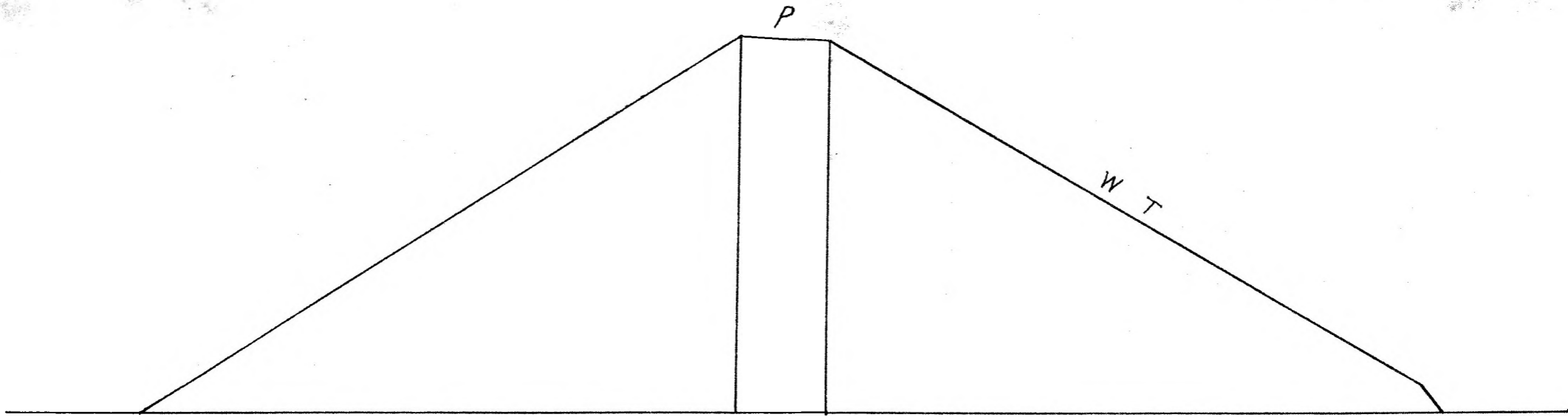
SOME doubt having been expressed in Parliament as to the safety of the dam at Prospect, I would submit, for the consideration of Mr. Sutherland, the desirability of his appointing some officer or officers to inspect and report on the state of the dam. J.F.B.

The Under Secretary for Public Works.—G.E., B.C., 28/11/88. Submitted.—J.B., 28/11/88.

I can assure my honorable colleague the matter he refers to is causing me a great deal of anxiety; and previous to the date of his minute the Acting Engineer-in-Chief for Harbours and Rivers had visited the dam, and placed me in possession of the latest information on the subject. Subsequently I have been in close consultation with Messrs. Whitton and Bennett. These gentlemen have concurred in what they consider the best course to pursue under the circumstances, but previous to taking any action they are to visit the dam in company to-morrow, and on Monday I shall have the result of their conference before me, when I shall immediately place the matter before the Cabinet. I may also mention that Mr. Williams, one of the Assistant Engineers for Harbours and Rivers, has visited the dam alone, and his report will also be placed before the Cabinet.—JOHN SUTHERLAND, 30/11/88. Under Secretary, Finance and Trade.—J.B., B.C., 30/11/88. Seen.—J.F.B., 30/11/88.

[Three Plans.]

APPENDIX C.



(518367-)

APPENDIX D

PROSPECT RESERVOIR

Cross Section taken at 5400.

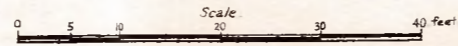
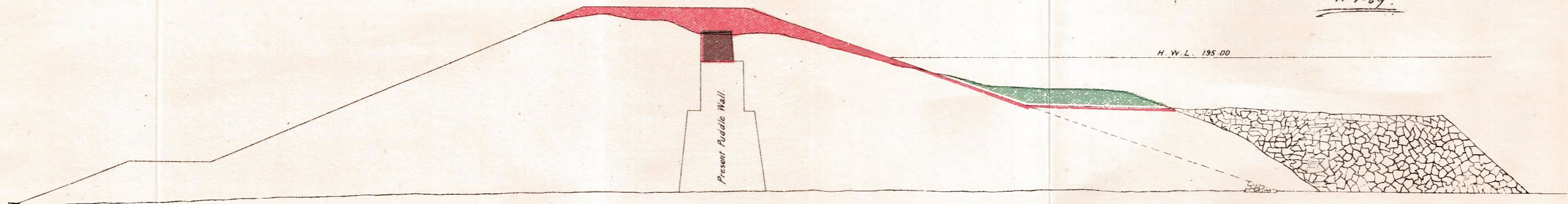


PHOTO-LITHOGRAPHED AT THE GOVT. PRINTING OFFICE,
SYDNEY, NEW SOUTH WALES



Showing method proposed for restoring embankment at site of first slip

Black lines represent present form of bank

Red " " proposed " " "

Red tint = filling

Green - = excavation

Brown - = new puddle

R. L. Mestayer
11.1.89.

H. W. L. 195.00

150 feet above Datum.

(Sig 367)

APPENDIX E

PROSPECT RESERVOIR
Cross Section taken at 44.

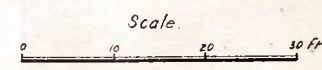
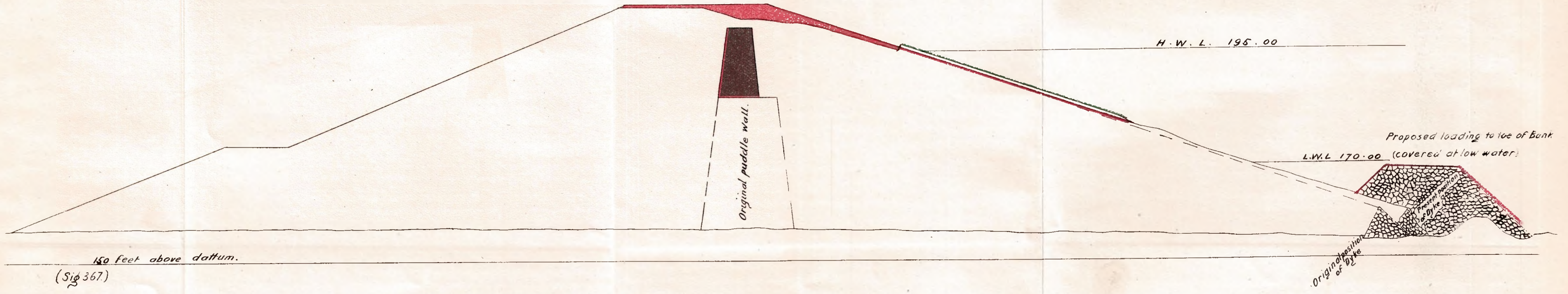


PHOTO-LITHOGRAPHED AT THE GOVT. PRINTING OFFICE,
SYDNEY, NEW SOUTH WALES.

Shewing method proposed for restoring embankment
at site of Second Slip see. 44.

- Black lines represent present form of Bank
- Red lines " proposed "
- Red tint " Filling
- Green " " excavation and taking up and relaying pitching
- Brown " " new puddle

R. S. Mestayer
11.1.89



1888.

LEGISLATIVE ASSEMBLY.
NEW SOUTH WALES.

SYDNEY WATER SUPPLY.

(CORRESPONDENCE RESPECTING APPOINTMENT OF A RESIDENT ENGINEER AT THE PROSPECT RESERVOIR.)

Ordered by the Legislative Assembly to be printed, 13 December, 1888.

Questions.

- (5.) THE PROSPECT DAM:—MR. STEVENSON asked the Secretary for Public Works,—
 - (1.) Is it a fact that an engineer was imported from England to superintend the construction of the Prospect Dam?
 - (2.) Was this course taken because there was no competent person in New South Wales to carry out the work?
 - (3.) Does the present report of the Acting Engineer-in-Chief for Harbours and Rivers, in reference to the state of the Prospect Dam, show that the interests of the Colony have been served by this importation?

Answers.

(1, 2, and 3.) These questions will be more fully answered by placing copies of the papers on the subject upon the table of the house.

The Engineer-in-Chief for Harbours and Rivers to The Under Secretary for Public Works.

Sydney Water Supply—Asking for authority to send home for an engineer to take charge of the construction of the Prospect Reservoir.

Department of Public Works, Harbours and Rivers Branch,
Sydney, 25 June, 1880.

I BEG to bring under the attention of Mr. Secretary Lackey, the necessity for obtaining at once an experienced person to take charge of the construction of the large reservoir at Prospect, for which we are about calling tenders.

Of all the works in connection with the Sydney Water Supply, this perhaps most requires, in the superintendence of its construction, an officer of special qualifications; and such a one, with the requisite experience, so far as I know, is not to be found here. I have therefore been in communication with Mr. John Fowler, C.E., of London, on the subject, and he informs me that he knows of a gentleman who has had large experience in this class of work at home whom he could recommend for the situation. I would therefore ask Mr. Lackey's sanction to telegraph for him; salary to be at the rate of £500 per annum, with passage paid to the Colony.

E. O. MORIARTY.

B.C., Under Secretary Public Works, 4/9/80. Appd.—J.L., 8/7/80. Mr. Moriarty for telegram., B.C., 8/7/80.—J.R. I have since heard from Mr. Fowler, and now recommend that the following telegraphic message be sent to him through the Agent-General:—"Send Ryan, salary £500 and passage."—E. O. MORIARTY. Telegram forwarded through Colonial Secretary.—Appd., J.L., 9/9/80. Mr. Moriarty, B.C., 10/9/80.—J.R.

The Agent-General to The Colonial Secretary.

Sir,

5, Westminster Chambers, Victoria-street, S.W., 25 March, 1881.

I have the honor to inform you that, in accordance with your telegram of the 25th February last, Mr. Fowler has arranged the agreement with Mr. R. H. Ryan for service under the Government.

Mr. Ryan has consented to accept £550 per annum and a house, with travelling allowance; passage of himself to Sydney to be paid by the Government. I am not able to send to you by this mail a copy of

the agreement, because it is not yet signed by Mr. Ryan; but the terms thereof have been decided, and I expect Mr. Ryan will sail by the "Cuzco" Orient steamer, about the middle of May. I apprised you of this in my telegram of the 18th instant, as follows:—"Ryan sails 'Cuzco,' May."

I have, &c.,

SAUL SAMUEL.

81-1461, U.S. Works, B.C., 27/2/1881. Cablegram for Agent-General:—"Ask Fowler to arrange Ryan's engagement, &c."—Works, B.C., 9/3/81. The Secretary for Public Works.—H.P., 5/5/81. The Under-Secretary for Public Works, B.C., 6/5/81.—C.W. Harbours and Rivers, B.C., 7/5/81.—J.R. Noted.—E.O.M., 12/5/81. Messrs. C. and S. to note.—J.B., 12/5/81. Noted.—J.C., 14/5/81.

J. Fowler, Esq., to The Engineer-in-Chief for Harbours and Rivers.

My dear Sir,

2, Queen's Square Place, Westminster, S.W., 8 April, 1881.

I beg to advise you that, in pursuance of a telegram which arrived from the Colony (10th September, 1880), I have drafted out an agreement with Mr. Ryan as per enclosed copy, and handed it to the Agent-General, who has adopted it, subject to the usual legal formalities of detail. Mr. Ryan proposes to leave, if possible, by one of the Orient steamers on the 11th May, and it may be well to recall the circumstances under which Mr. Ryan has been engaged:

On December 3rd, 1879, you wrote to me at considerable detail; and there was a clause in the letter as follows:—

"I should like to hear of a man who has seen some good dam work. The Prospect dam will be a big work, 80 feet in height and a mile and a quarter long; it is the only thing on the whole of the Sydney water about which I feel at all anxious, and I must have a thoroughly competent man to superintend it."

I forwarded the copy of this clause to Mr. Hawksley, who has probably as large an experience as any existing engineer in the construction of dams and water-works, and I received in reply the following letter from Mr. Charles Hawksley (the son and partner of Mr. Hawksley, senr.), recommending a gentleman not indicated by name at the time:—

Dear Sir,

30, Great George-st., Westminster, S.W., 11 February, 1880.

Your favour of the 4th instant reached me in the north of England. I know a gentleman who would, I think, just suit your requirements, having had experience in reservoir construction. On learning whether he would be disposed to accept the appointment, I will again communicate with you.

I am, &c.,

CHARLES HAWKSLEY.

J. D. Baldry, Esq.

After receiving this letter, I wrote to you, under date of February 13th, 1880, mentioning this, and suggesting that the appointment should be made in England, as qualified men were unwilling to go out without a fixed engagement.

Mr. Hawksley called on me soon after, and brought with him a letter (enclosed herewith) from Mr. Ryan to Mr. Hawksley; after this I had from time to time conversations with Mr. Hawksley, senior and junior, both of whom spoke in high terms of Mr. Ryan; the result of this was that I wrote to you, under date of July 2nd, suggesting that as Mr. Hawksley considered Mr. Ryan to be a competent man, probably it would be convenient if Mr. Ryan were mentioned by name in your communication with the Government.

After this several communications passed between the Government and the Agent-General respecting the appointment of Mr. Ryan, which has resulted in his engagement, draft copy of which I have referred to.

I think you will find Mr. Ryan a zealous and assiduous assistant, with an earnest determination to see the work done effectively. The following copy of a letter of March 17, 1881, from Mr. Hawksley, senr., I think will satisfy you that his opinion is very favourable to Mr. Ryan.

Dear Sir,

30, Great George-street, Westminster, S.W., March 17th, 1881.

Mr. Ryan informs me you desire to have an expression in writing of my opinion of him as a civil engineer, heretofore acting under my direction as the resident engineer of the Corporation of Waterford, during the construction of the water-works of that city.

I have much pleasure in stating that the works executed under Mr. Ryan's superintendence have in every respect given me perfect satisfaction, and that I have found in Mr. Ryan a careful, intelligent, honest, and qualified coadjutor.

I am, &c.,

THOMAS HAWKSLEY.

J. D. Baldry, Esq.

Mr. Ryan having to give up the appointment of engineer to the city of Waterford, which he has held for some time, to accept the present engagement, cannot sail from England earlier than May.

I am, &c.,

JOHN FOWLER

(*pro* J. D. BALDRY).

The Agent-General to The Colonial Secretary.

Mr. Ryan's Appointment.

Sir,

5, Westminster Chambers, Victoria-street, S.W., 8 April, 1881.

In continuation of my letter of the 25th ultimo, No. 56-81, I have now the honor to forward for your information a copy of the agreement entered into with Mr. Ryan for service under the Government; and in accordance with the understanding made with him I propose to pay the cost of his passage in the s.s. "Cuzco" (seventy guineas), to sail on the 11th May.

I have, &c.,

SAUL SAMUEL.

The Secretary for Public Works.—H.P., 20/5/81. The Under Secretary for Public Works, B.C., 21/5/81.—C.W. Harbours and Rivers, B.C., 25/5/81.—J.R.

[Enclosure.]

[Enclosure.]

ARTICLES of Agreement made and entered into this 31st day of March, 1881, between Her Most Gracious Majesty Victoria, Queen of Great Britain and Ireland, for herself, her heirs, and successors, and the Right Honorable Lord Augustus William, Frederick Spencer Loftus, G.C.B., Governor of her Colony or Dependency of New South Wales, for himself and his successors, acting for and on behalf of the Government of the said Colony, and hereinafter called the Government, by Saul Samuel, of 5, Westminster Chambers, Victoria-street, in the city of Westminster, Esquire, Agent-General in Great Britain, for the said Colony of the one part, and Robert Henry Ryan, of the City Hall, Waterford, civil engineer, of the other part, whereby it is mutually agreed as follows:—

1. The Government, upon and subject to the terms and conditions hereinafter contained, engage the said Robert Henry Ryan as a civil engineer, to assist in the carrying out of the works in connection with the water supply in Sydney, or such other works of a similar engineering character as the Government may direct, for the term of four years from the date of his embarkation for the Colony, provided that the said Robert Henry Ryan shall so long perform his duties to the reasonable satisfaction of the Government and of the engineer hereinafter named. Provided always that, if the said Robert Henry Ryan do not perform his duties to such reasonable satisfaction as aforesaid, it shall be competent for the Government at their absolute discretion to put an end to this agreement and the engagement hereby made, upon giving six months notice in writing to the said Robert Henry Ryan, such notice to be expiring at any time.
2. The Government will pay to the said Robert Henry Ryan a salary at the rate of five hundred and fifty pounds per annum, to be deemed to accrue *de die in diem*.
3. The Government will pay the passage and travelling expenses of the said Robert Henry Ryan from London to Sydney, and will also allow him all reasonable and proper travelling expenses (the amount thereof to be decided by the Government) when travelling in the Colony on the business of the Government away from his residence.
4. For the considerations aforesaid the said Robert Henry Ryan will not later than the thirty-first day of May next leave England by steamship for Sydney, and forthwith on his arrival there report himself to and place himself under the instructions of E. O. Moriarty, Esquire, the Engineer-in-Chief for Harbours and Docks for the Government of New South Wales, or such other Engineer for the Harbours and Docks for the time being.
5. The Government will provide the said Robert Henry Ryan from time to time with an unfurnished residence free of expense, and until they shall provide such a residence they will pay to the said Robert Henry Ryan the usual allowance in such cases.
6. The said Robert Henry Ryan shall and will during the continuance of these presents devote his whole time and attention to the service of the Government as directed by the Engineer of Harbours and Docks or other superintending engineer of the Government, under whose directions he may for the time being be working, and use his utmost exertions to carry out the instructions and directions of such engineer, and promote the interest of the Government, and will not directly or indirectly during the continuance of these presents engage in any other business or occupation whatever.
7. In the event of this agreement being determined by the Government under the provisions of clause 1 hereby, the Government will provide the said Robert Henry Ryan with a free passage to London on the expiration of the notice determining his engagement.
8. The said Robert Henry Ryan hereby undertakes to execute a duplicate of this agreement in Sydney, with such variation as may be necessary to make the same valid and effectual in the Colony, when called upon by the Government to do so.

In witness whereof the said Saul Samuel, as such Agent as aforesaid only, and not so as to make himself personally liable, and the said Robert Henry Ryan, have hereunto set their hands the day and year first above written.

ROBERT HENRY RYAN.

Witness to the signature of the said Robert Henry Ryan,—
PATRICK HIGGINS,
Morgan-st., Waterford, Clerk and Storekeeper, Waterford Corporation.

1888.

LEGISLATIVE ASSEMBLY.
NEW SOUTH WALES.

WATER SUPPLY.

(REPORT ON, AT BROKEN HILL.)

Ordered by the Legislative Assembly to be printed, 28 November, 1888.

Mr. E. B. Price to The Colonial Secretary.

Sir,

Harbours and Rivers Office, Balranald, 19 October, 1888.

I have the honor to report, that in compliance with telegraphed instructions from the Engineer-in-Chief for Harbours and Rivers, I left for Melbourne by coach on the evening of the 3rd instant, and received at "Menzie's Hotel" full instructions from you to proceed immediately to Broken Hill and to report on all questions affecting the water supply, sanitation, and general prosperity of the district.

I reached Broken Hill on the morning of Tuesday, the 9th instant, having lost two days in Adelaide through there being no mail trains on Saturday or Sunday.

On arrival I at once placed myself in communication with some of the leading people of the town, in order that they might make arrangements to point out all matters they wished to bring under my notice.

In the afternoon, accompanied by Mr. Inspector Low, of the Mines Department, I visited most of the wells in the town, and took samples—particulars are given later on—and in the evening was waited on by the Progress Committee, who discussed various matters affecting the welfare of the district.

On Wednesday morning I drove with some members of the Progress Committee to Stephens' Creek and followed down its course to below Mount Gipps. I examined the wells in the bed of the creek, and also the sites for the dams in the proposed scheme for supplying Broken Hill by pumping from an impounding reservoir. On my return I visited the office of the Roads and Bridges Department and obtained some necessary information from perusal of official papers.

On Thursday morning I visited the Proprietary Company's mine, and tasted the condensed water used by the miners; and also had an interview with the representative of the Australian Water and Mineral Boring Company, who propose to bore for artesian water on the plain near the "Rat-hole" Tank. I then drove out, accompanied by Mr. Clark, of the Roads and Bridges, and inspected the various wells and tanks adjoining the tramway line to Silvertown, and the "Rat-hole" tank beyond Umerumberka. In the evening I was waited on by a deputation from the Amalgamated Miners' Association, who pointed out the necessity for a mining inspector being appointed.

On Friday morning, the 12th inst., I left with Mr. Harry Stockdale and drove to the site of his proposed service reservoir at Mount Taylor, and then followed as closely as possible the pipe-line as far as Kars Station, where we stayed the night, and the next morning went on to Speculation Lake, from which it is proposed to pump, and followed in the pipe line from there to the Darling at Menindie, from which point it is proposed to draw a supply when the lake fails. I returned here by the first coach which arrived this morning.

In order to explain some points in this report it is necessary to describe generally the situation of Broken Hill, and its adjoining townships, Broken Hill South, and Round Hill.

Broken Hill town is built in a flat valley about 1 mile wide, with a gentle slope to the north-east. The valley is bounded on the south-east by the Broken Hill lode, which rises from 200 to 250 feet above the main street. Along the lode are the workings of the principal mines, and all drainage naturally finds its way to the centre of the town, except where stopped by dams. To the north-west the side of the valley rises more gradually to an elevation of from 30 to 70 feet, beyond which the ground falls away again. In consequence of this situation the drainage of the whole town, except a small portion to the north-west, must flow first towards the centre of the town, and then in a north-easterly direction towards Stephens' Creek, which is about 8 miles distant.

South Broken Hill is entirely distinct, being built on the low ground on the opposite side of the lode. Its drainage is into one of the tributaries of Stephens' Creek.

Round

Round Hill is some 4 miles to the north-east of Broken Hill, and is built on the undulating plain at the base of the hill of the same name. Its natural drainage is also into a tributary of Stephens' Creek.

The population of Broken Hill is estimated at 12,000, and is increasing, though at present slowly. Some months ago the population was fully 15,000, but it fell off suddenly after the "boom." The increase now going on should be permanent, as it is natural and not produced through any mania.

Once public confidence is regained in the smaller and undeveloped mines a more rapid increase is to be expected. Honest endeavours appear at last about to be made to develop many of these undertakings, and to prove what they are really worth.

South Broken Hill has a population of about 500 which is increasing very fast.

The population of Round Hill I would estimate as 200 and not increasing.

I have no doubt that in a few years Broken Hill will be a great city. The district seems full of minerals. Quartz-reefs appear on many hills, which may prove gold yielding when opened up; but at present silver alone is thought of, and all other mines thrown in the shade by the great Proprietary mine with its 100 feet lode increasing in thickness as it descends.

The question of sanitation, in my opinion, takes precedence of all others in urgency. Sanitary matters in Broken Hill are as bad as they can well be, and for this reason the dryness of the season is to be looked upon as a blessing rather than a curse.

There are no drains of any kind. Only one street ("Argent") is formed, even in part, but it has no curbing or pathways; and the side-channels (or where they should be) are choked with dust and rubbish of all sorts.

It appears to be the custom to unpack all cases in the street, and to leave the residue of straw, paper, &c., *in situ* till removed by the next dust storm. This has been slightly remedied during the last few days by the efforts of the Voluntary Sanitary Association.

The principal hotels and residences are provided with earth-closets with removable pans, which are emptied occasionally by the proprietor in any convenient place near the town, and the contents covered with sand. The other houses either have no conveniences or have movable closets over shallow pits; when necessary the closet is removed to another site, and the pit filled with sand. The majority of the huts and tents scattered over the slopes of the hill appear to have no sanitary arrangements whatever. All house slops are simply flung into the street or on to the surface of the back yards.

At present the dry sand acts as a deodorizer, and prevents the awful state of the town from being so apparent. After a slight fall of rain the smells are very bad.

Should heavy rain now fall it will flood the cesspits and carry the sewerage down the hill and through the backs of the houses into the main streets; fermentation will set in, and typhoid fever be the result.

Strong and prompt measures are necessary to avoid this evil. I would recommend the immediate appointment of a sanitary inspector, with an assistant. If possible, let a military man be chosen who has had experience of camp regulations in India or other hot climates. He should be given as much power as possible, so as to be able to enter all premises, and fill all cesspits with quick-lime and earth, empty earth-closets, and take any steps necessary to prevent the contamination of the soil. He should also clear the streets from rubbish, and compel people to sweep the space in front of their houses. All rubbish should be carted to some of the numerous depressions to the south of the town, and buried in deep trenches. The inspector's duties should also extend to the mines and outlying townships.

Better sanitary arrangements are needed both above and below at the various mines. In the event of a mining inspector being appointed, he might undertake these duties with regard to the mines.

Some months must elapse before the new municipal body will be in a position to act promptly, and even then prosecutions must first be instituted against offending persons; in the meantime some one is required to do this work thoroughly in the first instance, and prosecute, if necessary, afterwards.

The gaol accommodation for a town of 12,000 inhabitants is most inadequate. Three small iron cells are provided, each about large enough for one prisoner in a hot climate. There is no enclosed exercise yard. More than a dozen prisoners have been confined here at one time. More police are required, and a proper gaol, constructed on enlightened ideas, in which confinement does not necessarily entail a risk to life. The court-house consists of an iron shed on a back lane, and can only be a temporary arrangement. A much larger building on a suitable site is urgently needed if justice is to be administered without danger to the presiding magistrates and others.

I am informed that His Honor the Chief Justice intends bringing these matters forward, so I will leave them in more able hands.

In connection with the administration of justice, it appears strange that Broken Hill should have no stipendiary magistrate. The Warden of Silverton has far too many matters to attend to, and it is hardly right to depend almost entirely on the gratuitous services of the J's.P., many of whom find it difficult to give up so much of their time as is now required.

The proposed incorporation of the town will give universal satisfaction, and there are many able men willing to offer themselves for election. The election, I am informed, cannot take place before December; some weeks must then be lost in drawing up by-laws, in having them approved of, and finally gazetted. So at the soonest it will be the middle of January before any action can be taken to rectify the present condition of the town. It is during this interval that a special sanitary officer is required.

The water supply suitable for domestic purposes is at present derived from three sources:

(1.) *Rain-water caught in iron tanks.*

This supply is almost exhausted, only a few of the larger hotels having any left. In any case the water should not be used without filtering, owing to the dirt and lead deposited on the roofs. Owners of tanks would be wise if, when the next rain falls, they were to catch the first rush of water in a separate tank, as it will contain nearly all the deposit from the roof.

(2.) *Water pumped from the various wells about the town.*

This supply is very fair in quality and quantity. Samples from several of the wells are sent herewith. The wells are all about 100 feet deep, and are sunk principally through the country stone, and as far as I can judge are free from any hurtful components. The water is slightly brackish to taste, but so slightly

slightly that some of the better wells are very nice to drink, and all are well suited for general use. The following is a copy of the analysis of the water from the well at Stephens' Brewery, by A. Thomas, F.C.S., of Adelaide.

[COPY.]

Chloride of sodium	68.33	grains
Carbonate of lime	14.63	"
Carbonate of magnesia	13.91	"
Sulphate of lime	3.04	"
Oxide of iron and alluminum... ..	1.15	"
Organic matter... ..	0.29	"
Total solids in 1 gallon =	101.35	"

The quantity of water which can be supplied by each well varies from 1,500 to 6,000 gallons per day. The total daily supply from seven wells which are completed, and which were examined by me, is estimated by the owners at 24,500 gallons. The supply of most of these well has been largely increased by putting in short horizontal drives. The price charged at the wells varies with the quality from 2s. to 3s. per 100 gallons. Carting is about 1s. 6d. extra. Nothing like the full quantity can be sold at this rate. Probably 15,000 gallons per day is disposed of.

The number of wells could easily be multiplied ten times without crowding. Full particulars are given in appendix.

(3.) *Water Carted from Stephens' Creek Soakages.*

Stephens' Creek is about 8 miles from Broken Hill, and flows generally from west to east. Its bed is about 300 feet lower than the town.

The catchment area is estimated at 170 square miles, so that a heavy fall of rain causes a high flood in the creek; but owing to its great width and rapid fall the flood passes off in a few hours, leaving, however, a vast body of water stored in the coarse drift which covers the bed for a depth varying from 10 to 4 feet, and from 300 to 100 feet in width.

The creek ran in December last, and since then the soakages have only been replenished by an occasional shower.

Wells are sunk in this drift till they meet the clay, some few are timbered, but the greater number are nearly holes 2 feet in diameter at the bottom. The best yield is obtained from dry-goods casks sunk to the bottom with a hollow of about 2 feet in the clay. One of these casks near old Mount Gipps was yielding on the day I visited it at the rate of 150 gallons per hour.

This part of the creek was replenished about a fortnight previously by the influx from a tributary creek, on which 40 points of rain had fallen.

On the 10th of October I inspected the creek for a distance of about 10 miles, commencing at Anderson's wells about 7 miles from Broken Hill. Here the creek is very shallow, and about 240 feet wide. A rise of 3 feet would overflow the surrounding country for some distance, as the land slopes to the creek at an angle of less than 1°. There are numerous holes sunk here, as it is the nearest point to Broken Hill, and with a good track. A few of the holes are timbered: one description will apply to all of these, viz.—Anderson's well, timbered 4 feet x 2 feet; drift, 7 feet; clay, 3 feet. Yield, 200 gallons in five hours.

While here I met a man—James White—who has been fifteen years on the creek, and obtained the following useful information, viz.:—The creek ran 3 feet deep at Christmas last, and for three days in November. It ran four or five times the previous winter, which was exceptionally wet. Only one year has ever elapsed without the creek running; but on an average it runs at least once every year. On the 10th of January, seven years ago, a heavy flood occurred, which covered all the rising ground for nearly a mile each side.

Between here and old Mount Gipps the bed of the creek is pretty thickly timbered; many wells have been opened, and nearly all yield more or less water. Above old Mount Gipps I noticed an old stone dam built with mortar, portion of which had been washed away, rendering it useless; the upper side had also silted up.

At Old Mount Gipps I saw many wells yielding large supplies, and numerous drays were awaiting their turn to be filled. The following are descriptions of three of these wells—

- Size, 3 ft. x 4 ft.; timbered depth, 5 feet; drift, 4 feet deep; 1 foot of water standing, yielded 2,000 gallons on previous day; quality very good (see sample); well nearly dry previous to last fall of rain.
- Dry goods cask, 3 ft. diameter; depth, 4 feet. Yields 300 gallons in two hours, previous to last rain less than half this amount. Sold at 8s. 6d. per hundred gallons delivered in Broken Hill, over 7 miles distant.
- Size, 2½ ft. x 2½ ft., timbered; depth, 4 ft. Yielded 3,000 gallons to-day (October 10th); cannot bale dry.

The creek here is about 80 yards wide with slopes of 1°. Below this for about 2 miles hardly any wells have been sunk, although there appears to be plenty of drift. One well I noticed owned by a man named Jackson; this had been commenced on liberal principles, being 16 ft. long by 8 ft. broad; however, at the bottom (9 ft. deep) the size was reduced to 10 ft. x 5 ft., and as it had not been timbered it was half filled with sand. The water rose 18 inches from the bottom and the yield was 800 gallons, which doubtless could have been vastly increased if the well had been kept clear. This place is about 8½ miles from Broken Hill.

Where Lindsey's Creek joins from the N.E. a fine deep drift occurs, here I noticed several wells, and one with a pump.

About half-a-mile lower down the creek narrows and enters between two rocky hills, only about 800 feet apart. Here it is proposed to construct an impounding dam, 30 feet high. A description of the proposed scheme is given further on.

For the next 2½ miles the creek runs in a wide valley, bounded by hills, 200 feet high, which again suddenly narrow in, forming an obvious site for a second dam.

I noticed very few wells here, except a few brackish wells, which had been sunk in the clay near the creek.

It will have been seen from this description that very primitive methods are in use to obtain the water stored in creek bed.

I would recommend as a temporary measure that some wide trenches (say, 5 feet) should be cut across the creek in likely places. These should be timbered with rough slabs. Care should be taken not to sink these trenches more than about 1 foot into the clay bed below the drift, otherwise brackish water may be obtained.

It would also be advisable in some parts of the creek where there is a steeper fall to puddle the lower side of the trench so as to impound the water flowing through the drift. A small steam pump delivering from the trench into a temporary service tank some little distance back, where the carts could be filled without going down into the bed of the creek, would prove a great boon to the carters. Such of them as have sunk wells of their own complain that others make use of them.

It is probable that if assistance were given in the way mentioned that the price of Stephen's Creek water would be reduced to the consumer from say 8s. to 6s. per 100 gallons. The present price varies from 9s. to 7s. per 100 gallons, according to the quality and demand.

These are the present sources and methods of supplying Broken Hill with domestic water.

Rate-hole Tank up to the date of my visit had not been touched. It is 22 miles from Broken Hill by the way the water must be conveyed. On October 11th, when I visited it, the water was about 80 yards long by 50 yards broad by 3 yards deep, with slopes of 3 to 1. This would give about 1,300,000 gallons allowing for waste at bottom, equal to sixty-five days supply of 20,000 gallons, which is the largest amount that can be delivered by the present arrangements in Broken Hill. The man in charge informed me the water was falling 3 inches per week, although he only sold about 3,500 gallons in the same period. This proves a considerable loss by evaporation.

The following is a description of the arrangements which have been made by the Roads and Bridges Department to supply the town, viz. :—

A Tangye boiler with 8 in. 4 in. steam pump, forces through $\frac{3}{4}$ of a mile of 3 in. wrought iron galvanized pipe into a service tank beside the tram-line, 70 feet above the Rat-hole Tank. The pump can deliver 4,000 gallons per hour when pressed; but the tramway arrangements admit of only 20,000 gallons being carried during the day.

The water will be conveyed to Broken Hill in trucks and discharged into a low level tank there, from which it is again pumped into a tank alongside sufficiently elevated to fill the carts from.

The general arrangement seems good except for having to pump the water a second time. I think a short branch siding on staging, similar to a coal siding, would have enabled the trucks to discharge into the higher tank at once, and saved fuel and driver's expenses for second engine.

The tramway being on an embankment would have further assisted. However, some difficulty with the Tram Company may have prevented this being done.

A second engine and boiler with service tank is also at the Rat-hole Tank, it was used for watering stock. There is unfortunately no means of filling carts from this tank except by baling over top of tank. A tap should be placed in the side.

I would recommend that the trustees should use the tank at once, and when emptied that the engine, pipes, and tank beside the tram-line, be removed and utilized to bring water from the limestone quarries, between Silverton and Broken Hill, to the tram-line, in a similar manner as at the Rat-hole Tank.

These limestone quarries are scattered over an area of over a square mile about one mile to the north of the tram-line, at a point about 10 miles from Broken Hill.

I examined many of them on my way to the Rat-hole Tank, on October 10th.

They lie near the course of the Acacia Creek, and yield apparently an inexhaustible supply of good drinking water.

When the quarries are sunk 14 feet, water is reached in such quantities as to prevent further sinking, although the best limestone is found below this level. At one quarry troughs and a rough water lift had been erected, and were being used for watering stock. The owner informed me that he could not possibly dry the quarry although the drainage hole was very small.

I was informed by another quarryman that he and his family used no other water for the past two years, and that it was good for washing and tea making, and that his children were all healthy and strong.

There must be a vast quantity of water lying in this natural basin, surrounded as it is with high hills. A very small expenditure would be sufficient to deepen one of these quarries, and run a few open cuttings or drives. The limestone raised will more than repay the outlay.

The engine from the Rat-hole Tank is sufficiently powerful to deliver 40,000 gallons per day into the service tank placed on the tram-line. The cost of removing the tank would not be great. As there is plenty of good building stone all about, it would be as cheap to put it on stone piers as on timber staging. A little extra 3-in. pipe will be required.

I am sending a sample of this water with the others. The limestone is clean and very white, so it is unlikely that the water contains any hurtful components.

Silverton is well supplied with water, having a tank containing over $\frac{1}{2}$ an acre of water 13 feet deep, with steam pump and service tank with filling arrangement for carts. There is no reason why the water should not be supplied by gravity from this service tank to the town, $\frac{1}{3}$ of a mile away. The tank is now as high as the tops of the houses, and if raised would command them.

There is also a splendid supply of stock water from the stock well close by, which has a service tank also.

Should a good fall of rain occur, a large quantity of water will be conserved in the large dams which are being constructed by the Roads and Bridges Department.

One of these, $2\frac{1}{2}$ miles out on the Pinnacles Road, will hold 5,000,000 gallons. I believe it is now being improved by the Department.

This tank yielded about 30,000 gallons per day up to the 3rd of June, when it failed.

No rain having fallen worth mentioning since Christmas. The water was sold at 1s. per 100 gallons at the tank, and yielded a revenue of £750. The total cost of the work including 6 miles of drains and every thing, being £1,189.

The reservoir now nearly completed between Round Hill and Broken Hill will conserve 6,000,000 gallons, and the contract sum is £485, These

These works have been carried out cheaply and well, and, once rain falls steadily, should change the aspect of affairs very materially.

The other Government work is a stock-well, sunk to the east of the Broken Hill lode, towards South Broken Hill.

It is 150 feet deep, with an 8-foot drive, and yields 3,000 gallons per day of good stock-water, containing no minerals of any injurious nature according to its analysis. It cost £733, and yields a revenue of £14 per week. I am informed that the water is sometimes drunk.

A large supply of very good stock-water is obtained by pumping from the "Silver Crescent" mine about 2 miles out north-east of Broken Hill.

The water comes from a drive about 120 feet down the shaft. The yield is 7,000 gallons per day; the demand is not equal to the supply. Messrs. Hill & Co. water sixty horses per day at the mine.

The water is not very bad to the taste, and contains lime, magnesia, and salt.

Arrangements were being made by Messrs. Nolan and Lloyd to pump this water to the town through a 4-inch wrought and cast iron main.

The pipes were finished laying on the 11th instant, but no water had been delivered into the service tank in town before I left to examine the Darling scheme on the 12th.

I fear there will be considerable trouble from leaky joints owing to the way the pipes are laid.

It is contemplated by Messrs. Nolan and Lloyd to continue the line of pipes to Stephens Creek and pump water from a point below Mount Gipps. I believe the pipes are now being laid.

It is unfortunate that these gentlemen did not obtain proper engineering advice before carrying out this work, as it would have saved money and disappointment afterwards.

Taking the length of main as 11 miles, and the diameter as 4 inches, and height to be pumped as 300 feet,—calculating by one of Hawksley's formulæ, it would require 7 indicated horse-power to deliver 21 gallons per hour, showing how much too small the pipe which is being laid is for the work expected from it.

No one can for a moment doubt that Broken Hill should have a really good permanent water supply. The prosperity of the town depends on this being provided without delay. Such a supply should be sufficiently large to enable the water to be used for gardens, tree-growing, watering streets, and in the mines for concentrating the ore.

The present cost of water prevents the enjoyment of any comfort, and compels residents to send away their families on account of the cost of washing alone.

I would not recommend any supply being sanctioned by the Government which cannot be sold at 5s. per 1,000 gallons; as I believe, if the work was carried out by the Harbours and Rivers Department, the water could be sold for much less than this amount. This is supposing compulsory powers are granted.

There were three distinct schemes brought under my notice by their promoters:—

1. Artesian boring.
2. Damming and pumping from Stephens Creek.
3. Stockdale's scheme, pumping from Lake Speculation and River Darling.

(1.) It is proposed by the "Australian Water and Mineral-boring Company" to bore for an artesian supply on the plain near the Rathole Tank, at a distance of about 24 miles from Broken Hill.

They have, in my opinion, fair prospects of success.

The land falls steadily for over 100 miles to this point; the total fall from the summit level on the South Australian Railway is over 700 feet.

From the Rathole Tank the ground rises more suddenly towards Silverton,—

The aneroid level at the tank being	875 feet.
And on top of dividing range	1,085 "
The level of Silverton on same day was	1,000 "
And of Broken Hill township	1,200 "
The summit level in South Australia is about	1,600 "

A bore of 1,000 feet or more may reach an artesian supply which will rise a considerable height.

(2.) The scheme proposed by the "Barrier Ranges and Broken Hill Water Supply Company" comprises the erection of two large dams on Stephens Creek, and the pumping there from a distance of 10 miles to the top of a hill, in the centre of Broken Hill township, as laid out. Mr. J. D. Derry, M. Inst. C.E., is the company's engineer, and the plans have been carefully laid. The supply main is to be 18 inches in diameter.

The sites chosen for the dams are admirably suited by nature for the purpose, and present no engineering difficulties. The hills at these points approaching almost to meet.

Good clay suitable for the construction is found close by.

The catchment area is calculated at 170 square miles, but this would have to be reduced a little so as to exclude by other dams the drainage from Broken Hill and all mines.

With this enormous catchment, one heavy downpour would provide a year's supply to Broken Hill.

Taking the catchment which is really available for supplying the creek as only 100 square miles, on this area 1 inch of rain would produce 233,000,000 cubic feet of water, but half of this would be lost in soaking into the ground, leaving at any rate 100,000,000 cubic feet for storage purposes, equal to 600,000,000 gallons, which would supply 20,000 people for about three years, at the rate of 30 gallons per head per day.

Stephens Creek, as I showed earlier in this report, has been in flood every year for the last fifteen with one exception.

So that if these works were carried out, and a sudden fall of only 1 inch of rain follow, Broken Hill might be said to have a permanent supply.

Some compensation would doubtless have to be made to owners of land further down the creek: The amount would not be large, as little use is made of the water when it does run. I could hear of no dams or tanks supplied from it, and only soakage water remains after the flood passes. The creek is generally supposed to flow into Lake Speculation, but this is not the case; it crosses the road to Menindie (*via* Rockwell) about 33 miles from Broken Hill, and runs into the new lake about 20 miles south, and then is lost in a cotton-bush flat.

The bed of the creek at the site of the reservoir is about 300 feet lower than the higher parts of Broken Hill town.

Attached to this report is a plan and prospectus of the proposed works.

(3.) H. Stockdale's scheme for supplying Broken Hill by raising water 1,000 feet in height above Speculation Lake, so as to command the highest points of the town, has about it an element of boldness calculated to catch the popular sympathy. Unfortunately, Speculation Lake is over 50 miles from Broken Hill, and is itself 16 miles back from the Darling. This adds greatly to the difficulty and expense of the undertaking; but still there is nothing impossible about it, provided the whole question is carefully gone into by a competent engineer with experience in water-works, and especially pumping machinery.

The survey was made in great haste and under great disadvantages, and no doubt the pipe line could with advantage be altered in many places so as to take advantage of the nature of the ground. The proposed site for the service reservoir on Mount Taylor, 5 miles from Broken Hill, is not the best that can be chosen. I observed a more suitable natural basin about half a mile to the south and at an elevation 50 feet greater, which would give a better command of the Broken Hill Mines.

The following are the published details of the scheme, but apparently the promoters do not bind themselves closely to any particular detail.

There are to be ten pumping stations to force the water to the top of Mount Taylor, viz:—

Name of Station.	Distance to Pump.	Height to lift.
(1.) Speculation Lake	8 miles	130 feet.
(2.) Near No. 1 Tank	7 "	40 "
(3.) Kar's Station	9 "	40 "
(4.) Near Stephen's Creek	7 $\frac{1}{2}$ "	62 "
(5.) Near Mulculea Station	6 $\frac{1}{2}$ "	167 "
(6.)	5 "	30 "
(7.)	4 "	173 "
(8.)	1 $\frac{3}{4}$ "	163 "
(9.)	1 $\frac{1}{4}$ "	242 "
Totals	50 "	1,047 "

The tenth station will be on the Darling, at Menindie, to pump to Speculation Lake (16 miles) in time of drought.

From the reservoir on Mount Taylor the water will gravitate to Broken Hill, 5 $\frac{1}{2}$ miles away. The reservoir is to be formed by damming across a natural basin in the hills. A higher reservoir is also proposed to be excavated to give greater pressure. The aneroid readings on the day of my inspection were as follows:—

Broken Hill, Argent-street	1,150 feet.
Peg, 47 miles, near reservoir bottom	1,240 "
Top of hills round reservoir	1,350 "
Point 28 miles from Broken Hill	850 "
Stephen's Creek Crossing, 33 miles out	730 "
Kar's Station	610 "
Speculation Lake	450 "

These agree closely with the original levels.

It is proposed to supply daily 440,000 gallons at Broken Hill, and to lay an 8-inch pipe.

A short calculation would have shown the utter inadequacy of such a small pipe, the friction in which would be enormous, thus:—

To raise 440,000 gallons 1,000 feet in twenty-four hours requires—

To overcome pressure due head	92 $\frac{1}{2}$ h.p.
" friction in pipe	92 $\frac{1}{2}$ "
" loss and friction in pumps	20 "
" contingencies—joints and bends	60 "
Total	265 "

Fuel suitable for large engines is scarce and dear, except close to the river and lake.

If the fuel costs 12s. per ton all round, the cost of each effective horse-power will cost twice as much as at Wentworth, where fuel can be got for 6s. per ton.

At Wentworth fuel costs 3d. per h.-p. per hour, therefore near Broken Hill 6d. per h.-p. per hour.

Calculating from this it will cost 7s. to pump 1,000 gallons into the reservoir on Mt. Taylor.

If a 12-in. pipe were provided the total power required would be reduced to 142 h.-p.

It would be far better to at once lay an 18-in. pipe, and thereby have sufficient water to spare for irrigation purposes on the rich plains lying at the base of the ranges.

The water in Speculation lake is very good, and free from weeds and timber. At present it contains 26 feet of water in the centre, sufficient to last four years at least.

It is replenished by the Darling filling it after flowing through Menindie lake. The entrance to Menindie lake was dammed 18 months ago in a temporary manner in order to impound the water it then contained. The original plan for closing the entrance was made by me, but was not carried fully or according to my design. I proposed that the whole entrance, three-quarters of a mile wide, should be embanked across from sandhill to sandhill, and that as soon as the water fell in the river a second dam with sluices should be erected across the deepest creek, a few feet lower down, and the original dam in this place cut away, this would have allowed the lake to refill when the river again rose. Nothing has, however, been done except to dam the deepest creek, and to throw a few small dams across some side creeks—unless the work is carried out in its entirety the first high flood will sweep everything away.

The value of Mr. Stockdale's scheme depends largely on this being done, and powers should be sought for carrying out the work.

I do not recommend that Mr. Stockdale's scheme should be approved of till the work has been carefully gone through again, and full details supplied.

It

It cannot be hurried through as a means of immediately supplying Broken Hill—five months has been mentioned as the probable time required to complete the work—such statements only bring discredit on the scheme. To rush the work through means doubling the cost and expense of subsequent working. Nothing of a permanent nature could be carried out in this time.

So far as I can judge from my short visit, and from calculations since made, the scheme for supplying Broken Hill from Stephens' Creek is the best of the proposed plans, in that the water can be supplied at less than half the cost of the Darling water.

There is no doubt that exaggerated reports have been spread touching the scarcity of water at Broken Hill, and very conflicting reports have been sent in by the officers of the Mines and Works Department.

The dual control of the Government tanks and wells must ever prove a failure. Though each officer may try to do his best for the public good, differences are sure to arise and valuable time be lost.

The same Department that constructs the work should also have the subsequent working of it.

The broad fact, however, remains that the people in Broken Hill have to pay famine prices for water, owing to the difficulties of getting at the supplies.

I have endeavored to show how this pressure may be immediately relieved, and also that a good permanent supply can be obtained at reasonable cost.

In conclusion, I beg to make the following recommendations:—

1. Appointment of Sanitary Inspector.
2. Appointment of Stipendiary Magistrate.
3. Appointment of Mining Inspector.
4. Immediate incorporation of town.
5. Development of temporary water supply in Stephens' Creek, by trenches.
6. Development of limestone quarry water.
7. Approval by Government of a scheme for the permanent supply of water.
9. Construction of gaol.
10. Erection of better Court-house.
11. Placing of Government tanks and wells under control of Works Department.

Owing to the urgency of subjects of this report and the pressure of other business, I have not attempted to furnish my report in a more finished form, but trust that it will be taken as a true statement of facts.

I have, &c.,

EDWD. B. PRICE,
A. M. Inst. C. E.

APPENDIX.

List of Wells at Broken Hill.

Name.	Depth.	Quantity.	Quality and Remarks.
Silverthorn's Baths	ft. 118	gals. per day. 2,000	Good, slightly brackish; horse lift. 2s. per 100 at well.
Steam laundry	123	200	Good; not finished sinking; steam-pump.
McIntyre's	92	2,000	Good, slightly brackish; horse and 30-gallon cask can dry well in two hours. 2s. per 100 gallons.
Broken Hill Brewery.....	99	8,000	Good, slightly brackish; steam-pump; 20 ft. drive, 6 ft. x 6 ft. Sells now only 4,000 gallons.
Gibson's	92	6,000	Slightly salt; horse lift; drive of 6 ft. x 4 ft.; increased supply by 4,000 gallons.
O'Neil and Nicholas'.....	87	2,000	Good; horse lift; used to yield 4,000 gallons.
Stephens' Brewery.....	90	1,500	Very good, slightly salt; no drive; engine and pump; can't sell all; open 12 months. 2s. per 100.
Houghton's	80	3,000	Very good, slightly brackish; got water at 75 ft.; no drive; can't sell more than 1,400 gallons at 2s. per 100.

1888.

LEGISLATIVE ASSEMBLY.
NEW SOUTH WALES.

BROKEN HILL WATER SUPPLY.

(PETITION FROM INHABITANTS OF—PRAYING THE HOUSE TO PASS A BILL TO CARRY OUT THE.)

Received by the Legislative Assembly, 21. December, 1888.

To the Honorable the Legislative Assembly of New South Wales, in Parliament assembled.

The humble Petition of the 2,121 inhabitants of Broken Hill, in the Parish of Willyama, Town of Willyama, in the Colony of New South Wales,—

SHOWETH:—

That in consequence of the rapidly increasing population of Broken Hill and the surrounding district, and the absence of any water supply commensurate with the growth of the population, a great amount of sickness and mortality has been occasioned.

That numerous deaths have taken place from typhoid, attributable directly to the unwholesome water upon which the inhabitants have had to rely.

That such deaths represent only a percentage of the illness occasioned by the same cause.

That in consequence of the sickness prevailing many of the inhabitants and capitalists have left the district.

That your Petitioners desire to point out that at present their only means of water supply, in addition to the small quantity which is able to be collected in the tanks, are as follows:—

1. The Government well, 3,000 gallons per day (which is brackish and unfit for domestic use).
2. Stephen's Creek soakage (distant about fourteen miles from Broken Hill) about 15,000 gallons per day (which is selling at 10s. per 100 gallons, and is a very inferior water, and not to be compared with the water at Speculation Lake).

That the Government dams, situated about three miles out of Broken Hill, are now empty, and when full are liable to be impregnated with all local drainage, and will then be quite unfit for use, and dangerous to life.

That so far as your Petitioners are aware and believe the nearest and best supply of good water that can be obtained is from the Darling River and Lakes Menindie and Speculation.

That a Company has been formed for the purpose of supplying Broken Hill and its district with water from the above sources, which your Petitioners believe to be the best and purest water, and the best and most simple means of fulfilling a great necessary want.

That the said Company's said scheme will, if carried out, not only supply Broken Hill and all the Rockwell Paddock Mines with a permanent and pure supply of water, but will open up a valuable stock route of over fifty miles.

That if the said Company's said scheme is carried out, your Petitioners believe that it will enable them to purchase the water at a cheaper rate than any other scheme which has been hitherto propounded.

That your Petitioners are in favour of the said Company's scheme.

Your Petitioners therefore humbly pray that the Honorable the Legislative Assembly will take into their earliest consideration, and at the earliest opportunity allow a Bill to pass through Parliament, and the Council allow all the necessary powers to enable the "Broken Hill Water Supply Company" to carry out their proposed scheme.

And your Petitioners, as in duty bound, will ever pray, &c.

Dated this eighth day of November, in the year of our Lord one thousand eight hundred and eighty-eight.

[Here follow 2,085 signatures.]

1888.

NEW SOUTH WALES.

COUNTRY TOWNS WATER AND SEWERAGE ACT.

(PROCLAMATION—RETICULATION WORKS WATER SUPPLY, WEST MAITLAND.)

Presented to Parliament, pursuant to Act 51 Vic. No. 18.

NEW SOUTH WALES, } Proclamation by His Excellency The
 . to wit. } Right Honourable CHARLES ROBERT,
 BARON CARRINGTON, a Member of Her
 Majesty's Most Honourable Privy
 Council, Knight Grand Cross of the
 (L.S.) Most Distinguished Order of Saint
 CARRINGTON, Michael and Saint George, Governor and
 Governor. Commander-in-Chief of the Colony of
 New South Wales and its Dependencies.

WHEREAS by an Act intituled an Act to define and extend the operation of certain provisions of the "Country Towns Water and Sewerage Act of 1880," and to amend the said Act in other respects, it is among other things enacted that "it shall be lawful for the Minister and the Council of any Borough or Municipal District to agree by writing, under their respective hand and common seal, for the supply to such Council for distribution within such Borough or district of water conveyed by means of any-works now or hereafter constructed under directions of the Minister. Every such contract, after approval by the Governor, shall during the continuance thereof bind the contracting Council and its successors, and any sum of money payable thereunder may be enforced and recovered as a debt due to the Crown. And for the purpose of enabling any such Council to carry out the terms and conditions of such contract, to provide funds for satisfying any liabilities incurred thereunder, to control and regulate the distribution of water thereby contracted to be supplied, and generally to exercise all necessary powers in connection with such water, it shall be lawful for the Governor to declare by Proclamation in the Gazette that any specified powers and provisions contained in the "Country Towns Water and Sewerage Act of 1880" applicable to any of the aforesaid purposes, including powers incident to the levying of water rates, may be exercised and applied within such Borough or district, by and with respect to the Council and inhabitants thereof respectively. And any specified parts or enactments contained in the said Act shall, upon the publication of such Proclamation, apply to and be in force within such Borough or district, and with respect to such Council and inhabitants with the same effect for all purposes as if the said Act had specifically declared such parts or enactments so to be in force or applied." And whereas the Minister for Works and the

Council of West Maitland have agreed by writing under their respective hand and common seal for the supply to such Council for distribution within such Borough of water conveyed by means of works constructed under directions of the said Minister. And whereas it is necessary, for the purpose of enabling such Council to carry out the terms and conditions of such contract to provide funds for satisfying any liabilities incurred thereunder, to control and regulate the distribution of water thereby contracted to be supplied, and generally to exercise all necessary powers in connection with such water. And whereas, under the aforesaid section of the said recited Act, it is among other things enacted that it shall be lawful for the Governor to declare by Proclamation in the Gazette that any specified powers and provisions contained in the Country Towns Water and Sewerage Act of 1880 applicable to any of the aforesaid purposes, including powers incident to the levying of water rates, may be exercised and applied within such Borough and with respect to the Council and inhabitants thereof respectively: Now, therefore, I, CHARLES ROBERT, BARON CARRINGTON, the Governor aforesaid, in pursuance of the power and authority vested in me by the said Act, do, by this my Proclamation in the Government Gazette, declare, that all and every the powers and provisions contained in the 13th section of the Country Towns Water and Sewerage Act of 1880 and in Part 2 of the said Act, that is to say, sections 16 to 62, both these sections being included, and in Part 5 of the said Act, sections 128 to 140 inclusive, shall be applied within the said Borough of West Maitland, by and with respect to the Council and inhabitants thereof respectively, to the intent that the said sections of the said Act and the powers and provisions in and by the said sections given, shall upon the publication of this Proclamation apply to and be in force within the said Borough of West Maitland, and with respect to the said Council and inhabitants with the same effect, for all purposes as if the said Act had specifically declared the said parts, powers, and provisions to be so applied as aforesaid.

Given under my Hand and Seal, at Government House, Sydney, this twenty-fifth day of April, in the year of our Lord one thousand eight hundred and eighty-eight, and in the fifty-second year of Her Majesty's Reign.

By His Excellency's Command,

JOHN SUTHERLAND.

GOD SAVE THE QUEEN!

1888.

NEW SOUTH WALES.

COUNTRY TOWNS WATER AND SEWERAGE ACT.
(NOTIFICATION IN CONNECTION WITH LOAN WATER SUPPLY WORKS, HAY.)

Presented to Parliament, pursuant to Act, 44 Vic. No. 14.

NEW SOUTH WALES, } Proclamation by His Excellency The Right Honourable CHARLES ROBERT, BARON CARRINGTON, a
to wit. } Member of Her Majesty's Most Honourable Privy Council, Knight Grand Cross of the Most
(L.S.) Distinguished Order of Saint Michael and Saint George, Governor and Commander-in-Chief of the
CARRINGTON, Colony of New South Wales and its Dependencies.
Governor.

WHEREAS by the "Country Towns Water and Sewerage Act Extension Act of 1887" it was amongst other things enacted that it should be lawful for the Governor, by notification in the Gazette, to declare that any of the special provisions contained in part 5 of the "Country Towns Water and Sewerage Act of 1880" should apply to the Council of any Borough or Municipal District in respect of any loan authorized to be made by the Colonial Treasurer to such Council, pursuant to the first-mentioned Act, and upon the publication of such notification the enactments specified in such notification, with such necessary modifications as the Governor might think fit to make, should apply to the Council and to the Waterworks therein referred to with as full effect as if the said enactment had been embodied in that Act and specifically applied to such Council and works: And whereas by an agreement dated the twentieth day of September, one thousand eight hundred and eighty-eight, made between the Council of the Municipal District of Hay, in the Colony of New South Wales, of the one part, and the Honorable John Sutherland, Minister for Public Works of the said Colony, of the other part, it was agreed that the amount of the loan to be made to the said Council, pursuant to the provisions of the said first-mentioned Act, should be the sum of seven thousand pounds, and that such loan should be made upon the terms and conditions contained in the said agreement now in recital: And whereas by a bond under the seal of the said Council, dated the twentieth day of September, one thousand eight hundred and eighty-eight, being a bond given pursuant to the provisions of section 5 of the said first-mentioned Act, the said Council bound themselves in the penal sum of fourteen thousand pounds sterling well and truly to perform and fulfil the terms and conditions and provisions contained in the said agreement: Now, therefore, I, CHARLES ROBERT, BARON CARRINGTON, the Governor aforesaid, in pursuance of the power and authority so vested in me by the said first-mentioned Act, do by this notification hereby direct that the provisions of section 125 of the "Country Towns Water and Sewerage Act of 1880," with such modifications (if any), as are contained in the said recited agreement, shall apply to the said Council in respect of any loan authorized to be made by the Colonial Treasurer to such Council, pursuant to the "Country Towns Water and Sewerage Act Extension Act of 1887."

Given under my Hand and Seal, at Government House, Sydney, this fifteenth day of October, in the year of our Lord one thousand eight hundred and eighty-eight, and in the fifty-second year of Her Majesty's Reign.

By His Excellency's Command,
JOHN SUTHERLAND.

GOD SAVE THE QUEEN!

1888-9.

NEW SOUTH WALES.

COUNTRY TOWNS WATER AND SEWERAGE ACT.

(NOTIFICATION OF LOAN OF £8,000 TO MUNICIPAL COUNCIL OF FORBES.)

Presented to Parliament, pursuant to Act 44 Vic. No. 14.

NEW SOUTH WALES, } Proclamation by His Excellency The
to wit. } Right Honourable CHARLES ROBERT,
BARON CARRINGTON, a Member of Her
(L.S.) Majesty's Most Honourable Privy
CARRINGTON, } Council, Knight Grand Cross of the
Governor. } Most Distinguished Order of Saint
Michael and Saint George, Governor and
Commander-in-Chief of the Colony of
New South Wales and its Dependencies.

WHEREAS by the "Country Towns Water and Sewerage Act Extension Act of 1887" it was amongst other things enacted that it should be lawful for the Governor, by notification in Gazette, to declare that any of the special provisions contained in part 5 of the "Country Towns Water and Sewerage Act of 1880" should apply to the Council of any Borough or Municipal District in respect of any loan authorized to be made by the Colonial Treasurer to such Council, pursuant to the first mentioned Act, and upon the publication of such notification the enactments specified in such notification, with such necessary modifications as the Governor might think fit to make, should apply to the Council and to the Waterworks therein referred to with as full effect as if the said enactment had been embodied in that Act and specifically applied to such Council and Works: And whereas by an agreement dated the fifteenth day of October, one thousand eight hundred and eighty-eight made between the Council of the Municipal District of Forbes, in the Colony of New South Wales, of the one part, and the Honorable John Sutherland, Minister for Public Works of the said Colony, of the other part, it was agreed that the amount of the loan to be made to the said Council, pursuant to the provisions of the said first-mentioned

Act, should be the sum of eight thousand pounds, and that such loan should be made upon the terms and conditions contained in the said agreement now in recital: And whereas by a bond under the seal of the said Council, dated the fifteenth day of October, one thousand eight hundred and eighty-eight, being a bond given pursuant to the provisions of section 5 of the said first-mentioned Act, the said Council bound themselves in the penal sum of sixteen thousand pounds well and truly to perform and fulfil the terms and conditions and provisions contained in the said agreement: Now, therefore, I, CHARLES ROBERT, BARON CARRINGTON, the Governor aforesaid, in pursuance of the power and authority so vested in me by the said first-mentioned Act, do by this notification hereby direct that the provisions of section 125 of the "Country Towns Water and Sewerage Act of 1880," with such modifications (if any) as are contained in the said recited agreement, shall apply to the said Council in respect of any loan authorized to be made by the Colonial Treasurer to such Council, pursuant to the "Country Towns Water and Sewerage Act Extension Act of 1887."

Given under my Hand and Seal, at Government House, Sydney, this twenty-second day of November, in the year of our Lord one thousand eight hundred and eighty-eight, and in the fifty-second year of Her Majesty's Reign.

By His Excellency's Command,

JOHN SUTHERLAND.

GOD SAVE THE QUEEN!

1888.

NEW SOUTH WALES.

COUNTRY TOWNS WATER AND SEWERAGE ACT OF 1880,
AND NUISANCES PREVENTION ACT, 1875.

(BOROUGH OF WAGGA WAGGA—BY-LAWS.)

Presented to Parliament pursuant to Acts 44 Vic. No. 14, sec. 13, and 39 Vic. No. 14, sec. 18.

Colonial Secretary's Office,
Sydney, 9th August, 1888.

BOROUGH OF WAGGA WAGGA.—BY-LAWS.

THE following By-laws, made by the Council of the Borough of Wagga Wagga, under the "Country Towns Water and Sewerage Act of 1880," and the "Nuisances Prevention Act 1875," respectively, having been confirmed by His Excellency the Governor, with the advice of the Executive Council, are published in accordance with the requirements of the above cited Acts.

HENRY PARKES.

WAGGA WAGGA WATERWORKS.

Additional By-law.

THAT onescrew-tap be allowed to each premises liable to assessment for water rate, for the purpose of watering flower gardens or lawns without extra charge beyond the amount of water-rate which is assessed on the said premises; but the Borough Council may at any time require the said tap to be removed, or a meter fixed to the service pipe laid on to said premises, and may charge for all water supplied to said premises, by measure, at the rate of two shillings per 1,000 gallons.

We certify that the foregoing By-law under the Country Towns Water and Sewerage Act of 1880, was duly passed at a regular meeting of the Wagga Wagga Borough Council, held on Thursday, the 8th day of March, 1888.

(L.S.) HY. BERKELEY FITZHARDINGE,
Mayor.

Borough Council Chambers, Wagga Wagga.
J. HAWKES, Council Clerk.

BY-LAWS UNDER THE NUISANCES PREVENTION ACT.

1. The contents of all cesspits, closets, privies, earth-closets, pans, or receptacles for nightsoil, and all ashpits, refuse pits, or house rubbish, shall be removed by contract under direction of the Borough Council. And the Council of the Borough of Wagga Wagga is hereby empowered to enter into any contract or contracts with any person or persons for all matters or things necessary for the removal and deposit of nightsoil, refuse, house rubbish, or sweepings, and may make any regulations from time to time deemed necessary for carrying out any contract or contracts as aforesaid, or for determining the price to be paid by householders or others for emptying, cleansing, and carrying away nightsoil, refuse, or house rubbish. And the said Council may recover from any ratepayers, householders, or residents within the Borough, such charges as may be fixed by any regulations of the Council, before any Justice or Justices of the Peace in Petty Sessions assembled in Wagga Wagga.

2. No closet, privy, cesspit, or earth-closet, pan, or receptacle for nightsoil, or no ashpit, dust-bin, or receptacle for house rubbish shall have its contents removed by any person or persons, except the duly appointed contractor or contractors of the Council, or his or their workmen or servants.

3. Any person or persons committing any breach of this By-law shall be liable to pay to the said Borough Council the charges payable for removal of nightsoil or refuse, or rubbish by the Council's contractor or contractors as if the work had been done by such contractor or contractors; and shall also be liable to a penalty of not exceeding the sum of twenty pounds, to be recovered as before provided.

4. Any householder or resident within the Borough of Wagga Wagga, who shall require the contents of any closet, cesspit, earth-closet, pan, or receptacle for nightsoil, ash-pit, dust-bin, or house rubbish removed, shall leave notice in writing at the Council Chambers, addressed to the Inspector of Nuisances for the time being, describing accurately the position of the premises, at least twenty-four hours before requiring the work done, and shall deposit with such notice a sum of one pound towards the cost of such cleansing, emptying, or removal, as aforesaid.

5. If any closet, earth-closet, privy, cesspit, pan, or receptacle for nightsoil, ashpit, dustheap, or rubbish heap on any untenanted or unoccupied premises shall, in the opinion of the Inspector of Nuisances, require cleansing, or emptying, or removal the owner of the said premises shall be liable to pay all charges for emptying, cleansing, or removing any such closet, cesspit, earth-closet, ashpit, pan, or receptacle for nightsoil or rubbish. And for the purposes of this by-law "owner" shall mean the person for the time being receiving or claiming the rent of such premises, or exercising any act of ownership over the said premises.

6. Any contractor or contractors with the said Council from time to time for removal of nightsoil or rubbish who shall neglect or refuse to empty any closet, earth-closet, pan, or receptacle for nightsoil, or remove any house rubbish when required so to do by the Inspector of Nuisances, or other appointed officer of the Council, or shall be guilty of any breach of these By-laws, shall be liable to a penalty not exceeding £20, nor less than £2, to be recovered as before mentioned.

Borough Council Chambers,
Wagga Wagga, 17th March, 1888.

We certify that the foregoing By-laws, under the Nuisances Prevention Act, were duly passed at a regular meeting of the Borough Council of Wagga Wagga, held on Thursday, the 8th day of March instant.

(L.S.) HY. BERKELEY FITZHARDINGE,
Mayor of Borough of Wagga Wagga.

J. HAWKES, Council Clerk.

1888.

NEW SOUTH WALES.

PARLIAMENTARY STANDING COMMITTEE ON
PUBLIC WORKS.

REPORT

TOGETHER WITH

MINUTES OF EVIDENCE

AND

APPENDIX

ON

DRAINAGE WORKS, MANLY.

Presented to Parliament in accordance with the provisions of the Public Works Act,
51 Vic. No. 37, section 8.

SYDNEY: CHARLES POTTER, GOVERNMENT PRINTER.

1888.

NO PRESENT

NAMES OF THE MEMBERS OF THE COMMITTEE.

LEGISLATIVE COUNCIL.

The Honorable JOHN LACKEY, Chairman.
 The Honorable GEORGE CAMPBELL.
 The Honorable WILLIAM HENRY SUTTOR.
 The Honorable JAMES WATSON.
 The Honorable FREDERICK THOMAS HUMPHERY.

LEGISLATIVE ASSEMBLY.

JOSEPH PALMER ABBOTT, Esquire, Vice-Chairman.
 JAMES NIXON BRUNKEE, Esquire.
 HENRY COPELAND, Esquire.
 ALEXANDER KETHEL, Esquire.
 JOHN RENDELL STREET, Esquire.
 THOMAS MICHAEL SLATTERY, Esquire.
 JACOB GARRARD, Esquire.
 SYDNEY SMITH, Esquire.

[James Nixon Brunke, Esquire, by reason of his accepting the office of Minister for Lands, did not take his seat as a member of the Committee.]

LIST OF WITNESSES.

	PAGE.
Joseph Barling, Esq., Under Secretary for Public Works	1-2
William Christopher Bennett, Esq., Commissioner and Engineer-in-Chief for Roads and Bridges and Sewers	2-6
George H. Stayton, Esq., Engineer, Sewerage Branch, Roads and Bridges Department	6-9, 15-17
James George Griffin, Esq., Mayor of Manly	9-12
Alexander Dean, Esq.	12-13
John A. Scarr, Esq., Alderman of Manly	13-15

APPENDIX.

Plan showing the Proposed Works as they were submitted to the Committee, and the modification of the Plan which the Committee recommend.

PARLIAMENTARY STANDING COMMITTEE ON PUBLIC WORKS.

DRAINAGE WORKS, MANLY.

REPORT.

THE PARLIAMENTARY STANDING COMMITTEE ON PUBLIC WORKS, appointed during the last Session of Parliament, under the Public Works Act of 1888, 51 Vic. No. 37, to whom was referred the duty of considering and reporting upon "the expediency of carrying out Drainage Works at Manly," have, after due inquiry, resolved that it is expedient a modification of the works should be carried out; and in accordance with the provision of sub-section IV, of clause 13, of the Public Works Act, report their resolution to the Legislative Assembly:—

The proposed works provide for a drainage area of 482 acres, and a prospective population of 18,316 persons, and they involve the construction of about 7 miles of sewers with an outlet into the ocean at the north-eastern part of the Quarantine Reserve. It has, however, been decided to postpone for several years the construction of the outfall tunnel, the proposed situation of which is at the point known as Blue Fish, or Blue Nose, by adopting which course the immediate expenditure will be considerably reduced; and more recently the Municipal Council of Manly have suggested an alteration in the original plan by which a still further reduction may be made in the immediate outlay. This alteration has been considered by the engineers who are responsible for the general scheme, and if after due examination it be found possible they are disposed to adopt it.

The total estimated cost of the scheme in its entirety is £34,114; the postponement of the construction of the outfall tunnel at Blue Nose will reduce the amount to £22,000; and the alteration suggested by the Municipal Council will bring down the immediate cost to £20,250.

The modified plan concurred in by the Municipal Council the Committee desire to recommend, if it should prove practicable, as it appears from the evidence not only to materially lessen the present cost, but to be sufficient to meet the requirements of the municipality for some time to come, and it has the additional merit of not involving any subsequent alteration in the original plan for the proposed complete system of sewerage beyond the circumstance that it will increase the total cost of the entire scheme by £1,000, when the entire scheme shall be carried out. If this modification should prove, after examination, to be impracticable the Committee recommend the adoption of the plan by which the construction of the outfall sewer at Blue Nose will be postponed and the immediate expenditure reduced to £22,000.

The original scheme includes a main outfall sewer in tunnel under the Quarantine Reserve, 1 mile 207 yards in length, having an outlet to the ocean in the vicinity of Blue Fish Point (referred to in the evidence as Blue Nose Point), which is at the north-east part of the Quarantine Reserve, together with 1 mile 253 yards of sub-mains, and 4 miles 703 yards of subsidiary sewers. In addition to that it is proposed to utilize 900 yards of the existing sewers. The total length comprised in the scheme is therefore 7 miles 303 yards, and the works include the construction of

121 shafts, manholes, and automatic chambers. The main sewers are shown on the plan, which accompanies this report, in red lines, the subsidiary sewers in blue lines, and the existing sewers in green. The scheme is so devised that the system may be considerably extended to the westward whenever required.

With reference to the reduction of the total estimated cost of the scheme to £22,000, by postponing the construction of the outfall tunnel at Blue Nose, it is pointed out in a report by Mr. G. H. Stayton, M.I.C.E., of the Sewerage Branch, Roads and Bridges Department, that the proposed outfall sewer possesses the distinct advantage that the portion of it nearest to Manly could, if deemed expedient, be temporarily used as a sewage outfall. Under any circumstances, the report states, a penstock chamber must be provided at the storm-water overflow near the east end of Fairy Bower; and as this overflow could be well extended into the deeper waters of the bay (Little Cabbage-tree Bay), it would be quite practicable to utilize it as an outfall, and to defer the construction of the remainder of the tunnel until, by reason of additions to the first-named drainage area, the time arrives when the daily volume of sewage will have considerably increased. Under these circumstances the new drainage system, Mr. Stayton points out, could be brought into earlier operation, and the postponement of an expenditure of £12,000 might be an advantage to the municipality, as doubtless it will hereafter be in a better position to meet the additional outlay.

The Municipal Council, however, deemed it desirable that the temporary outlet should be fixed in the vicinity of the north-east corner of Little Cabbage-tree Bay, with a view to saving the expense of the first portion of the tunnel. Upon that Mr. Stayton was called on to report, and a report was prepared on July 4th, to the effect that a modification might be made, but it would necessitate the construction of a sewer in tunnel under Fairy Bower Point, with an iron pipe outfall sewer 21 inches in diameter, discharging outside the rocks below low-water mark. But the practicability of constructing such outfall at so exposed a spot could not be absolutely determined in the absence of the necessary soundings or trial borings. If, however, on further investigation, the proposal was found to be practicable, and not too costly, it commended itself by the fact that a better seaward current would be secured at the point of discharge. Moreover, the proposal would effect an immediate saving of £1,750.

On the 9th August the Council informed the Minister for Works of their desire to have the temporary outfall carried on the rocks along the northern side of Cabbage-tree Bay, and so to dispense with the cost of the proposed tunnel under Fairy Bower Point. On this Mr. Stayton reported that the rocks in question were a favourite place of public resort, and, even if practicable, it would be undesirable to carry the outfall sewer across them as suggested; and the Council was informed accordingly. By the evidence of Mr. J. G. Griffin, the Mayor of Manly, it will be seen that he is willing to fall in with Mr. Stayton's view, and to agree to having the sewage discharged in the vicinity of the north-east corner of Little Cabbage-tree Bay.

In their consideration of this proposed work, the Committee had before them an exhaustive report by Mr. G. H. Stayton, dated 8th February, 1887, with a minute thereon by Mr. W. C. Bennett, Engineer-in-Chief for Roads and Bridges and Sewers, and lithographic plans upon which the proposed scheme and the suggested modifications of it were clearly shown. These enabled the Committee to fully understand the proposals made, and, with the evidence obtained, to come to what they believe to be a satisfactory conclusion.

In the conduct of the inquiry it appeared to the Committee to be very desirable that information should be obtained as to whether the residents of Manly were favourable to the proposed scheme, and whether they clearly understood the monetary obligations they would incur by the adoption of it. Though it was apparent, from the papers before the Committee, and without the testimony of witnesses, that a proper sewerage system for Manly was necessary, it could not, without the examination of persons immediately concerned in the matter, be understood whether the people of the municipality clearly comprehended what was proposed, or what, if the scheme were carried out, they would have to pay. The Committee, therefore, had before them as witnesses gentlemen who either represented the Manly Municipal Council, the members of which are, of course, directly responsible to the ratepayers,

or

or who being prominent residents of Manly, may be regarded as representatives of the general community there; and it will be seen that their statements go to show that the people of Manly, as a whole, are not only fully aware of the proposed scheme, and the obligations attached to it, but are anxious that it should be carried out.

Generally stated, the Committee examined the witnesses brought before them, upon the following points:—

- (1.) The nature of the proposed work.
- (2.) The nature of the present drainage system in the municipality.
- (3.) Whether the proposed work has been well conceived.
- (4.) Whether it is clearly understood and approved by the residents.
- (5.) The arrangements for the annual payment to repay the sum expended upon the work, and the interest upon that sum.

The nature of the work proposed will be found fully described in the evidence given by Mr. J. Barling, Under Secretary for Public Works; Mr. W. C. Bennett, Engineer-in-Chief for Roads and Bridges and Sewers, and Mr. G. H. Stayton, Engineer in connection with the Sewerage Branch of the Department of Roads and Bridges. It has already been briefly described in the earlier portion of this Report.

The nature of the drainage system which at present exists in Manly is described principally in the evidence of Mr. Stayton, Mr. J. G. Griffin, Mayor of Manly; Mr. J. A. Scarr, Alderman of Manly, and Mr. Alexander Dean, a resident of the municipality. Mr. Stayton says the existing sewers do not give satisfaction, that they are very defective in places, and in consequence of not being properly adjusted silt accumulates in some of them, and the whole are very foul. "I do not think," he states (*Question 225*), "I ever smelt worse sewer-gas than I experienced at one of the openings;" and, while the sewers are in this very objectionable condition, there is no proper provision for preventing foul gas from passing into the houses. Mr. Griffin informed the Committee that the earth-closet system is in operation in the municipality, and that the soil is dug into pits; but Mr. W. C. Bennett, referring to this practice, draws attention, in his evidence, to the fact that there is a limit to this as population increases, and that this limit must now be very nearly reached. Mr. Scarr says that the present system of sewerage only provides for slop and storm-water, and that only a small proportion of the former is carried away; most of it is run off into pits in the yards, a practice which he considers to be extremely unhealthy.

As to whether the proposed system of sewerage is well conceived, the evidence indicates that it is. The greater part of the present sewers will be utilized, as they will be intercepted at certain points, and where they cannot be intercepted they will be used for removing storm-water from the streets. Excreta, as well as house slops, will be removed by the proposed sewers, and the sewers will be constructed at such a depth under the ground as to catch the whole of the sewage, the fall, though slight, being so calculated as to be sufficient to ensure a self-cleansing velocity. If necessary, it is contemplated also to establish a flushing system. The sewage will be discharged, as already stated, into the ocean; and according to Mr. Bennett and Mr. Stayton, a sewerage outfall on the sea coast, wherever it can be obtained, is always considered desirable, and one of the best and cheapest methods that can be adopted. Mr. Stayton also says that the water-borne sewerage system is the cheapest and best. Asked (*Question 479*) as to whether it is customary in other countries to carry the drainage out to the ocean beaches, he stated, "Wherever it is practicable it is considered the most economical plan, and the results, if the local circumstances are favourable, as in this case, are such that certainly it is considered the best thing to be done." The proposed outlet at Cabbage-tree Bay is so arranged that it will be some distance from the shore, more than 100 feet from low-water mark, and 8 or 10 feet below the water; the outfall having a considerable inclination, so that the sewage and foul water coming through the drains will carry with them sufficient velocity to force them out. The calculations of the engineers are such, according to the evidence of Mr. Bennett, that the sewage will be taken from the lowest parts of the municipality, and he points out that where it is proposed the outfall shall be in Little Cabbage-tree Bay the tide (or current) flows to the southward, and there is an eddy there which will take the material out to sea. Even, he says (*Question 104*), if the wind blow in such a direction as to wash some of the sewage on to the beach, in what is called Fairy Cove, the quantity so washed

up "would be inappreciable, because it would be discharged well below low-water, and would be so thoroughly diluted with sea water that it would be almost inappreciable for many years." Certain portions of Manly known as the Addiscombe Estate, and the Manly Vale Estate, lie very low below the ordinary level, and in regard to this a recommendation is made by the engineers that building operations there should be limited, and if anything is done to provide for sewage there the sewage will be pumped. Mr. Bennett thinks that the proposed system is of vital importance to Manly, seeing that that suburb depends entirely upon its character as a health resort, and that if a pestilence of any kind were to break out there it would ruin the place. Then he points out that, in all sewerage systems, the great object is to keep the sewage going, and not to allow it to accumulate, as sewage is not offensive unless it is a day or so old; and, to meet this necessity, arrangements have been made for flushing the sewers, and for their examination, in order that they shall not at any time be obstructed. Mr. Stayton appears, by his evidence, to have made a careful examination of the whole of the coast at Manly, including the Quarantine Reserve, in order to ascertain whether any nuisance is likely to be caused by the discharge of the sewage at either of the points proposed on the plan, and he says (*Question 482*) that at Little Cabbage-tree Bay he has spent several hours, on several occasions, noticing the currents and watching the action of the waves, and he is perfectly satisfied that neither at that point, nor even further along, will there ever be any nuisance. The scour there, he states, is very great, and the position is very favourable. The modification of the original plan, according to his evidence, will meet all the requirements of Manly for at least ten years. At the end of that period, if the population of the district increases very rapidly, he thinks it will be necessary to consider the question of extending the outfall. One other recommendation in favour of the scheme generally is, that the amount which it is calculated it will be necessary to draw from the ratepayers as a sewerage rate will actually be less than they are now called upon to pay for the removal of night-soil.

That the proposal to establish the new system of sewerage is clearly understood and approved by the residents of Manly is apparent by the evidence of almost all the witnesses examined. Mr. Barling states that Mr. Stayton's report was made in consequence of a request from the Municipal Council. Mr. Bennett, when asked (*Question 41*) whether the residents of the district understood thoroughly the provisions of the Act and the responsibility they were incurring in becoming parties to the proposed work, said he thought they did; and (*Question 74*), when questioned whether he had any doubt as to people continuing to contribute to the cost of sewerage works such as these before the Committee, said he had no doubt, and that certainly he thought the people at Manly would continue the necessary payment. "It is very difficult," he states, "for anybody who has not seen the tremendous advance of population, and the advance in the value of property, to realize how willingly people will contribute in a few years to anything of this sort." Mr. Griffin considers that, as far as he has been able to judge from a professional point of view, the proposed scheme is a most efficient one; and he says that the Municipal Council are strongly in favour of it, that there has been no petition against it, and that he has reason to believe the bulk of the ratepayers strongly approve of it. The question of the liability of the municipality, he further states, has been discussed by the Council, and agreed to by resolution, and several letters have been sent to the Department of Works pressing them to carry out the scheme. Asked (*Question 346*) if the scheme were recommended by the Committee, and the Government were prepared to carry it out, was it at all likely that the Council would repudiate it, he said, certainly not, nor did he think that any Councillor would be elected for Manly if he opposed it. Mr. Alexander Dean says (*Question 364*) he is quite sure the people of Manly are desirous of having the system established, and that 90 per cent. of the inhabitants are agreeable to comply with the conditions of the Water and Sewerage Act. Mr. J. A. Scarr, Alderman of Manly, also speaks in his evidence of the unanimity of the Council on this subject, and says that from conversations he has had with ratepayers he has never heard anyone object to pay the rate which will be necessary when the scheme is brought into operation.

With regard to the arrangements for the payment of the principal and interest in relation to the sum expended upon the proposed works, the evidence indicates a strong desire on the part of the Council to have the period for the repayment

repayment extended beyond the twenty-eight years stated in the provisions of the Metropolitan Water and Sewerage Act. The Council, it is considered, will be strong enough to make the annual payments necessary on the scale of repayment for twenty-eight years, but they would rather have the period extended to sixty years, the time fixed for the repayment of similar expenditure under the Local Government Act in England. This will be found referred to in the evidence of most of the witnesses examined by the Committee, and it is also mentioned in Mr. Stayton's report. In that report Mr. Stayton points out that if the proposed sewerage system is carried out under the provisions of the Metropolitan Water and Sewerage Act the annual payments to repay principal and interest, at 4 per cent. per annum on the amount expended, for the period of twenty-eight years, would be 6 per cent. "In England," the report goes on to say, "similar debts are extinguished by equal annual instalments of principal and interest spread over a period of SIXTY years, it being deemed just and equitable that a succeeding generation should contribute to the cost of such permanent and beneficial works. By extending the period to sixty years, the annual payment would be reduced to 4.42 per cent.—a result obviously advantageous." The evidence generally upon this point will be found very much to the same effect as this extract from Mr. Stayton's report. It is contended that as an efficient sewerage system, such as that proposed, will benefit future generations, posterity should be called upon to contribute something towards its cost, and as far as possible the burden of cost on the present population lightened.

The resolution arrived at by the Committee was as follows: moved by Mr. Street, and seconded by Mr. Sydney Smith, and agreed to:—

"That the Committee consider it expedient that the drainage works at Manly should be carried out as proposed on the plan and explained in the evidence before the Committee," the intention of the Committee by this resolution being to recommend, as already stated, the modification of the original plan by which the construction of the outfall tunnel to Blue Fish Point will be postponed and the sewage conveyed for the present to a point in the vicinity of Little Cabbage-tree Bay.

JOHN LACKEY,
Chairman.

Office of the Parliamentary Standing Committee on Public Works,
22nd October, 1888.

PARLIAMENTARY STANDING COMMITTEE ON PUBLIC WORKS.

MINUTES OF EVIDENCE.

DRAINAGE WORKS, MANLY.

THURSDAY, 4 OCTOBER, 1888.

Present:—

The Honorable JOHN LACKEY (CHAIRMAN).

The Hon. GEORGE CAMPBELL.

The Hon. WILLIAM HENRY SUTTON.

The Hon. FREDERICK THOMAS HUMPHERY.

ALEXANDER KETHEL, Esq.

JOHN RENDELL STREET, Esq.

JACOB GARRARD, Esq.

SYDNEY SMITH, Esq.

The Committee proceeded to consider the proposed Drainage Works at Manly.

Joseph Barling, Esq., Under Secretary for Public Works, sworn and examined:—

1. *Chairman.*] Are you aware of a proposal to carry out the drainage of Manly? Yes.
2. Have those works been long in contemplation? With the permission of the Committee I will read the following statement giving the history of the matter:—"At the request of the Municipal Council of Manly, in 1886, Mr. Secretary Lyne gave instructions for a report to be prepared on the whole question. Whereupon a thorough inspection of Manly was made, and its sewers examined, and in February, 1887, a comprehensive sewerage scheme and report thereon were submitted by Mr. G. H. Stayton, M.I.C.E., to the Engineer-in-Chief, who recommended the adoption of the scheme. The scheme provides for a drainage area of 482 acres, and a prospective population of 18,316 persons. The works included involve the construction of about 7 miles of sewers with an outlet into the ocean at the north-eastern part of the Quarantine Reserve; the total estimated cost being £34,114. It is intended, however, to postpone the construction of the outfall-tunnel (1,317 yards in length) for several years, thereby reducing the immediate outlay to £22,000. A correspondence has recently taken place with the Council respecting the position of the temporary outfall, with a view to a further slight reduction in the outlay, and it is possible that some conclusion may yet be arrived at by which the wishes of the Council may be met." I will also read the following paragraph from Mr. Stayton's report:—"If the works are carried out under the provisions of the Metropolitan Water and Sewerage Act (43 Vic. No. 32), the annual payment to repay principal and interest at 4 per cent. per annum would amount to 6 per cent. on the amount expended for a period of twenty-eight years. In England, similar debts are extinguished by equal annual instalments of principal and interest spread over a period of sixty years, it being deemed just and equitable that a succeeding generation should contribute to the cost of such permanent and beneficial works. By extending the period to sixty years, the annual payment is reduced to 4.42 per cent.—a result obviously advantageous. The annual cost of the sewerage scheme, taking 6 per cent. to cover interest and repayment on an outlay of £22,000, and including £200 for a supply of water for flushing, is estimated at £1,520. As will be seen on page 1, the ratable value of the municipality amounts to £67,452. A rate of 1d. in the £ per annum on the existing assessments within the drainage area would probably produce £250 net; but there is little doubt that by the time the works are carried out and completed the ratable value will have further increased to such an extent that a penny rate would produce £300. Under such circumstances a drainage rate of 5d. per annum would be sufficient to pay for the execution and maintenance of the necessary works. If, however, the period for repayment were extended to sixty years, the annual cost would be reduced to £1,172, in which case a 4d. drainage rate would be sufficient." We find a difficulty with regard to waterworks which we have constructed for municipal councils. They find it extremely difficult to pay the interest and sinking fund during the first few years after they are called upon to do so. They complain that they are unable to pay the large amount of 6 per cent. Of course their water rates are very small during the first few years, and therefore they complain very much about it. I think it will be the same with regard to sewerage.
3. What is the drainage rate now proposed? 5d. in the £.
4. Are there any other drainage works proposed besides these? Yes, for the North Shore and the western suburbs.
5. Are all those being carried out under the Water and Sewerage Act of 1880? Yes, proposed to be.
6. How far does the Water and Sewerage Act extend from the metropolis? It applies to the county of Cumberland.
7. Not outside of that county? No. There is another Act provided for that—The Country Towns Water and Sewerage Act—which was passed in the same year as this Act.
8. Have you many applications to come under the operation of this Act? For water we have.
9. For sewerage? We have several.

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10. Have any of the western suburbs—Ashfield, Burwood, and those places—made application? Yes. Deputations on various occasions have waited on the Minister, urging that he should take up the work under the provisions of this Act.
11. Are they all prepared to have the sewerage undertaken under the provisions of the Act? I think that is a question yet to be decided; probably some amendment of the Act will be necessary.
12. In what respect? It involves a question of public policy, so that I cannot speak as to the intentions of the Government.
13. In what direction are the people now endeavouring to have an alteration made? I think it is this: Some, at any rate, wish the Government to take up the whole thing; not merely constructing, but also managing them, and levying the rates the same as the Water and Sewerage Board does.
14. Taking it out of the hands of the Municipality? Yes.
15. Do they express themselves as being prepared to continue contributing towards the cost, as provided by the Act? In that case they would have to pay the rates. They would not be called upon to pay the capital, but just simply to pay the rates for working expenses, and interest on capital. But that is not yet settled.
16. *Mr. Suttor.*] Would these works be committed to the Water and Sewerage Board? I do not think that would be the case at Manly, because it is a completely separate scheme. The western suburb sewerage, however, is quite different, because it works in with the scheme already carried out.
17. Is there anything in the Act to compel these Manly works to come under the Water and Sewerage Board? I have not the Act here to refer to, but the intention evidently is that the Government should carry out these works, and hand them over to the local authorities. It is not part and parcel of the general scheme, such as the western sewerage scheme would be.

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William Christopher Bennett, Esq., Commissioner and Engineer-in-Chief for Roads and Bridges and Sewers, sworn and examined:—

18. *Chairman.*] Are you Commissioner for Roads, and Engineer-in-Chief for Roads and Bridges? Yes.
19. Have you control of the Sewerage Works? Yes, from the commencement, under the Metropolitan Act
20. Has the Sydney Sewerage System been carried out under your supervision? Yes.
21. We desire to get from you this evening some information with reference to the proposal to spend £34,000 in drainage works at Manly; have those works been designed under your supervision? Yes.
22. Have they been designed by Mr. Stayton? Yes.
23. Is he an engineer in your Department? Yes.
24. The project and design have your concurrence? Yes.
25. You are aware of the nature of it? Yes.
26. Is it done under the auspices of the Water and Sewerage Act? Yes.
27. When was that Act passed? In 1878.
28. I presume that the project is the result of the action of the residents at Manly? Yes; they petitioned to have the work done, and I was instructed to have the surveys made.
29. And you feel that this is the best project you could recommend under the circumstances? Yes.
30. Did you make any examination of the configuration of the place? I knew Manly very well before, and Mr. Stayton conferred with me from time to time, and I agreed with him as to the surveys which were to be made. When the whole thing was ready, I went down to Manly, and went through the whole project with Mr. Stayton, on the ground.
31. The project is to convey the sewage into the sea at two different places? Yes. It is an alternative project. One is for £22,000 to convey it to Cabbage-tree Bay; the other is for £34,000 to convey the sewage to a more distant point on the coast.
32. What depth would the sewer be in the ground? A considerable depth, but I cannot state it exactly.
33. Are you sure that it is at a sufficient depth to catch the whole of the sewage? Yes.
34. Is not the whole place very flat? Yes; but we have made all our calculations to take the sewage from the lowest points.
35. Who made the estimate? Mr. Stayton, under my instructions, and it is based on the prices which were paid for the work in the Sydney sewers.
36. Do you think the estimated amount will be sufficient to carry out the project? I am sure it will.
37. Have you had any other applications for suburban sewerage submitted to you besides this scheme? Yes; North Shore and the western suburbs.
38. What do the western suburbs consist of? All the railway suburbs; Balmain, Petersham, Ashfield, Camperdown, and right out to Strathfield. Then some country towns have also applied.
39. Do the country towns come under a different head? Yes.
40. Does the same Act make provision for sewerage works outside the county of Cumberland? It is not the same, but it is a parallel Act. They are very nearly the same, but they are separate Acts.
41. Have you any knowledge whether the residents of those districts understand thoroughly the provisions of the Act and the responsibility they are incurring in becoming parties to these works? I think at Manly they do. I am not quite sure that the people in the western suburbs—a much larger number of people—are fully aware of it.
42. We have it in evidence from the Under Secretary for Public Works that the principal and interest for these works at Manly, spread over a period of twenty-eight years, would be recouped by an annual payment of 6 per cent.;—is that correct? Yes.
43. As far as you can form an estimate? That would be a rate of 5d. in the £.
44. Would that be the rate upon the value of the property at the present time? No. It allows for an increase of one-fifth. The present valuation is £67,000. That would be on a valuation of about £80,000.
45. Would that allow for an increase in population or an increase in the value of property? An increase in the value of property. The increase in population is met by making the capacity of the sewers sufficiently large to carry away the sewage.
46. Provision is made for that in the design? Yes.
47. Do you recollect if you have had any other applications besides the North Shore and the western suburbs for the construction of sewerage works? Yes; there have been a number of applications collateral

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- collateral to the large drainage scheme for which sums of money have been voted, and the works are now being carried out; but there have been no special schemes about Sydney except those three.
48. Have you given any consideration to this view of the case: In view of the large amount of convenience which the future residents of Manly will derive from such a public work as this, which will last for all time, would it not be reasonable to extend the payment of principal and interest over a longer period so that the present residents may be called upon to pay somewhat less than is contemplated by the present Act? Yes. Of course, we have only calculated on the time specified in the Act, but I think it would be prudent and equitable to extend the time to sixty years, as in England.
49. Then the project would be lighter on the present residents, while it would convey all its advantages and benefits to a future increased population? Yes.
50. Have you had a great deal to do with public works of various kinds, more especially with works of this description? Yes; for forty-eight years.
51. I mean in this Colony? For thirty-four years in this Colony.
52. Have you formed any opinion in reference to large permanent works as to whether their cost should not be so adjusted that those who come afterwards should bear a fair proportion of the cost of construction? Yes; I think that is a very equitable view.
53. Of course, those who come afterwards would derive a great advantage if we paid for everything that is done at present? Yes; and they would also have this very great advantage: that the works can be done for a much smaller sum of money now than they can be in the future. However, there is another consideration to balance that. There may be improvements in science which would render such works unnecessary, or which would modify them. At present there is not much prospect of that.
54. There are not many alternative schemes of drainage now beyond two or three? There are a great number of schemes, but very few worthy of consideration.
55. But most of the old schemes of drainage are abandoned. For instance, the draining of the western suburbs into the Parramatta River would not be permitted? It is considered to be an established rule that nothing should be allowed to drain into Port Jackson.
56. It is a rule in all parts of the world that you must not drain into a river or harbour? Yes, if possible.
57. In furtherance of that, in your sewerage scheme which you have carried out so successfully in Sydney, is it not confined to two systems,—one being the conveyance of the sewage into the sea, and the other the conveyance of the sewage to a sewage farm at Botany? Yes.
58. These are the two systems observed everywhere, except where the sewage is deodorised? Yes. There are countless systems of deodorisation, but no system has met with general favour, except the two just mentioned. It is generally agreed that if you have the ocean near you it is best to convey the sewage there. No profit to be derived from sewage will pay for putting it on the land. Then if the ocean is not near you, and it is too expensive to convey the sewage to the sea, it is expedient to filter the sewage through land.
59. Might not the filtering of sewage through land be made a source of profit in recuperating the soil for cultivation? Yes; but it is never made a source of profit *per se*. There has never been a net profit from it.
60. Not anywhere? No; not that I am aware of. It is made profitable in this respect: that it reduces the cost of getting rid of the sewage; and certainly it is the most effective way of doing it. I may say that Mr. Roberts, of this Department, who is fond of trying experiments, told me a year and a half ago that he had discovered a mode of desiccating sewage by electricity. I told him to protect his rights by patent, and he did so. By the time the patent was obtained we found that the same thing had been mooted in England, and I find now that the Metropolitan Board of Works in London are allowing an English inventor to experiment very largely. At my suggestion, Mr. Sutherland referred the case to Professor Threlfall, and we have had some analysis of the water by Mr. Hamlet. It looks very promising; and it would be a great aid in getting rid of the objectionable features of the sewerage outfalls.
61. The object would be to get rid of the offensive properties of the sewage by electrical action? Yes. Describing it roughly, the electricity decomposes the water, and the oxygen in the water combines with the offensive matter in the sewage, oxydizing and precipitating it.
62. Are you now conveying a considerable quantity of sewage from Shea's Creek and that neighbourhood down to Webb's Grant, at Botany? Yes.
63. So far have you found it successful? Yes; but of course it is only comparatively a small quantity as yet.
64. But so far as the test is concerned, have you been able to utilise the sewage? Yes, very successfully. We have been able to produce very good crops on bare sand—the ordinary blown sand of Sydney.
65. Can you give us an idea roughly of the character of the work;—do you catch the sewage in tanks? No. The sewage crosses the river by a syphon, and we have taken advantage of that syphon to strain the sewage before going into it. Then on the other side the sewage is carried in an elevated carrier, until the level of the ground is attained. Then we let it out, and let it flow. In some places we have large flood areas, made in case of a fresh. We run the water on to those areas, and there it deposits the sewage matter on the surface. That is used for raising lucerne, sorghum, and all sorts of vegetables.
66. I suppose that what you do there anybody else could do? Yes. The present scheme before the Committee does not involve anything of that sort.
67. What area have you there? Three hundred acres. I think we have only operated on 5 or 6 acres.
68. Could it be extended to the whole area? Yes. It is proposed to extend it to the whole area as the sewage increases.
69. Where does the sea-channel empty itself? At Ben Buckler.
70. Is that in operation? Yes. Not in full operation, but partial operation. The sewage from Prince Alfred Hospital, and all the intermediate sewage which we have been able to get from a great part of the city, flows through it.
71. Does that intercept a great deal of the sewage which used to come into different parts of the harbour? Yes. I am in hopes that it will so completely intercept all the offensive sewage that there will be very little sewage flowing into the harbour. As Woolloomooloo is a large residential place, and the area a great deal below the level of the sewer, we have arranged for elevators to lift the sewage into the sewer.
72. It will be intercepted and elevated? Yes; by a hydraulic or pneumatic elevator.
73. *Mr. Garrard.* Does that apply to all the low levels? Yes.
74. As far as your experience has extended in the construction of these sewerage works outside Sydney, such as this now before the Committee, do you think that the Government would be justified in constructing

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constructing them; or have you any doubt as to the people continuing to contribute to the cost? I have not. I certainly think that at Manly they would go on. It is very difficult for anyone who has not seen the tremendous advance of population, and in the value of property, to realise how willingly people will contribute in a few years to anything of this sort. I have no doubt there will be great grumbling hereafter by people who have to pay, because they will not be able to realise what would be the state of things without such works. But if things could be changed into the pre-sewer period, and the people had a choice, they would willingly embrace it then.

75. Looking at it from a money point of view, I suppose that works such as these would improve the value of property in the neighbourhood? I think so, particularly at Manly.

76. Have you had to do with works for country water supply? Not for country water supply, but I was a member of the Sydney Water Commission which recommended the Nepean scheme.

77. Have you ever given any consideration to the system of deodorising sewage? Yes; there are countless plans.

78. Do you know anything of Sir James Farmer's plan which is carried out at Birmingham, where by means of a cylinder they dry the material? Yes; there are countless ways of doing it. Mr. Stayton, who is just recently from England, will be able to give you some information on the subject. I know the general fact that no real success has resulted from any of these systems. They find that it is absolutely necessary, dear as land is in England, to get land to filter the sewage in order to comply with the conditions of the Pollution of Rivers Act.

79. Is that what they do in most cases? Yes; in most cases where it is possible. But in some places it is not possible to get land.

80. In cases of that sort do they resort to deodorisation? Yes; they mix chemicals with the sewage.

81. Do you not apprehend some difficulty in the project of draining the western suburbs? No.

82. Where do you propose to empty your drainage? We bring it down by Webb's Grant.

83. Do you propose conveying all the sewage into one sewer? It will be one line of sewer, but there will be two, and ultimately three ducts—three different cylinders.

84. What about the levels;—will the sewage be conveyed by gravitation? Yes. We have made the levels so that the sewage will go by gravitation the whole distance.

85. Does that apply to the whole of the suburbs? No. There is a portion of it outside the limit which will not gravitate. But if it is necessary, the sewage can be elevated. The greatest part of that is very sparsely populated. There are suburban villas built on it, and it lies around the margin of the Parramatta River.

86. Would you pump the sewage up to tanks? When it becomes necessary.

87. *Mr. Humphery.*] In the first instance by this plan before the Committee you propose to discharge the sewage into Little Cabbage-tree Bay? Yes.

88. The total cost of that will be £22,000? Yes.

89. For how many years do you think that system or that portion of the system will be sufficient? It would be hard to say.

90. You have not made any calculation as to what period it will do for? No; I have not. It would be a very difficult thing to do, as it depends upon many circumstances.

91. Is it desirable at the present time to incur greater cost than £22,000 for this system of sewage for Manly, having regard to the amount which the inhabitants will have to pay per annum to cover the cost of construction and interest? It is not desirable at present.

92. Would you recommend the expenditure of £22,000 only and not of £34,000? Yes.

93. Has this plan been submitted to the Municipal Council of Manly? Yes.

94. Has the proposal been before the Council? Yes.

95. Have you had any expression of opinion from the Mayor? I think they have approved of it. They proposed some modifications, reducing the cost, and making the outlet nearer the town.

96. Can you remember what modification was proposed? It was merely that instead of having the outlet at Cabbage-tree Bay, it should be in the next bay nearer to Manly; that is Fairy Bower. But we objected to that very much, as it would spoil the very thing on which Manly exists, namely, the beach.

97. That corner is where people bathe? Yes; it would be most objectionable.

98. What is the difference in cost? Something very inconsiderable.

99. So that the pecuniary benefit of the proposed modification would be inappreciable? Yes.

100. If the expenditure be £22,000 instead of £34,000, what amount per annum will be necessary to cover the repayment and interest? £1,172 a year.

101. What rate would it be necessary to strike for that? A 4d. rate.

102. *Mr. Kethel.*] Is it in your opinion quite safe to make the outfall so near to the public reserve of Manly as Little Cabbage-tree Bay? I think it would be. The tide flows to the southward, and there is an eddy in there which would take the material out to sea.

103. Is not that only at certain times of the day? Yes.

104. In any case it is certain if it blows to the south-east to disfigure all the beach in what you call Fairy Cove? It would be inappreciable because it would be discharged well below low water, and it would be so thoroughly diluted with sea-water that it would be almost inappreciable for many years.

105. The breakers are rarely heavy where you have the outfall? Yes.

106. Would not that have the effect of throwing the solid matter back on the land while the liquid matter will be held in suspense and carried out to sea? The solid matter would be more likely to form a shoal there. It would be below the surface.

107. Have you made any provision for screening it before discharging it into the ocean? None whatever.

108. No silt pits? There are silt pits proposed to intercept silt to prevent it from getting into the pipes, but nothing more.

109. There is nothing to prevent the whole of the silt or offensive matter from being thrown back on the beach? No.

110. Is it possible to make any provision to prevent that? No.

111. Would it not be possible to construct a screen so as to sift the material? It would be hardly worth it.

112. Do you think the population is not sufficiently dense to require such a precaution? The material will be diluted by the sea, and will not appear at all events for many years.

113. I suppose that at any time steps could be taken to intercept solid matter to prevent it from flowing into

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into the sea if it were found to be seriously offensive? I would not recommend anything of that kind. If it were found to be offensive it would be better to convey the sewage further away.

114. In the event of the sewage being carried out to the neighbourhood of North Head do you think there is no danger of its flowing in at the Heads? Not the slightest.

115 *Mr. Garrard.*] Do I understand that £22,000 will be the cost of having the works constructed with the outlet at Little Cabbage-tree Bay? Yes.

116. Since the Manly Council sent in their request to have the outlet put at Fairy Bower side—the northern side—has it been intimated to them by the Department that there are reasons against that? I think so.

117. Have they now concurred in the Little Cabbage-tree Bay outlet? I cannot say.

118. *Mr. Kethel.*] Of what material is the work to be made—pipes or brick sewers? Some of the work will be brick sewers, and some pipes.

119. The main outfall will be brick? Yes; particularly in the tunnel.

120. Is a great part of the ground sandy? Yes, a great deal of it.

121. Therefore you will require pipes? Not on account of its being sandy, but on account of not requiring so large a section.

122. *Mr. Garrard.*] What fall have you in your main line of sewer? 1 in 1,350. That is at the outfall sewer. Above that, on the flat, it is 1 in 800, 1 in 600, and 1 in 500.

123. Is not that a very small fall? We have calculated the velocity and we find we can get above the minimum velocity by low-level sewerage with the fall we have.

124. Will that be the case in summer weather when there is very little water going through? Yes; we can get the minimum velocity then.

125. Will you do away altogether with the present outlet on the harbour side? Yes.

126. Will you do away with the existing local sewerage scheme? Yes.

127. How do you propose to drain the lowest part of Manly;—is there not some portions of the Addiscombe Estate and the Manly Vale Estate much below the level? Yes; that is dealt with in the report. We recommend that they should be limited as to building there.

128. If anything is to be done to provide for sewage there will it have to be pumped? Yes.

129. After many years experience in sewerage matters I suppose you are quite firm in your opinion that this water carriage sewerage is better than any dry or pneumatic system? Yes; when the population exceeds a certain limit.

130. Have you given any consideration to Liernur's scheme? Yes. When I was in London Sir John Fowler brought me over to Mr. Rawlinson, the chief engineer of the Local Government Board in London. I told him that I was very anxious before commencing these works to see the Liernur system. I never believed in it from my own observations, but I was anxious to see it. I told Mr. Rawlinson that although I only had thirty days in London I was quite prepared to give two or three days to go to Amsterdam and look at it. He said, "Do not waste your time; if you want to see something of use to you out there go and look at the sewage farms of Croydon."

131. He was therefore asking you to see something which he had adopted? He is admitted to be the chief man and the best man in these matters at home.

132. Is not the system which I have just referred to in operation in many Continental cities? Not in many; it is not in general operation. Amsterdam is the place where it is most in operation.

133. Would you state briefly your principal objections to the system? It is very expensive. It depends on carriage by air instead of by water. It requires a great deal of manipulation which is not agreeable. The only place where there is an apology for using it is at Amsterdam where there is no fall, and because the buildings and houses are surrounded with canals, and they have to be dealt with almost separately. It has never been used in England, and the people in England are tolerably alive to all these things. It is used in perhaps half-a-dozen Continental towns, but its use is not increasing. I do not think it has been adopted by any town, or that there has been any addition to or extension of it, for the last eight or nine years.

134. Did I understand you to say that at the inlet into the main sewers there are catchpits for the sand brought down by storm-water? Yes.

135. Is there not great danger of the sewers being choked up where there is little fall? Except just at the outfall the fall is very fair. At the outfall it is only 1 in 1,350, but there is very little chance of that silting up.

136. Do I understand you to say that you would strongly recommend giving the ratepayers an extended time for payment so as to make it easy for them? That is a mere recommendation that should be taken *cum grano salis*. That is a question more in the province of a financial statesman. As far as my knowledge goes it would be a good proposition.

137. Do you think that the people of Manly thoroughly understand the responsibility they will incur under this scheme? I think they do; but they will be better able to tell you that themselves.

138. Do you also do away with the present sewer outlet on the beach by this scheme? Yes, that is the object of the whole scheme.

139. Has that sewer at present leading to the beach been found very offensive? Yes, I think so.

140. It is continually choked up? Yes.

141. Do you purpose extending your outlet in Little Cabbage-tree Bay well into the water by pipes? Yes; well below low water.

142. *Mr. Sydney Smith.*] What is the population of Manly? I think it is 3,000.

143. Do you know the number of houses? Over 500.

144. Is not that from an old date? March, last year. The sewers are made to accommodate a population of 18,000.

145. How many houses would that provide for? 3,000 houses, or something more, at the usual average, 3,600, allowing five persons to a house.

146. What system have they in force at Manly at present in dealing with sewage? They have a system of sewerage, and they use dry earth closets and cess-pits.

147. If this system of sewerage were adopted, would there be any necessity for the cost now incurred by the Council in removing the closet pans? No.

148. If the cost is 6d. per pan, as in other municipalities, and there were 3,000 pans, that would cost £75 per week to do what your sewers will do for them? Yes.

149. So that in point of fact it would be cheaper for them to adopt the system of sewerage now proposed by

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by you than it would be to remove the night-soil under the present system? Well, it would be as cheap; at all events. The cost of removing the night-soil at present would go towards defraying the expense of sewerage.

150. If there were 3,000 houses, the expense at 6d. per pan would be over £3,500 per annum. That expense would be avoided by your sewerage system, which would only cost the ratepayers something like £1,200 per annum? It would cost £1,520 per annum if the amount is paid off in twenty-eight years; and it would cost £1,172 if the repayment is extended over sixty years.

151. Are you in favour of extending the period of repayments to sixty years? Yes; but I only make that as an engineer's recommendation.

152. So that in point of fact, taking that calculation as a basis, the Manly Council will be benefited by adopting your scheme; it will be no cost whatever, but a saving;—do you think it will give them a more effective system than they have at present? Yes; I think so. I think it is of vital importance to Manly. The whole living of Manly depends upon its being a health resort; and if a pestilence of any sort broke out there it would ruin the place.

153. Are you aware what they do with the night-soil at present? Sometimes it goes into the sewers; and I think they have earth-closets, which they dispose of on the land.

154. Do they utilise it in any way? Yes; in gardens and so forth. But there is a limit to that as population increases.

155. Do they deodorise it in any way? I think not.

156. If not do you not think it must be very unhealthy? No; not if it is buried in the land and crops are growing from it. But there is a limit to that.

157. Do you not think it would be very offensive to allow them to bury it? No. The land has a wonderfully purifying effect; but there is a limit to it, which must now be very nearly reached at Manly.

158. Is there not some Act of Parliament which prevents that? There is a Nuisances Prevention Act which regulates these matters. It is prevented in any place proclaimed under the Act.

159. Does Manly come under that Act? I am not aware. It is entirely optional.

160. If Manly is under this Act people there would not be able to do such a thing without rendering themselves liable to a penalty? No.

161. I presume that with regard to all sewerage works, one great feature is to prevent the gases from going into the houses;—I presume proper provision is made for that? Proper provision should be made for ventilation.

162. I presume that is done? Inspection and ventilation are provided for, but there will have to be a little addition to the Act, empowering the sewerage authorities to take ventilating pipes up the houses before it is perfect. They have that power in England, and it is used with great success.

163. To prevent gas from going into the houses? Yes.

164. Unless the air-pipes are there, the ordinary syphon, owing to the force of the wind, might allow the gas to go into the houses? Sometimes.

165. In all schemes of this kind, should proper provision be made for the escape of gas? Yes.

166. Otherwise the real object of a sewerage scheme would be defeated, and it would be more unhealthy than ever? Yes. The pipes would convey the gas into the houses, which would be very objectionable.

167. One most important feature of the scheme would be to prevent the gas from going into the houses? Yes.

168. In the case of this work I presume provision has been made to carry that out? As far as possible; but it is impossible to provide, in a scheme of this sort, for details. You could not expect to provide for all water-closets. Ventilation would have to be carefully attended to by the people who are adopting the work.

169. Would you recommend that power should be given to allow pipes to be taken up the houses? Yes. There is an Act in draft now for that purpose.

170. A Bill will be brought in to compel householders to allow you to take your pipes up the houses? Yes; they have such a provision in Adelaide now, and it is a very great success.

171. What provision is made in our present sewerage system? There was no provision made in the old system of city sewerage, except street ventilators, the gullies, and so forth.

172. Are they not very objectionable? Yes; we intend that the openings we are making now in the new sewers shall be downcast shafts, while the sewer gas will go up the high ventilators.

173. Even with the sewers you have down now, do you not think some provision should be made at once to get rid of this nuisance? It has not become a downright nuisance yet, on account of the connections not being sufficiently completed; but when the whole thing is working, and the sewage conveyed away to the outlet, without giving it time to decompose, the formation of sewage gas is decreased and almost prevented entirely. Sewage is not offensive, unless it is a day or so old.

174. The great point is to keep it going and not allow it to accumulate? Yes; to get it away fresh.

175. Will provision be made for flushing the sewers? Yes; arrangements are made for flushing. The man-holes and lamp-holes are arranged alternately, so that when a man goes down a lamp is also placed in the lamp-hole, and he can see if there is any obstruction. All these are used for ventilation.

176. Have you gone into a calculation with regard to the size of the sewers, and have you satisfied yourself that they are of sufficient capacity? Yes; they are of ample capacity.

177. Do you think that the work will not cost more than £22,000? Yes; the quantities have been carefully taken out, and the prices graduated on the same scale as the prices paid in Sydney.

178. You have mentioned a difficulty as to the point where the sewage will empty;—the Manly Council proposed one place and you proposed another, and they have fallen in with your proposal? Yes.

179. Even where you propose to empty it, is there not a danger of its being brought back? I think not.

180. Is it an alternative proposal to take the sewage further away towards the North Head? Yes; we do not propose to go on with that at present.

181. *Mr. Campbell.*] Do you think it is not necessary to take the sewage along the longer line shown on the plan? It will be necessary in a few years, but not at present.

182. After the population increases to the capacity of those pipes? The population cannot increase beyond the capacity of those pipes.

183. When the population comes up to the capacity of those pipes, do you think it will be necessary to extend it; but in the meantime do you think the present proposal will be sufficient without being offensive to the neighbourhood? Yes.

184. *Mr. Suttor.*] Do you know whether Liernur's system was ever carried out in the Colonies? No; nor in England. I have only known of its being carried out at Amsterdam, and one or two places in Germany.
185. Was it not at one time tried in Melbourne? I do not think so.
186. *Chairman.*] I think there is evidence of its having been tried in Melbourne eight or ten years ago in the Benevolent Institution, but it was given up at once? I do not recollect that; but it might have been the case.

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George H. Stayton, Esq., M.I.C.E., Sewerage Branch, Roads and Bridges Department, sworn and examined:—

187. *Chairman.*] Have you had to do with the Manly sewerage scheme? Yes.
188. Has it been under your supervision from the first? Yes.
189. How long ago is it since it was commenced? About August or September, 1886.
190. I presume you have had a great deal to do with sewerage works in your time? Yes.
191. Is that a special part of your profession to which you have given greater attention than to any other? Yes; I have been engaged in sewerage and water works almost daily since 1864.
192. How long have you been in this Colony? Three years.
193. Where were you engaged in these works before? In various parts of England, and for the last ten years in London.
194. In connection with town sewerage? Yes, together with water supply, and other public works.
195. Is it your conviction that this is the best plan that could be adopted at Manly for the purpose of draining the place? It is.
196. Have you formed any estimate of the probable cost yourself? Yes. The estimate is set out in the report.
197. Is that your estimate? Yes.
198. Do you think that is about the cost at which the work can be constructed? Yes.
199. Are you impressed with the fact that the project will be a satisfactory one? I have every reason to believe so.
200. A considerable quantity of sewage at Manly is emptied into the bay in Manly Cove? Yes. I produce a plan showing the existing sewers. There are two outfalls on the ocean side, and there is one outfall on the Manly Cove side.
201. They have sewers at the present time emptying into the ocean? Yes; and they do not give satisfaction.
202. They do not fall into your scheme? The greater part of those sewers will be utilised. They will be intercepted. But in other places where they cannot be intercepted, they will be used for removing storm-water from the streets. That is all shown on the plan.
203. *Mr. Garrard.*] What were the last sewerage works you were engaged upon in the old country? Sewerage works in London. I constructed a great many miles of sewers in London. I was engineer for the borough of Chelsea for ten years. I was previously engaged at Coventry, Portsmouth, the Isle of Wight, and several other places.
204. What is your reason for keeping the present system of pipes only for storm-water;—is it not usual to use storm water for flushing the ordinary sewers? It would be impossible to provide sewers of sufficient dimensions to carry off the whole of the storm-water, except at a very large outlay.
205. In your report do you recommend that in the low-lying portions—Manly Vale and Addiscombe—building should not be allowed to a greater extent than four buildings to the acre? That is in Mr. Bennett's minute accompanying the report.
206. To deal with the sewage for those low-lying places would it be necessary to pump if the place were built upon? Yes, if it were built upon; but the greater part of it is of too swampy a nature to permit of any amount of building there.
207. Do you think the fall is sufficient to allow of the transit of sewage matter;—is not the fall very slight? Yes; but it is sufficient to ensure a self-cleansing velocity.
208. Do you intend to keep the outfall on the main beach for storm-water? One for storm-water.
209. And also the inner one? Yes.
210. Do you know if the outlets on the ocean side are continually silting up? The outlets do not silt up.
211. The water going out keeps the mouth clear? Yes; the mouth is always clear.
212. Will the outlet which you propose at Cabbage-tree Bay be some distance out from the shore? Yes; it will be more than 100 feet from low-water mark.
213. How much below the surface of the water? 8 or 10 feet.
214. Owing to its being so much submerged will there not always be a lot of foul matter remaining in the mouth? None whatever. This outfall has a considerable inclination, so that the head of sewage would force it out.
215. Would that be the case in hot summer weather? Yes; there will always be sufficient water.
216. Do you purpose flushing the sewers in very dry weather? As you will see by the report, it is contemplated, if found necessary, to establish a flushing system.
217. There are no water works or water scheme at Manly at present? Yes; there is a water scheme, but it is only a scheme. It has been approved by the Council, and they are waiting for the sanction of the Government, I believe, before proceeding with it.
218. Will it be brought by gravitation? No; it will have to be pumped.
219. Where is the catchment area? Some 2 or 3 miles from Manly. They have a very large catchment area, and they propose to pump the water to the heights at the back of the town.
220. Will the height of the water, if pumped, give sufficient force for your purpose? Ample.
221. What is the height? Very nearly 200 feet.
222. That will command every point from which your sewers take in? Yes; and every house, too.
223. *Mr. Sydney Smith.*] Have you been at Manly frequently? Yes; a great many times.
224. Have you made inquiry into the present system of sewerage? Yes, I have inspected all of it. We had a large number of trial shafts excavated in order to ascertain what the present condition is. They have three systems there, all of which drain into the sea; and those sewers, as explained in the report, are very defective in places, and in consequence of their not being properly adjusted we found several inches of black silt in some of those pipes. Therefore, these sewers would have to be reconstructed, for which provision is made in the scheme; the good ones to be grafted on to the new system, and the others, which are not required, to be turned into storm-water drains.

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225. Have they made no provision for escapes and ventilation? There is no provision at all for ventilation at present. The existing sewers are very foul. I do not think I ever smelt worse sewer gas than I experienced at one of those openings.
226. Did they make no provision for flushing them out? The Council have made provision for flushing. They erected a couple of tanks near the pier, which are filled with salt water, and whenever they think it necessary, they allow the whole of this water to go through the sewers. It runs through in four or five minutes and carries everything before it. It was done on one occasion when I was there to enable me to see the result. It only took about two and a half minutes for the sewage to travel right down to the coast, and when it was washed out to the ocean it was very black and offensive.
227. Have they no provision at present to prevent foul gas from going into the houses? No provision whatever.
228. No traps or pipes? No proper provision, I should say.
229. I presume that under your scheme you propose to make provision for preventing gas from going into the houses, and also to have proper outlets at different parts of the sewers? Yes. In fact it is explained in the report that such regulations will have to be made, and that the interceptors will be provided with ventilation pipes.
230. To run up alongside the houses? Yes.
231. That provision of course is not compulsory now, and an Act of Parliament will be necessary to enable you to do that? I believe that is the case.
232. Have they the dry earth system at Manly? Yes; it is nearly all that system at present.
233. Does the Council pay for emptying the pans? I do not know; but the Council provides the carts.
234. Do you know the charge they make on each household? No.
235. You are not aware at the present time what is the cost of removal? No. I expect it is the same as in most of the suburbs—5d. or 6d. per pan per week.
236. Then in addition to that charge there is also another charge in connection with the cleaning of the gutters, which of course will be saved if your scheme is adopted? Yes, there will be no filth in the gutters then.
237. In addition to saving the cost of emptying the pans they will also save the expense in connection with the scavenging to a large extent? Not so much here as in other suburbs, because they have a system of sewers already. All the slop water, wherever there are sewers, goes into those sewers. But in other streets your observation would apply; that is, where there are no sewers.
238. Are there many such streets? Yes, a great many.
239. Do you think that half the streets have been provided with the necessary pipes? Half the well-populated streets have been.
240. Do you know the number of houses in Manly at present? At the time this report was made the Municipal Council stated that there were 500 houses, but those figures were given two years ago. In all probability there are 600 and upwards at the present time.
241. *Mr. Garrard.*] Do you know if any of those houses were connected with the sewers at that time? I had a complete list—103 houses were connected at that time.
242. How many of the balance of the 500 got rid of night-soil by means of the Corporation carts? The whole of the houses, I think.
243. Is it buried on their own premises? I do not know.
244. *Mr. Sydney Smith.*] Do I understand that the Council will not allow any of the householders to empty the night-soil into the pipes? No.
245. Is it all disposed of either by the dry earth system or by means of cess-pits? The dry-earth system is in operation at Manly.
246. Have you examined any of the places there and found them offensive and not properly deodorised? I do not think there was any attempt at deodorisation. I went into the back premises of many houses and I do not think anything was done.
247. Was there anything offensive at all? Nothing to call for special remark.
248. They were fairly clean? Yes; the principal objection to the sanitary arrangements at Manly is the defective sewers which I have mentioned. They are named in Schedule D of my report.
249. What is the principal cause of their becoming so offensive? Simply because the inclinations are not properly adjusted. It is not a question of workmanship, but of levels,—they were laid without due regard to the quantity of sewage they had to take. I do not say that this is absolutely correct, but by way of illustration I might state that one part of the sewer might have a discharging capacity of 200 feet per minute; the next part, owing to its being laid at a sharper fall, would, perhaps, discharge 500 feet per minute; the next part, being flat, would discharge, perhaps, 100 feet per minute. The consequence is, that when sewage is being discharged through these pipes it is checked;—it goes rapidly down one part, and then comes to a flat part, where the discharge is retarded. Precipitation takes place, and in course of time a considerable quantity of black silt accumulates.
250. No provision having been made for ventilation, is it very offensive? Yes.
251. Does the scheme you propose remedy these evils? Yes.
252. Have you calculated the cost? Yes; every item has been taken out very carefully at the existing contract rates.
253. Are you satisfied that it will not exceed the cost now estimated? Yes, but I might be allowed to add that the terms for repayment have a very important bearing on the execution of sanitary works such as that.
254. Have you had large experience of sanitary matters in other parts of the world? Yes.
255. What is the average cost in most places? It varies very considerably. I think the Portsmouth sewerage system cost nearly £3 per head for the whole population; and it has varied in England from £1 per head, in places where sewerage works could be carried out very economically up to £4 per head. At Reading the works were costly because they adopted a double system of sewers. The part where the outfall was fixed was close to the Thames, where it was very liable to floods, and they had to exclude as much rain-water as possible from the sewers.
256. What would be the cost according to the ratable value of the property in the same way as you calculate the cost here—I understand you calculate the cost at a rate of 5d. in the £, which would be sufficient to pay for the execution and maintenance of the works and interest on the outlay? The drainage rates in England vary from 6d. in the £, in some towns to as much as 3s. I think in others. At Manly a drainage

drainage rate of 5d. in the £ would be sufficient to pay for the works under the present Act. That is repay- G. H. Stayton, ment in twenty-eight years. In England it was found that that time was too short, and insufficient encouragement was given to the sanitary authorities throughout the country to improve their places, because it was considered a hardship on the present generation. Under the comprehensive Local Government Act, which has just been passed in England, constituting true local self-government, the period for repayment has been put at sixty years.

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257. What rate are they called upon to pay? The rate varies very considerably; I can give no additional answer that would be of any value.

258. You could not make any comparison between the rates there and here? I have a great many figures showing the drainage rates paid in various towns, but there is considerable variation. It all depends on local conditions, whether there is pumping or chemical treatment, or whether the outfall is on the sea-coast where they can have a constant gravitating fall, as in the case of Manly. In such cases it is one of the cheapest methods that can be adopted.

259. Will you append those figures to your evidence? Yes, but I cannot recall the name of any town in England where they have been able to carry out a complete system of sewerage for a rate so low as 4d. or 5d. in the £.

260. So that the Manly people will not be called upon to pay a high price as compared with what is charged at home? No.

261. *Mr. Suttor.*] Have you had any experience of the English system of desiccating sewage;—we have been told that in Birmingham there is a system of that kind? Birmingham has a water carriage sewerage system; but in a certain part of the Borough they collect night-soil and desiccate it. But they have a very extensive sewerage system and sewage outfall works at Birmingham. The night-soil in question is desiccated by the "Farmer" patent machines, but I do not know the cost of treatment.

262. Have you any knowledge of that system? No; it has been adopted within the last eighteen months or two years.

263. *Mr. Garrard.*] Have you had any experience of Liernur's system? I have had no practical experience, but I am acquainted with the principle of it.

264. Have you seen it at work? No.

265. From what you know of that and other systems, do you believe that the water-borne sewage system is the cheapest and best? Undoubtedly; I believe it is so.

266. What are your principal objections to the Liernur system? The principal objections are—firstly, that the excreta is kept too long upon the premises, because it is removed once a day only. Secondly—it involves a duplicate system of sewers, that is, one system for excreta and slop waters, and another for liquid refuse and rainfall. Thirdly—it is very expensive; at least double the expense of a water-carriage system.

267. Do you know in how many places it is in operation? I have not a list of the towns here, but I think there are six or seven in Europe. Amsterdam has the largest installation of the system.

268. Amsterdam is situated on a very low lying site? Yes; it is almost as flat as this table, and it is intersected by canals.

269. Which would make it very undesirable to have sewage going into the canals? Yes; they were obliged to adopt this system.

270. *Mr. Suttor.*] Do you know that the desiccating system carried out in Birmingham is now being carried out at the Sydney Meat Preserving Works? Yes; I saw what they are doing some six months ago.

271. Can you give us any idea whether or not it is desirable to carry out that system for sewerage? Compared with water carriage system, such as is proposed here, it would be much more expensive.

272. *Mr. Sydney Smith.*] Are you aware that they are attempting to carry out a system similar to that referred to by Mr. Suttor at Parramatta? I only know about it from what I have seen in the newspapers; that the Council are contemplating its adoption. At the same time they are going to have a sewerage system.

273. *Chairman.*] The desiccation system gives facilities for the collection of manure where it is required? Yes.

FRIDAY, 5 OCTOBER, 1888.

Present:—

The Honorable JOHN LACKEY (CHAIRMAN).

The Hon. GEORGE CAMPBELL.

The Hon. WILLIAM HENRY SUTTOR.

The Hon. FREDERICK THOMAS HUMPHERY.

HENRY COPELAND, Esq.

ALEXANDER KETHEL, Esq.

JOHN RENDELL STREET, Esq.

JACOB GARRARD, Esq.

SYDNEY SMITH, Esq.

The Committee further considered the proposed Drainage Works at Manly.

James George Griffin, Esq., Mayor of Manly, sworn and examined:—

274. *Chairman.*] Are you the present Mayor of Manly? Yes. I have been Mayor during the present year.

J. G. Griffin,
Esq.

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275. Have you been a resident of Manly for some years? Yes.

276. And have you taken an interest in its welfare? Yes.

277. Have you been long connected with the Municipality? Yes; for the last three years.

278. Do you understand the design of the proposed Manly sewerage works? Yes.

279. I think you are an engineer yourself? Yes.

280. Have you given any attention to this work from a professional point of view? I have given it some attention, but I have not gone into the details.

281. Would you feel disposed to give an opinion professionally? So far as I have been able to judge from a professional point of view it is a most efficient scheme.

282. Are not the existing drainage works very imperfect? They would be imperfect for the drainage of the town under this method; but they are not imperfect for the purposes for which they were constructed. They were constructed simply to carry off storm-water and slops, and not for excreta. As a matter of fact they do their work very well; but we would not permit excreta to be passed through them.

- J. G. Griffin, Esq.
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283. It was never intended that excreta should be conveyed into them at all? No; that was never intended. They are only for storm-water and slops.
284. Under what system has the excreta been dealt with? The earth-closet system.
285. Do you find that that answers satisfactorily? Yes. I think it has answered satisfactorily up to the present.
286. For what purposes do you use the material from the earth-closets? We pay a man £48 a year for the use of 10 or 12 acres of land 3 miles out of the town, and he digs the pits into which the nightcarts empty the material obtained from the pans.
287. It is not used for reproductive purposes as manure? No; it was used for manure, but the health officer objected (I think properly) to its being used inside the town. I would have objected if I had been Mayor at the time to its being used in the town.
288. Is it because you think that if it were used in that way it would be a nuisance? I am sure it would be. In point of fact that small part of the town which is very sandy and planted with trees, and the reserves and on the edges of the roads, were used at times as places in which to deposit night-soil. Of course it had a very excellent effect on the trees.
289. Was it used on the surface or dug in? Pits were dug 10 or 12 feet deep. But inasmuch as a great deal of water is pumped up by artesian wells from a depth of 20 to 30 feet all over this flat, and used for household and other purposes, I was sure that the continual use of night-soil in that sandy flat must ultimately become dangerous to health.
290. Is Manly generally supplied by that means with water? Yes; unfortunately, that and water caught on roofs is the only supply we have.
291. Are the wells on the artesian principle? No; the water is pumped up. I do not think there are any over 24 feet deep. The water is at a greater depth. I have put down such a well for the purposes of the recreation ground, and we got water at 24 feet.
292. Your main objection to the deposit of night-soil would be owing to the possibility of the water supply being vitiated by the deposit? Exactly; and besides that I think it would be injurious to health from every other point of view. Being so close to the surface the whole of the sandy portion of the town would become contaminated, and it would probably breed fevers.
293. Do you think that would be the case if it were used for the growth of vegetation or for any kind of garden purposes? That could not be done in town, because the gardens are small. It certainly could not be done in the most thickly populated part. All the other parts are very rocky, and it would be impossible to use it in that way.
294. Would your objection exist to the use of it outside the town—for instance, by professional gardeners? No; not so long as it was used a long way off, in the same way as it is used at Brighton, near Melbourne.
295. Do you know that there are two plans proposed here, or rather two alternative designs. There is one in which the sewage is proposed to be deposited in Little Cabbage-tree Bay, and another in which it is proposed that the sewage should be deposited at Blue Nose Point? I think I may say that the proposed outlet in Cabbage-tree Bay, as shown on this plan, has been abandoned. I pointed out on seeing this plan that the scour was greater at another point, and that there would be some danger if the material was allowed to flow out at the point shown on this plan. I suggested to Mr. Stayton and to the Department that the outlet should be made at the point of the rocks north of Fairy Bower. Unfortunately we have melancholy evidence of the fact that the scour is great there, for several bathers have been washed out straight to sea from this point and drowned. Mr. Stayton and Mr. Bennett agreed that the modification we proposed would be worth considering, and, instead of making the outlet as shown on the plan, they have proposed to put in a tunnel so as to carry the sewage out at the point I have shown the Committee on this plan. This will effect a saving of £2,000 in the cost of the work. If the outlet were made as originally proposed, the work would cost £22,000. If it is made where we suggest, it will cost £20,000. I had hoped that they would carry the sewer along the rocks, and so save the expense of tunnelling, but Mr. Stayton has shown me that it would be quite as expensive; that it would interfere largely with a favourite resort; and might be liable to damage owing to heavy breezes forcing the water over the outlet. Consequently, on the whole, I think it would be as well to tunnel.
296. With reference to the gross amount proposed to be raised for the purpose of carrying out this work, I suppose you understand that, if the debt is allowed to extend over sixty years, it comes much lighter on the present community as compared with a term of twenty-eight years? Yes.
297. What is your opinion about that? Undoubtedly, I am in favour of extending the term. I have a very strong feeling about that. Everybody has.
298. It would make the cost lighter on the present community? Exactly.
299. Those coming afterwards will derive equal benefit from the work? Yes; and they might very justly be asked to pay a portion of the cost.
300. Do you think you are speaking for the inhabitants in expressing that opinion? I am sure of it. Every member of the Council and every person in the town—we have discussed the matter a great deal—to whom I have spoken are strongly of opinion that the time should be extended to sixty years. The population at present is about 4,000.
301. *Mr. Street.*] Have you studied the question of the fall with a view to arriving at a conclusion as to whether there will be sufficient to carry off the drainage? Yes; I am sure of that.
302. What is your idea about the outlet at Cabbage-tree Bay? Do you think there will be much deposit from the sewer carried up on the beach, where it will be offensive? That, I think, will be abandoned, as I have already explained.
303. Do you think there is any danger of the sewage being carried back if the outlet is placed where you suggest? No. I think the Department is with us in the opinion that the scour comes around Cabbage-tree Bay and goes out to sea, so that the deposit will be all carried out.
304. Have the Department agreed to that diversion? Yes; that was a suggestion of ours, and they have agreed to alter it in that way, and by that means save £2,000. Ultimately the outlet must be taken to Blue Nose Point; because, as population increases, a larger outlet will be required. The cost at present of the removal of night-soil is 6d. per pan per week, and as many of the houses have two, it is fair to assume that the existing number of houses, 600 or 700, at 26s. a year, pay between £700 and £800 a year. That would be saved if this sewerage system were adopted.
305. *Mr. Sydney Smith.*] Have you the dry earth system at present all over the borough? Yes.

306. The charge is 6d. per pan, and of course if this scheme were carried out the Council would be saved the expense now involved in emptying those pans? Yes; but I may tell you that the Council does not spend that money. We contract with a man at so much per pan, and the ratepayers pay that to the contractor.

307. Still the ratepayers pay it? Yes.

308. What is done with the night-soil at present? It is taken 3 miles out of town, and we pay a man for digging it in.

309. In addition to the saving effected by the removal of the night-soil, do you not think you will effect a saving in the expenditure on scavengers, as you will not require so many when all the connections are made with the various houses? There is very little refuse in the gutters at Manly. We send the ordinary day-labourers round to clean them out. It is not offensive matter which has to be dealt with, but mostly the growth of grass and weeds. There is no accumulation of offensive matter permitted.

310. How many houses have you now connected with the system of sewerage? All those within a reasonable distance of it. We do not allow anybody to empty slops into the streets. If they do we summon them. They must do away with the slops in some way themselves, unless there is a sewer in the neighbourhood, and then they generally connect with the sewer.

311. How do they get rid of the slops? Sometimes they have great holes dug in the ground; otherwise they water their gardens with them. Sometimes they send the slops away.

312. Is it not dangerous to health to allow holes to be sunk in the yards? We will not allow them to make it dangerous. They must use disinfectants and keep their premises clean, or they must pay a man to take them away. It is a very disagreeable matter to have to summons people for allowing slops to go into the roadway where there are no sewers; but we have to do it. Only the other day I stopped two or three people from doing so by threatening to summons them.

313. Do you not have regular scavengers to attend to that? No, the labourers are sent round occasionally.

314. When all the houses are connected with the sewers will not this trouble be avoided? Yes; it will be an advantage, no doubt.

315. What is your present population? There are 600 or 700 houses, and a population of over 4,000, as far as we can judge. It is a varying population.

316. *Chairman.*] It is a tourist's resort? There is a large residential population, but in summer a great many people come down.

317. The tourist element would prevent you from making an accurate estimate of the general population? Yes.

318. *Mr. Sydney Smith.*] There are about 700 houses? Yes; between 600 and 700. There were 500 about two years ago, and the number has increased.

319. How many pans will there be? I suppose some houses have two? Yes; and some will have more. There are one or two odd pits. I think there will be a total of 700 pans, paying each £1 6s. per annum.

320. So that the cost to the ratepayers of this sewerage scheme, when it is carried out, will be very little more than they are paying at present for closet pans? 700 pans at £1 6s. would give an annual cost of £910.

321. What will be the cost to the ratepayers of the sewerage scheme? £1,200 a year; so that there will be a difference of only £300 a year.

322. At present you have only 700 houses, but this system of sewerage is supposed to be capable of taking the night-soil from 3,000 houses? I think, when it is finished, it will accommodate any population.

323. Then there will be a very great saving to the ratepayers? Yes.

324. Although there may be a small loss at present, as population increases will there be a very great saving to the ratepayers in carrying out the scheme now proposed? Yes.

325. There is no objection by the Council to the scheme? No; they are strongly in favour of it.

326. Has there been any counter-petition? No.

327. *Mr. Suttor.*] Under the Act, as at present, the interest and sinking fund on the outlay would be wiped of in twenty-eight years? Yes; about twenty-eight years.

328. Will the householders be quite prepared to carry out the arrangement for repayment in twenty-eight years if an extension to sixty years is not conceded? I think we would accept the scheme if we had to pay off the money in twenty-eight years, so far as the bulk of the people are concerned.

329. Is it your opinion that the period should be extended to sixty years? No doubt that would be far better in every way. It would be very hard to repay the money in twenty-eight years.

330. But that is the law, and would you be prepared to carry it out? Yes.

331. Of course this Committee cannot guarantee that the term will be extended to sixty years? I hope that the Committee will recommend an extension of the term to sixty years. We think that those who follow us should pay for what benefits them.

332. *Mr. Copeland.*] Do you know what is the term for the repayment of the outlay on the city sewerage? No.

333. Of course it would be very much easier for the municipality if the term could be extended? Yes; very much easier.

334. With reference to your statement about taking the outlet to the northern point of Fairy Cove, do you feel quite sure that the sewage will not come back on to the beach? I feel sure of that. As I have already said we have had melancholy evidence of the force of the current there, because several bathers have been carried out and drowned. We have also had evidence from fishermen who have frequented the place for many years, and they state that the scour is from that point outwards. I have taken great care, and I think the engineers have taken great care, to ascertain that fact.

335. Is not Fairy Bower a reserve? No; it is the property of Mr. J. J. Jones.

336. What amount of land will it be necessary to resume for this work? None. I think the tunnel will go under his land.

337. Will there not be compensation for that? I do not think so. But if so it would be very slight. It is a very small tunnel.

338. Is that the only land which will have to be resumed? That is all I know of at present. I think all the remainder of the sewer goes through streets. I do not know that the land where the tunnel goes will have to be resumed, for the tunnel is so deep as not to interfere with the surface in any way.

339. Through what land does the longer line of sewer go, as shown on this plan? Through the Catholic reserve, the Quarantine ground, and also through Mr. Jones' property.

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407. With reference to the period of time over which the repayment of the cost of the work should extend, do you think the population wish it to be sixty years or twenty-eight years? I should fancy they would prefer the longer period. I should like to see the longer period adopted, for the reason that it would come easier to the ratepayers.

408. And the work would be a permanent work from which the future residents of Manly would benefit, and therefore they should bear their proportion of the cost? Yes.

409. Do you know anything about the currents on the beach there? I have observed the water, and have come to a conclusion in my own mind with respect to it. There is a proposal to cut a tunnel into Cabbage-tree Bay. I think that would be unwise, because the water there is comparatively still, but the water at the point is always unsettled, and there is a strong current there. I think that would be far the best. The more you go into Cabbage-tree Bay, the more likelihood is there of still water, and the sewage matter would be thrown on the beach.

410. There have been several cases of drowning in the neighbourhood of that point, have there not? Yes; I think somewhere to the left of the point, and I think the circumstance indicates a very strong current.

411. The bodies have always been taken away? Yes, I think so; I know that in some cases they have not been recovered. I fancy the current comes round this point into Cabbage-tree Bay and scours it out in that direction. I see a mark in pencil on the plan; I think that would be a good outlet.

412. *Mr. Copeland.*] Do you think it would be a very desirable scheme to extend the repayment of the cost of this work over sixty years; that seems to be the general opinion of the Manly people? Yes; that the payment should be extended over a number of years.

413. You think it would be a justifiable measure of procedure to settle this responsibility on future generations? I think so, because they would derive as much advantage as the present inhabitants. I may say with reference to the repayment of the money that we are already paying a considerable sum for emptying earth pans, and that amount would go a long way towards paying the sewerage rate, and the people would have the work done in a far better way.

414. You do not think the ratepayers would object to a rate of 5d. or 6d. in the £? I think not. From conversations I have had I think they would be willing to pay anything in reason. I have never heard anyone object to the proposal. I think the work is not only desirable in the interests of the residents of Manly, but also in the interests of the whole country, because people from all parts of the country are continually coming there, and one of the annoyances they have to put up with is that arising from the present system of earth closets and the want of drainage for slop water.

415. Would it not strike you as a very convenient method of building up an extensive national debt if we were to leave over all payments of this kind to future generations? It is only what has been done in other matters. We have handed over the debt on the Railways, and I doubt whether that will be paid off in sixty years.

416. Do you think the Council will be satisfied with the proposal to pay it off in twenty-eight years? Well, I think they would. When you speak of sixty years I think the Council would prefer that time, but I think in twenty-eight years we should be able to pay it off. The place is increasing.

417. I suppose property will go up in value in consideration of this work being carried out? Not a doubt of it.

418. *Mr. Humphery.*] The cost of discharging the sewage at Cabbage-tree Bay is estimated at £22,000, and extending the pipes to the point at £34,000;—as a member of the Council do you think that the ratepayers would prefer at present to limit the expenditure to the £22,000? I think so.

419. Should you think that would be sufficient for some years to come? I think so.

420. Are you strongly of opinion that the sewage should be delivered at a point between the ocean beach and Cabbage-tree Point—at what is called the Fairy Bower Point? At the point at the south end of the ocean beach.

421. *Mr. Copeland.*] Is there ever any northerly current there? I could not say; but there is an under-current. I have heard people say that they have thrown things into the water, and have watched them go clean out.

422. *Mr. Kethel.*] Have you walked round the little bay in the corner of Cabbage-tree Bay up to the southern extremity? Yes.

423. Have you noticed that there is a greater deposit of drift-wood, odds-and-ends, left by the sea there than in any other part? I think there is.

424. And that indicates that anything flowing in there would be more likely to be deposited in the extreme southern bay than anywhere else? Yes; I should think so.

425. Have you ever noticed that in the vicinity of rocks there is always a greater scour than in the vicinity of sand? I think that is very likely, but I cannot say I have noticed it, except at this particular place.

426. But you think there is some scour at Fairy Bower Point—that the south-east scour is greater at that point than at any other in the vicinity? I think so.

427. You are not prepared to say from your own experience that there is a greater scour in the vicinity of rocks than of sand? I cannot say generally, but I have observed it at this point.

428. If such is the case is it your opinion that it would be more desirable to make the terminus of the outfall on the projections of the rocky point than in the secluded waters of the bay? Quite so.

429. *Mr. Street.*] The present system of sewerage carried out at Manly only provides for slop and storm waters? That is all.

430. In the proposed system excreta will be added? Yes.

431. And do you think there is a sufficient fall shown on this plan to keep the pipes scoured and clear? I am not able to give an opinion on matters of that sort. I know the land is flat, and that the fall cannot be very great, but I think the engineer must be satisfied on that point, and we are trying to get a water supply, with a view of flushing these sewers, as well as for domestic supply.

432. *Mr. Sydney Smith.*] You have to flush your present drains, I believe, with water from some tank? Yes; the drains are flushed with salt water from a tank.

433. In your present scheme is there any provision made to prevent gases getting into the houses? There are traps in some parts of the streets.

434. What kind of traps are they—ordinary syphons? I cannot tell you. There is some provision made of traps which are kept filled with water, but there are constant complaints about them. The breeze from the ocean seems to drive the gas up through the pipe, and it forces itself through the traps.

435. Would that be obviated in a proper system? Yes. The system we have now is a piecemeal arrangement. I should be highly delighted, as far as I am concerned, to have this proposed system, if only to get rid of our present arrangement.
436. Do you find the smell very offensive from the present drains? Gas escapes, but I cannot say that I have found it very serious; I do not reside near it. I have been down on the beach, when I have heard that deposits have been thrown back on the beach, but I have not seen them. I think if the beach remains clean, with the sewers as they are now, the outfall at the point indicated will carry everything quite away.
437. At the present it costs each ratepayer 6d. per pan, and of course that expenditure would not be incurred if this new system were adopted? I think the saving of that expense, speaking roughly, would very nearly pay the sewerage rate.
438. And in addition, the new system would connect all the houses in the borough with the sewers, and so get rid of the offence arising from slop-water? With reference to slop-water, when we speak of that being carried away by the present drainage, it is only a small proportion of it that is carried away. Most of us have to run it away into a pit in the yard.
439. Do you not think that it is very unhealthy? Extremely so. Of course that depends on the circumstances of each place. I know, for instance, a place where there is an underground water-tank within a very few feet of a silt pit, made to receive house-water, and such a thing may breed typhoid fever, and spread it over the whole locality.
440. How many houses are connected with your present system? I cannot tell you.
441. There is a very large proportion unconnected, is there not? Yes.
442. But if this system of sewerage were adopted the ratepayers would almost save sufficient of the 6d. per pan to cover the cost of the new scheme? It would go a long way.
443. And in addition to the houses being connected the slops would be emptied into the sewer, and all the objections of your present system would be obviated? Yes.
444. *Chairman.*] Do you, in the treatment of the cesspits at Manly, adopt any deodorizing method? I cannot say. I do not myself; I do not know whether other people do.
445. Chloride of lime, carbolic acid, or anything else of that kind? I daresay such things are used, but I myself have not used them. I have planted a tree or two round the pit to absorb the moisture.
446. The soil is very porous there is it not? Yes.

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George Henry Stayton, Esq., M.I.C.E., Sewerage Branch, Roads and Bridges Department, sworn and further examined:—

447. *Chairman.*] I wish to ask you some questions in reference to the evidence you gave last night, and in regard to a point in some evidence which has been given by Mr. Griffin, Mayor of Manly. In examining him a short time ago he stated that you, as a professional man engaged in the carrying out of this work, had concurred in an alteration in the tunnel by which the sewage at Manly was to be discharged;—are you aware of any such arrangement? I am aware of that, and have a report upon it here. This report was made on 4th July, at the request of the Manly Municipal Council, and, although the question has never been definitely decided by Mr. Bennett or myself, it has, to a certain extent, been approved; but it cannot be stated definitely whether the proposal could be carried out without some expense being incurred to ascertain the nature of the bottom. It was proposed to carry out this temporary outlet as shown on the line upon the tracing here (*tracing produced*). This tracing was sent to the Municipal Council. It shows a tunnel under the Fairy Bower into the northern part of Little Cabbage-tree Bay.
448. You think that would be equally efficient with the proposal submitted on the plan? So far as the point of discharge is concerned I think it is preferable, but I am not absolutely certain that it is practicable. The nature of the foundations may be such that it may be possible to fix iron screw piles at that point, but in order to determine that borings might have to be made.
449. From your knowledge of the soil and of the substrata there, have you any doubt as to its being practicable to carry out the proposal there? I think there is *prima facie* evidence in favour of carrying out the suggestion.
450. That being so, you see no reason for not complying with the recommendation of the Manly Council? If it is found practicable there is no objection, and what is more, the financial question has an advantage, because the estimate is then reduced to £20,250.
451. That is £1,750 less than the original estimate? Yes; but it would involve an increase of £1,000 on the entire scheme when that is subsequently carried out.
452. But would it be more expensive in connecting these parts of Manly with the sewer? No; because the fall down Redall-street is towards the proposed tunnel.
453. Would the same reason apply to the whole of the premises along Redall-street and in that direction? To the whole of the premises, or nearly so. That side of Manly falls entirely to Ashburner-street.
454. Are there drains there now? Not at the present time. It is proposed to lay sewers, as shown by the blue lines on the plan. It is not only proposed to construct main sewers, but also several miles of subsidiary sewers, as shown by the blue lines on the plan.
455. How would property be connected? In this way (*indicating on the plan*).
456. Then that would indicate the necessity of a sewer independent of what is represented on the plan at present before the Committee? A small pipe sewer; but that locality is at present bush.
457. Is not that where the Roman Catholic buildings are? They are here (*indicating on the plan*), but they would not have access to the main sewer until it is carried in the direction of the ocean.
458. Is it not proposed to connect them with the sewer to Cabbage-tree Bay? Not by the proposed plan now under consideration.
459. *Mr. Copeland.*] In estimating the present amount of revenue, have you been careful to apply the scheme only to property likely to be benefited? The rateable value is taken on the whole of the houses throughout the municipality.
460. Whether they will be benefited or not? Yes; there are comparatively few houses beyond the present drainage area.
461. Is there much space for the extension of the town in such a position that it would be directly benefited by the drainage system? Some parts of Manly, which are not now built upon at all—in fact considerable areas—could be drained by this system; but the whole of Manly covers 2,000 acres.
462. I suppose it is not customary to levy drainage rates where houses are not connected with the drainage?

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- I do not know what the custom is here, but in England it is customary to levy drainage rates irrespective of the fact whether the houses are immediately connected or not. A sewerage system is considered a benefit to the whole of a borough, and therefore that all ought to contribute.
463. And in cases where the municipality cannot make provision for connecting houses with the drains, those houses which are not connected have to pay their share of the expense? That is so.
464. And yet derive no direct benefit from it? I have known that in scores of cases.
465. Do you know whether it is the custom to charge for water where water is not supplied? No; water is looked upon more as an article of consumption, and I am not aware that any person in the old country is made to pay for water unless he is a consumer of it.
466. Is it not as much a necessity to get rid of the drainage water as it is to get the water that you consume? It is most necessary to get rid of the foul water.
467. Would you consider it fair to charge for taking away water where it is not taken away, any more than it would be fair to charge for bringing water to you when you do not consume it? Yes, for the following reasons: Although an inhabitant may not have his foul water removed by a proper system of drainage, he is nevertheless a resident of the municipality, and it is generally considered a benefit to the whole of the population of a municipality—especially for those parts that are thickly populated—that a scheme should be in operation, although it may not extend to the utmost limits of the municipal boundary. There might be a few houses at one particular spot in the municipality to which at the present time it would cost too much to extend a sewer, but as the municipality generally is made much healthier by the construction of sewers, the hardship is not excessive.
468. Then, in computing the value of the property, you have considered all property, whether directly connected with the sewers or not? I have, and that is a point upon which I particularly wish to give some additional evidence. In the report which was considered by the Committee last night, it states on page 1: "That the annual rateable value of the municipality, which, in 1880 was £16,338, now amounts to £67,452", and on the last page of the report (page 10) it will be noticed that the calculations were based upon those figures—£67,452. To-day I have looked carefully into the figures to see what the present rateable value is, in order to ascertain whether there was any misconception, and I should here state that this annual value of £67,452 was supplied to the Department by the then Mayor of Manly in reply to an official request dated 20th August, 1886. In the Statistical Register for 1887, on page 373, the annual value is returned as £77,769 instead of £67,452; but in the last Statistical Register, which was only issued a few weeks since, I find that in April, 1888, the annual value on which the rates are struck is estimated at £47,959. The reason of the discrepancy is that the value of the unoccupied lands is not calculated in that estimate. Therefore it is necessary, in considering the cost of the works in question, to slightly alter the figures, and taking as a basis the probability that by the time the works are completed the assessed value will have increased to £60,000, a penny rate will produce £250, and if the works are to be repaid in the course of twenty-eight years, it will mean a sixpenny rate instead of a five-penny one, or if repaid in sixty years it will mean a fourpence three farthing rate instead of a fourpenny rate. From that there is to be set off the present charge of emptying the closet-pans. For instance, taking a house rated at £80 a year, the owner would have to pay £2, less 26s., for emptying the closet-pans, which would leave 14s. only per annum extra per house.
469. That is on the twenty-eight years? Yes, and very much less, of course, on the sixty years. Then, on the other hand, if the entire scheme were carried out to Blue Fish Point to cost £34,000, and the payment were extended to sixty years, it would make a sevenpenny rate at the present time. Under these circumstances, a house rated at £80 a year would have to pay £2 6s. 8d. in rates, less the 26s., the cost of emptying the closet-pans, and leaving £1 0s. 8d. extra, which would mean a threepenny rate beyond what is at present paid. So that if a house were rated at £50, it would only mean an extra cost of 3s. per house per annum. With regard to the extended period, I omitted, in the evidence last night, in reference to what is done elsewhere, to state that the larger water and sewerage works that have been constructed in England are to be repaid in even longer periods than those mentioned here; they have increased the term to seventy and seventy-five years.
470. They are regarded as permanent works? Yes.
471. What would be the life of a well-constructed sewer or tunnel? It would certainly last from seventy-five to eighty years, without any considerable repairs. I have been in sewers in London which have been constructed fifty years, without having had any material repair. On the other hand, I have seen sewers badly constructed utterly worn out in thirty years.
472. From the result of your experience, do you come to the conclusion that the climate here has a greater effect upon sewerage works than in England? I have not considered that; there is no data to go upon.
473. But it is a fact that our climate is a much drier one than the English climate? Oh, yes.
474. And I take it that the longevity of the English tunnels is the effect more of the moist atmosphere than would be the case with our comparatively dry atmosphere? I am not prepared to give an opinion upon that, but I am certain of this, that with good workmanship these tunnels ought to last the period I have indicated.
475. From seventy to eighty years? Yes.
476. Have you examined any of the city sewers? I have not.
477. You have not been called upon to examine any of them? I have had nothing whatever to do with the city sewers.
478. Of course you could give no opinion as to the state of their preservation at the present time? No. I know absolutely nothing on that point.
479. *Mr. Copeland.*] I suppose it is customary in other countries to carry the drainage out to the ocean beaches? Wherever it is practicable it is considered the most economical plan, and the results, if the local circumstances are favourable, as in this case, are such that certainly it is the best thing to be done.
480. And as a matter of fact has been done, and is done? I have been engaged in several works where it has been done, and might name numerous places besides.
481. For some time? For some time.
482. So they have had the opportunity of getting experience of the results? Yes; in some towns they have had thirty or forty years experience. I may say I have examined the whole of the coast at Manly, including the Quarantine Reserve, and at Little Cabbage-tree Bay I have spent some hours on several occasions noticing the currents and watching the action of the waves, and I am perfectly satisfied that either

either at that point as proposed or even further along there will not be any nuisance. The scour is very great, and it is a favourable position. G.H. Stayton, Esq.

483. How far do you propose carrying it into the water? I think it is 100 ft. from low water-mark.

484. Would that be by iron piping? Iron piping in the water.

485. *Mr. Humphrey.*] Would it be necessary to carry the pipe 100 ft. beyond the rocky point if you adopted the modified plan agreed to by the municipality? Not so far as that.

486. Would you have to carry it any distance? Some little distance, but not very far beyond the rocks.

487. Then by adopting the modified plan you would save nearly 100 ft. of iron piping? Yes.

488. And also about 30 chains of tunnel? Yes; but we should have to construct another length of tunnel 600 ft. in lieu of that.

489. Would you take it by tunnel to the point or by iron pipes? By tunnel under the eastern end of the Fairy Bower.

490. Are you of opinion that the discharge of the sewage at that point would meet all the requirements of Manly for some years to come? Yes. It depends materially on the rate of increase. If the population increases very rapidly I should think in the course of eight or ten years it would be necessary to consider the question of extending the outfall, but if it only increases moderately and the system is found to work efficiently it may last a few years longer.

491. Then your opinion is that the first part of this scheme carried out to the point in question would be sufficient for ten years? I think so.

492. It would be unnecessary, therefore, at present to consider the extension of the sewer at the additional cost of £10,000 or £12,000? Yes.

493. Will you explain in what manner the extension of the main outfall sewer to Blue Nose Point will afford greater accommodation than the first part of the sewerage scheme? Well, it will afford accommodation to the Roman Catholic College and the Cardinal's palace; and, in the event of the Quarantine Station being abandoned, and a portion of the reserve being laid out as building-land, it would enable a sewer to be carried towards the site of the Quarantine Station for the drainage of a large area.

494. Then it would only be necessary to carry out this extension in the event of the population settling on the Quarantine Ground? Not only that; but in the event of the population extending towards the cemetery. The whole of the area within the green lines on the plan is termed the drainage area, and in the event of the population increasing on the higher ground of Manly, the sewerage requirements will increase. The present proposal will be sufficient for all reasonable requirements, but as the population extends, further provision will become necessary. The capacity of the main sewer will be ample.

495. And it may become a question of eight or ten years whether or not to remove the sewage from Cabbage-tree Bay Point to Blue Nose Point? Yes.

496. *Mr. Kethel.*] In laying pipes, whether from the Point or from the beach in Cabbage-tree Bay, is it not necessary to fasten them down by anchoring them to the ground, as they are subject to the action of the waves? Yes; they must be fixed to piles. At the present time the pipes on the ocean beach are fixed to wooden piles, but in this proposal screw piles would be used if practicable.

497. Is there not a danger of the waves during a storm or gale washing water up the pipes? Not the slightest. The diameter of the pipe is 21 inches, and whatever force would be exerted on so small an area would very soon expend itself in the pipe, and would be immediately checked by the flow of sewage.

498. You are aware that the heavy storm waves we have on this coast would roll in and would come into the mouth of your pipe? I am aware of that, and this line was laid down so as to meet the direction of the waves and offer the least resistance to them.

499. It is your opinion that the precautions you have taken will meet all contingencies arising from storms? Yes.

500. *Mr. Sydney Smith.*] With reference to the information given just now in regard to the actual cost of the ratepayers, I understand that there would be 14s. over and above the actual charge now made for emptying the pans? That would be 14s. on a house assessed at £80 a year.

501. How many houses do you reckon you will be called upon to make provision for at the present time in that calculation? The scheme provides for a prospective population of 18,000, and if you take five persons or six persons to a house that would make eventually 3,000 houses at least. We take the rateable value of the whole district, and have ascertained that a rate of 7d. in the £ will meet the whole expense. The 14s. is simply given as an example of what it will cost a house assessed at £80 a year.

502. But in your scheme you have made provision for 3,000 houses? Yes, the main sewer is designed to take the sewage from 3,000 houses or more.

503. The cost will be less as the houses increase? Yes.

504. At present you have made provision for 3,000 houses, and yet your present estimate is on £60,000; as the number of houses increases the amount chargeable to each ratepayer will proportionately decrease? That is so.

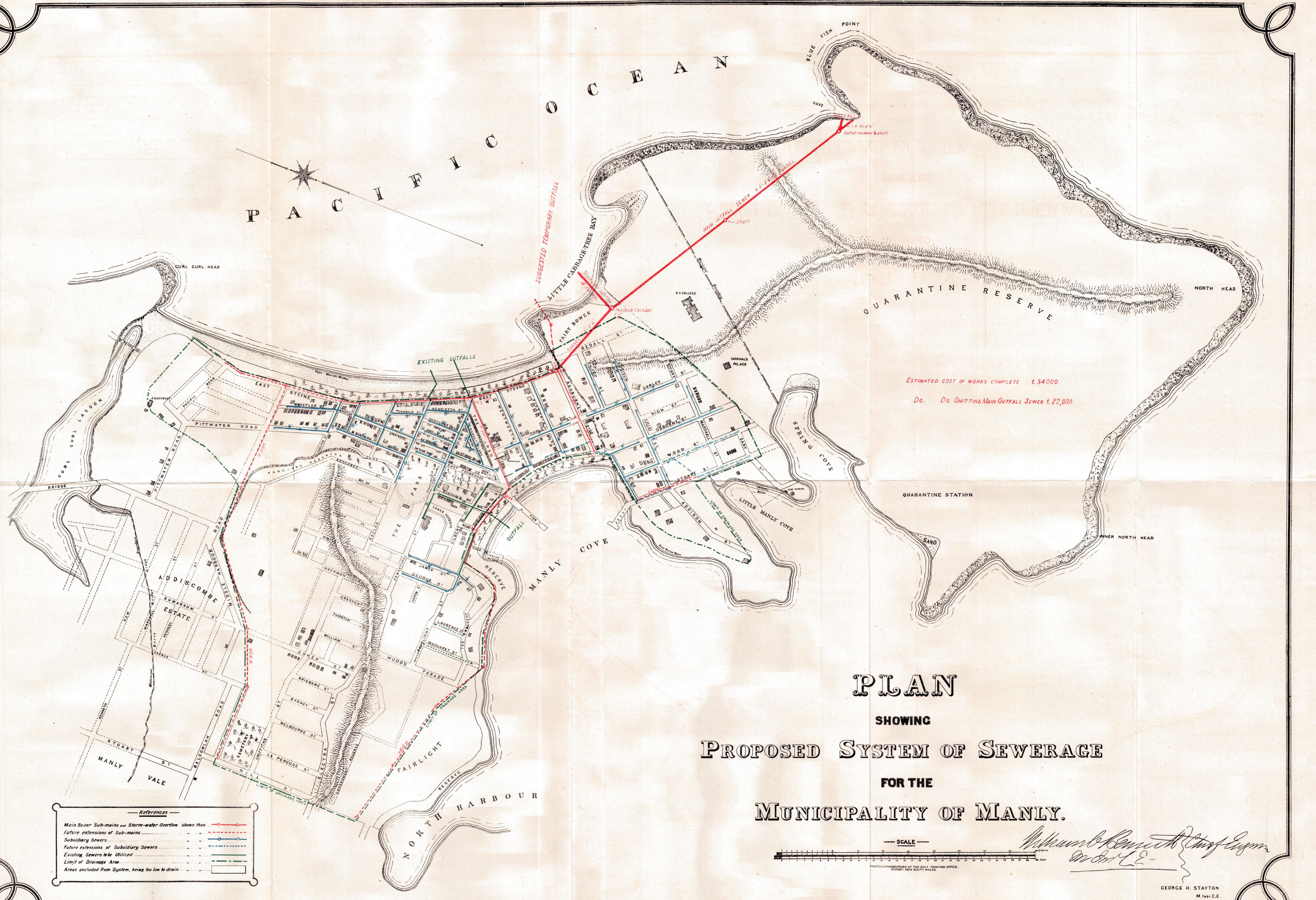
505. And the saving will eventually be a great deal more than the cost at the present time of emptying the pans? Yes.

[One plan.]

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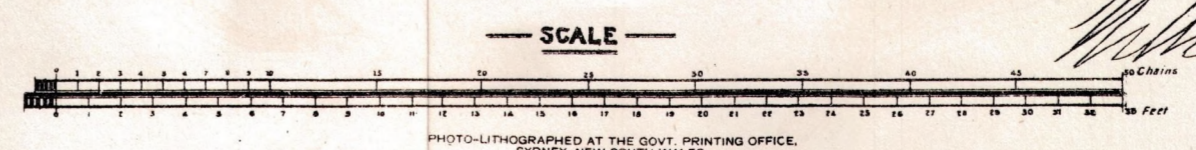
PACIFIC OCEAN



ESTIMATED COST OF WORKS COMPLETE £34,000
 Do. Do. OMITTING MAIN OUTFALL SEWER £22,000

PLAN
 SHOWING
PROPOSED SYSTEM OF SEWERAGE
 FOR THE
MUNICIPALITY OF MANLY.

- References
- Main Sewer Sub-mains and Storm-water Overflow shown thus
 - Future extensions of Sub-mains
 - Subsidiary Sewers
 - Future extensions of Subsidiary Sewers
 - Existing Sewers to be Utilized
 - Limit of Drainage Area
 - Areas excluded from System, being too low to drain



W. H. Stoyton
 Chief Engineer

1888.

LEGISLATIVE ASSEMBLY.

NEW SOUTH WALES.

MANLY DRAINAGE WORKS BILL.

(MESSAGE No. 5.)

Ordered by the Legislative Assembly to be printed, 6 December, 1888.

CARRINGTON,

Governor.

Message No. 5.

In accordance with the provisions contained in the 54th section of the Constitution Act, the Governor recommends, for the consideration of the Legislative Assembly, the expediency of making provision to meet the requisite expenses in connection with a Bill to sanction the carrying out of certain drainage works at Manly, in the county of Cumberland.

Government House,

Sydney, 30th November, 1888.

1888.

LEGISLATIVE ASSEMBLY.
NEW SOUTH WALES.

MANLY DRAINAGE WORKS BILL.

(PETITION FROM MUNICIPAL COUNCIL OF MANLY, PRAYING THE HOUSE TO AMEND THE.)

Received by the Legislative Assembly, 19 December, 1888.

To the Speaker and the Members of the Legislative Assembly.

The humble Petition of John George Griffin, Mayor of, and for and on behalf of the Municipal District of Manly,—

HUMBLY SHOWETH:—

1. That your Petitioner as Mayor of the abovementioned Municipality prays that your Honorable House will be good enough to amend the Manly Sewerage and Drainage Bill now before your Honorable House, so that the said Municipality shall be enabled to carry out the sewerage scheme to Bluefish, and have sixty (60) years within which to repay the loan proposed to be authorized under the said Bill.

And your Petitioners, as in duty bound, will ever pray, &c, &c.

[2 signatures.]

The seal of the Council was this day affixed, December 18, 1888.

1888.

NEW SOUTH WALES.

PARLIAMENTARY STANDING COMMITTEE ON
PUBLIC WORKS.

REPORT

TOGETHER WITH

MINUTES OF EVIDENCE

AND

APPENDIX

ON

DRAINAGE WORKS, NORTH SHORE.

Presented to Parliament in accordance with the provisions of the Public Works Act,
51 Vic. No. 37, section 8.

SYDNEY: CHARLES POTTER, GOVERNMENT PRINTER.

1888.

NAMES OF THE MEMBERS OF THE COMMITTEE.

LEGISLATIVE COUNCIL

The Honorable JOHN LACKEY, Chairman.
 The Honorable GEORGE CAMPBELL.
 The Honorable WILLIAM HENRY SUTOR.
 The Honorable JAMES WATSON.
 The Honorable FREDERICK THOMAS HUMPHERY.

LEGISLATIVE ASSEMBLY.

JOSEPH PALMER ABBOTT, Esquire, Vice-Chairman.
 JAMES NIXON BRUNKER, Esquire.
 HENRY COPELAND, Esquire.
 ALEXANDER KETHEL, Esquire.
 JOHN RENDELL STREET, Esquire.
 THOMAS MICHAEL SLATERY, Esquire.
 JACOB GARRARD, Esquire.
 SYDNEY SMITH, Esquire.

[James Nixon Bruncker, Esquire, by reason of his accepting the office of Minister for Lands, did not take his seat as a member of the Committee.]

LIST OF WITNESSES.

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Joseph Barling, Esq., Under Secretary for Public Works	1-2
William Christopher Bennett, Esq., Commissioner and Engineer-in-Chief for Roads and Bridges and Sewers.....	2-4
George Henry Stayton, Esq., M.I.C.E., Engineer, Sewerage Branch, Roads and Bridges Department	4-7; 12-13; 17-18
Dr. John Ashburton Thomson, Deputy Medical Adviser to the Government	8-9
Mr. P. W. Glacken, Mayor of East St. Leonards	9-11
Mr. Frederick Smith, Mayor of Victoria	12
Captain Benjamin Jenkins, Mayor of St. Leonards	12
Mr. Walter L. Vernon, Alderman of East St. Leonards.....	13-14
John Trevor Jones, Esq., Engineer of Water and Sewerage Board	14-16
Mr. Charles Chatfield	16-17

APPENDIX.

Plan of the Proposed Drainage Works, as it was submitted to the Committee.

PARLIAMENTARY STANDING COMMITTEE ON PUBLIC WORKS.

DRAINAGE WORKS, NORTH SHORE.

REPORT.

THE PARLIAMENTARY STANDING COMMITTEE ON PUBLIC WORKS, appointed during the last Session of Parliament, under the Public Works Act of 1888, 51 Vic. No. 37, to whom was referred the duty of considering and reporting upon "the expediency of carrying out drainage works at North Shore," have, after due inquiry, resolved that it is expedient the works should be carried out, in accordance with the plan representing the proposal for the works in their entirety, the estimated cost of which is £107,000; and, in accordance with the provision of sub-section IV, of clause 13, of the Public Works Act, report their resolution to the Legislative Assembly:—

In their consideration of this proposed work, the Committee had before them a report by Mr. G. H. Stayton, M.I.C.E., of the Sewerage Branch, Roads and Bridges Department, dated 9th October, 1886, accompanied by a Minute thereon from Mr. W. C. Bennett, Commissioner and Engineer-in-Chief for Roads and Bridges and Sewers, dated 28th October, 1886, and by lithographed plans.

The proposed works consist of a main outfall sewer in tunnel 1 mile 1,540 yards in length, commencing at New-street, Milson's Point, and passing under Willoughby-street, Lane Cove Road, Alfred-street, and Falcon-street, and terminating at the proposed outfall at the head of Long Bay, Middle Harbour. The system further includes 1 mile 986 yards of sub-mains and 20 miles 692 yards of subsidiary sewers, making a total of nearly 24 miles of sewers. The outfall works will necessitate the reclamation and embanking of 6 or 7 acres of the mud flat at Long Bay, and a process is proposed for the classification and purification of the sewage, by which it will be passed through a straining chamber containing certain proportions of lime and sulphate of iron well mixed therewith, and the whole will be allowed to flow into settling tanks where the sludge will be precipitated. The clarified effluent will be subsequently run off to some portion of the filtration area, where after passing through 6 feet of earth it will be purified in the best known manner, and be discharged by outfall pipes into the waters of Long Bay, below water level, and in a tide way.

At the time Mr. Stayton's report was prepared it was thought that only certain streets (shown on the plan by dotted lines) were in need of sewers, and that the construction of some 9 miles of sewers might be postponed to a later period, thereby reducing the present expenditure to £77,000; but it is now found that the population of the district has increased so rapidly that it is absolutely necessary to make immediate provision for the carrying out of the entire scheme, the total cost of which is £107,000.

The system proposed will serve the boroughs of St. Leonards, East St. Leonards, and Victoria, which contain a population of upwards of 15,000. The prospective population for which the proposed scheme provides is 30,225. The drainage area is 888 acres, but it is capable of considerable extension.

Generally

Generally considered, these proposed drainage works for North Shore are similar to those proposed for the Municipality of Manly, and the form of the Committee's inquiry concerning them was very much the same. It was considered very desirable while learning the nature of the works, and the advantages anticipated from them, to understand clearly whether the residents of the district were fully aware of what it was proposed to do, and of the obligations attached to the carrying out of the works, and whether any objections were raised by the residents to them; and much of the inquiry was directed towards this point. The advisableness of carrying out the scheme in its entirety, in preference to adopting the modified plan actually submitted to the Committee, was also specially inquired into.

The principal points of the inquiry may be stated as:—

- (1.) A description of the proposed works, and the necessity for them.
- (2.) The advantages of adopting the entire system in preference to the modified plan.
- (3.) The opinion of the residents with regard to the scheme.
- (4.) The question of cost and of repayment.

A brief outline of the scheme has already been given, and to that may be added the following:—Mr. Barling informed the Committee in the evidence he gave, that the proposal to carry out the works was the result of repeated requests on behalf of the North Shore boroughs that a system of sewerage should be established there; that copies of the scheme were supplied to the respective Councils; and that they, after mature consideration, had approved of the scheme, and by deputation to the Minister for Works had requested the Government to proceed with the works as speedily as possible. Mr. W. C. Bennett states that the main drain will serve the district from Milson's Point to Long Bay, with the exception of a small margin around the coast occupied chiefly by gardens and villa residences, which is below the gravitation level, and the length of the tunnel will be about $2\frac{1}{2}$ miles. The drain will be tunnelled through rock for the whole of its length, and the sewage will be conveyed by gravitation. Asked whether he considered the work essential, he answered (*Question 34*), "very essential indeed," and stated further that there was no other scheme he could suggest which would be of greater benefit to the residents and the public; and that the works would be of a permanent and durable character, so durable, in fact, that with proper care they would last twice sixty years. The main sewer will be half bricked in cement, so as to prevent the sewage from percolating through, and it will be wholly bricked where necessary. All the man-holes and lamp-holes are so arranged that they can be made flushing stations when required, and the gradients are in every case, Mr. Bennett says, self-cleansing.

As to there being any contamination of the waters of Long Bay by the discharge of sewage, Mr. Bennett is of opinion that the sewage will be so purified that it will not be a nuisance. As soon as there shall be sufficient of the sewage deposited to form what he terms "a skin of soil," steps will be taken to grow something upon it, and this will have the effect of absorbing and making the sewage quite inoffensive. No absolute provision has been made in the plan for flushing the sewers; but as they cannot be completed in less time than two years, the Nepean water supply will before that have been taken to North Shore, and there will be sufficient water at hand for flushing purposes.

Mr. Stayton, who is an engineer of considerable English experience, and the author of the proposed enlarged scheme, says he feels assured that if the work is carried out it will be effectual in every way, and undoubtedly will be effectual for the purpose of draining the North Shore suburbs generally. The scheme does not, he points out, take in the whole of East St. Leonards, because there are parts of that Municipality which are not at present populated; but it takes in all the heart of St. Leonards, and includes portions now very thinly built upon. It does not extend beyond the Military Road or Bloxsome Road, but if it should ever be required, a considerable part of the slope on the north side of the Military Road, between the Military Road and Long Bay, could be included. The area could be considerably extended, he says, if it is ever required. He is also very emphatic upon the question of filtration at Long Bay, and the certainty of its not proving a nuisance. He points out (*Question 117*) that the same system which is proposed here, although the chemicals are not exactly the same, has been adopted in many towns in England, and that no nuisance whatever exists there
from

from the operations. "The works and the process," he says, alluding to what has been done in England, "are brought up to date in all essential particulars in these instances, and they amply demonstrate the fact that no injury whatever would be done to Middle Harbour by the adoption of the contemplated sewerage scheme;" and the 6 or 7 acres which it is proposed in connection with this discharge of sewage at Long Bay to reclaim will be sufficient, he states, for all time, "because" (*Question 128*), "this drainage area would not contain more than 30,000 or 40,000 people at the outside, and that space would be sufficient for the purpose." Then it is proposed that the chemically-treated sewage shall be made use of, if necessary, as a manure which can be sold to farmers; and this manure, which is known as "pressed sewage sludge," has, according to a statement made by Mr. Stayton (*Question 471*), been proved by a series of experiments in England to be a very valuable fertilizer. As to the life of the proposed sewer, his evidence is (*Question 136*), that "he can safely say that in 80 or 100 years it ought to be thoroughly efficient, and with slight repairs it would last for a much longer time."

Mr. John Trevor Jones, Engineer to the Water and Sewerage Board, who was also examined upon the merits or otherwise of the scheme, considers it to be admirably adapted to St. Leonards, and with regard to the place at which it is proposed the sewage shall be discharged, he thinks it will be difficult to find a position equal to it, and not possible to find a better. "I think," he says (*Question 420*), "that it is admirably suited to the purpose, seeing that they are going to treat this sewage and render it fit to enter into an estuary of the harbour without detriment to the water." Further, he considers that the proposed process of filtration and subjecting the sewage to chemical treatment will eliminate all chances of nuisance. "If it is favourably done," he says, "I quite anticipate that the sewage water will be pure enough to enter into a trout stream or an inland river." Questioned as to whether the system proposed by Mr. Stayton was quite up to date and in accord with the most approved method of treating sewage, Mr. Jones stated that, with the exception of what is called the electric process, now being investigated, and the effects of which are not yet properly understood, he knows nothing superior to it. In respect to this electric process, it will be seen by the answer to *Question 472*, that even if it should be deemed desirable hereafter to apply that process to the sewage to be dealt with under the present proposal, it could be done. Dr. John Ashburton Thompson, who is Assistant Medical Adviser to the Government, and who, although by profession a medical man, has some experience as an engineer, appears from his evidence to be well acquainted with systems of drainage adopted in Europe, and he regards the proposed system of draining North Shore as a very desirable one, and does not know of any better that can be adopted. Moreover, he says, he has not known of any injurious effects resulting from the plan of deodorization or filtration such as that proposed to be resorted to at Long Bay. The proposal to precipitate and then to filter the sewage is, he thinks, recognised as the best plan in most cases of dealing with sewage.

The advantage of adopting the entire scheme in preference to the modification, which would postpone the construction of some 9 miles of sewers to a later period, is shown by the evidence of several witnesses. Mr. Stayton (*Question 157*), says that "the recent development of the district in certain parts has been such that it is most essential that the whole scheme should be considered and provided for." Mr. P. W. Glacken, Mayor of East St. Leonards, states that the Council has considered the project of draining the whole of North Shore, and concur in the construction of the work. The population of the district, he says, is largely increasing, and at a much greater rate than was apparent some years ago. "If something is not soon done in the way of drainage," he says (*Question 260*), "we shall have malaria on the North Shore. Carreening Bay and Neutral Cove are getting into a very bad state." This locality, he further states (*Question 309*), "is in a very dangerous condition; it is not safe to ride along the foreshores at present, and it will be worse in the summer months." Mr. Frederick Smith, Mayor of Victoria, another of the boroughs interested in the proposed sewerage scheme, will be found by his evidence to state that the Council of that Borough are aware of the nature of the proposed works, and are consenting parties to the proposal. So also in the case of Captain Jenkins, Mayor of St. Leonards. He states that not only are the Council consenting parties to the work being undertaken, but the general feeling among the ratepayers is

to

to have the scheme carried out. "They are almost unanimous," he says (*Question 330*); "we are unanimous in the Council, and it is also the general feeling of the public." Mr. Walter L. Vernon, an alderman of East St. Leonards, and formerly Mayor, having some experience as an engineer, is of opinion that the scheme proposed is the only possible one for North Shore, taking the physical nature of the country into consideration. He is somewhat doubtful about the filtered water from the sewage flowing in a pure condition into Long Bay, but at the same time he does not know of any alternative plan for dealing with it. As to whether the proposal is approved by the public, he thinks the proposed scheme will satisfy the present population, and also a population very much larger. His opinion with regard to the life of the sewers is that the main drain will be as good 100 years hence as it will be when constructed; and with reference to the general question of the necessity for a proper sewerage system, he says, "It is an absolute necessity that something should be done."

With reference to whether the opinion of the residents of North Shore is favourable to the proposed scheme, the testimony already quoted from the Mayors of the boroughs immediately concerned indicates very distinctly that it is, and additional proof upon this point is given by the evidence of a witness named Mr. Charles Chatfield, who came before the Committee as a ratepayer of North Shore, and requested to be heard in opposition to the scheme. He is a resident of Willoughby Falls, the locality of the proposed outfall, and he desired to protest against the scheme, because he doubted that the sewage outfall or flow into Long Bay would not be a nuisance. But even he, though perhaps personally, as deeply interested as anyone could be in the scheme, will be seen by his evidence to have objected to the proposal only in a general way. He could not give any opinion (*Question 452*), founded on professional knowledge, but he was not satisfied in his mind that the sewage could be so dealt with as to become innocuous. "First of all," he said (*Question 453*), "there must be an outlet from the sewer which must give forth some effluvia, and consequently the question is will the water that will percolate through the earth be entirely innocuous." As to the first point, Mr. Stayton afterwards informed the Committee that the tanks at the outfall works would be covered, and the sewer entirely underground, and that therefore there would be no exposure whatever at the mouth of the sewer. With regard to the second point, Mr. Chatfield was asked (*Question 470*) whether it was not his opinion that, with scientific appliances and discoveries every day, engineers would be able to treat the sewage so as to remove anything noxious or offensive, and he answered, "Yes, my reason compels me to believe that; but living in the place I have an objection on account of the possibility of failure."

The question of cost and repayment of the money expended was put before the Committee by the evidence very much in the same way as it appeared in the case of the proposed drainage works for Manly. The Borough Councils of North Shore, and the residents of the districts are very anxious for a proper sewerage system, and appear to be able and willing to pay the necessary rates to meet the expenditure and the interest upon it; but the general opinion is apparently that the term of repayment should be extended to sixty years. Twenty-eight years, it is argued, as was done in the case of Manly, is too short a period, and imposes upon the present population too great a burden. Some interesting and important information on this subject as it relates to the practice in England, will be found in the evidence of Mr. Stayton on page 17, *Question 472*. There he shows that in some instances the periods over which loans for sewerage works have been granted in England have been as long as 100 years, and in several cases it has been for periods of between sixty and eighty years.

The Committee regard the evidence in the case of these proposed drainage works for North Shore as quite sufficient to justify the carrying out of the scheme in its entirety, and on Thursday, 11th October, they agreed to the following resolution, which was moved by Mr. Sydney Smith, and seconded by Mr. Copeland:—

"That the Committee consider it expedient that the drainage works for North Shore should be carried out as proposed on the plan and explained in the evidence before the Committee, at an expense of £77,062, and recommend the adoption of the enlarged scheme at an additional cost of £29,938."

JOHN LACKEY,
Chairman.

Office of the Parliamentary Standing Committee on Public Works,
Sydney, 22 October, 1888.

PARLIAMENTARY STANDING COMMITTEE ON PUBLIC WORKS.

MINUTES OF EVIDENCE.

DRAINAGE WORKS, NORTH SHORE.

WEDNESDAY, 10 OCTOBER, 1888.

Present:

The Honorable JOHN LACKEY (CHAIRMAN).

The Hon. FREDERICK THOMAS HUMPHERY.
HENRY COPELAND, Esq.
ALEXANDER KETHEL, Esq.

JOHN RENDELL STREET, Esq.
JACOB GARRARD, Esq.
SYDNEY SMITH, Esq.

The Committee proceeded to consider the proposed Drainage Works at North Shore.

Joseph Barling, Esq., Under Secretary for Public Works, sworn and examined:—

1. *Chairman.*] Do you know something of the proposed drainage works at North Shore? Yes.
2. Are you aware of the circumstances under which the project has been submitted to this Committee? Yes. At the repeated requests of the North Shore boroughs two sewerage schemes have been prepared by the Sewerage Department, viz.—one in November, 1882, by Mr. Smyth, and the present scheme in October, 1886, by Mr. G. H. Stayton, the latter being an enlargement and modification of the former proposal. Copies of the scheme now before the Committee were supplied to the respective Councils, who, after mature consideration, approved the same, and, by deputation to Mr. Sutherland, requested the Government to proceed with the works as speedily as possible. The drainage area included in the scheme contains 888 acres, and provides for a prospective population of 30,225 persons. The works comprise the construction of nearly 24 miles of sewers, at a total cost of £107,000. The main sewer commences near Milson's Point, and continues in tunnel for 3,300 yards to a point near Willoughby Falls, at Long Bay, at which place it is proposed to reclaim a few acres of the mud-flat, and chemically clarify the sewage according to the most recent process, the effluent being filtered through earth in such a manner that it will pass into the waters of the Bay, below low-water mark, properly purified and unobjectionable. As considerable discussion has been raised outside about the clarification of this sewage, I may be allowed to read the following passage from Mr. Stayton's report:—"The process proposed to be adopted consists in passing the sewage through a straining chamber, after which the lime or other chemical is mixed therewith, and the whole allowed to flow into one of two open concrete settling tanks. The sludge is here precipitated, the clarified sewage being subsequently run off to some portion of the filtration area. The effluent therefrom would be conveyed by drains and a culvert to outfall pipes discharging into the waters of Long Bay, below low-water level, and in a tideway if practicable. In this manner it is possible to deal with the sewage effluent of from 1,000 to 5,000 persons per acre of filtration area. The richness of the sewage and the suitability of the earth are important factors, and I am of opinion that the existing conditions of the district favour a proportion of about 4,000 persons to the acre of filter. It would therefore be desirable, in the first instance, to reclaim and embank an available area of 6 or 7 acres for all purposes, the greatest care being observed to secure the most suitable materials for forming the filters." With regard to the cost of working the scheme, Mr. Stayton, in his report, says:—"A rate of 1d. in the £ per annum on the existing assessments within the drainage area would probably produce £750 net; but there is little doubt that by the time the works are carried out and completed, the ratable value will have further increased to such an extent, that a penny rate would produce £1,000. Under such circumstances a drainage rate of 6d. per annum would be sufficient to pay for the execution and maintenance of the necessary works. If, however, the period for repayment were extended to sixty years, the annual cost would be reduced to £4,230, in which case a 4½d. drainage rate would be sufficient. To complete the entire scheme at once would necessitate, under the provisions of the Act, a drainage rate of 7½d., but if the period for repayment be extended to sixty years, a 5½d. rate would suffice. Assuming that the completion of the entire scheme will not be necessary for a period of seven years, and that the population and ratable value will have increased to the same proportion as during the last six years, the drainage rates would not exceed 5d. and 4d. respectively." I may mention that the present Secretary for Public Works, Mr. Sutherland, has given very great attention to these sewerage proposals, and he has called in the aid of Mr. Coghlan, the Government Statistician, to supply him with certain statistics in connection with mortality rates, and so on; and some of the information given to him I would like to give to the Committee on this occasion. I think it will be extremely interesting. I refer especially to a diagram showing the death-rate of London from 1843 to 1888. The object is to show what a complete system of sewerage will do, and how it brings about a persistent decrease in the death-rate.

J. Barling,
Esq.
10 Oct., 1888.

- J. Barling, Esq.
10 Oct., 1888.
3. *Mr. Copeland.*] I notice that the works submitted to the Committee are nearly all works adjacent to Sydney? Yes.
4. Have the Department no other works that they could submit to the Committee, so that the labour might be dispersed throughout the country? I notice that for one electorate—North Shore—there are three works before the Committee at the present time—drainage works for Manly, drainage works for North Shore, and a bridge over the spit. Could not some other works be also submitted to the Committee? If you can suggest any others we are quite ready to take up any one on the list that you may think necessary.
5. Is this a complete list of the works that will be submitted to the Committee? Yes. The railway works could not be submitted because the Commissioners were not appointed.
6. Are there any other works besides those on this list? These are the only works submitted to this Committee. We are ready to take up any one on the list almost at a moment's notice.

William Christopher Bennett, Esq., Commissioner and Engineer for Roads, sworn, and examined:—

- W. C. Bennett, Esq.
10 Oct., 1888.
7. *The Chairman.*] Are you acquainted with the principle upon which the drainage works at North Shore are proposed to be carried out? Yes.
8. Are they to be carried out in accordance with the plan we see before us? Yes.
9. They consist of a main tunnel from near Milson's Point to Long Bay? Yes.
10. That will be the main drain? Yes.
11. It will be carried out by means of a tunnel, of course? Yes; the greater part of it.
12. Will it drain the whole area above it into Long Bay? Yes; except a small margin around by the coast. That portion is chiefly occupied with gardens and villa residences.
13. I mean from Milson's Point? Yes; it will drain from Milson's Point to Long Bay, but there is a portion shown on the plan below the gravitation level which chiefly consists of villas and gardens.
14. Will the main drain be a very considerable depth below the high lands at North Shore—the military road, for instance? Yes.
15. Will it be very much below the heights of North Shore? Yes.
16. Do you recollect the exact depth? No. About 250 feet.
17. What will be the length of the tunnel? It will be, roughly, some 2 miles.
18. Does this project provide for the complete drainage of St. Leonards so far as the red lines indicate? Yes; the green-dotted line is the margin of drainage.
19. The drainage as shown on this plan does not provide for the drainage of that area within the green line? Yes; by subsidiary drains. They are shown in blue lines.
20. Will that give a complete system of drainage to the whole locality within that green-dotted line? Yes.
21. Can this be done without any system of pumping at all? Yes.
22. In fact, the drain will be tunnelled right through? Yes; and the sewage will be conveyed by gravitation.
23. Are the outfall works a sort of percolatory works—Are they supposed to clarify the sewage? It is proposed to treat the sewage with lime first; then with sulphate of iron; and next to put over land which we propose to make there. It will be almost an artificial filter.
24. Does the green area represent the land you intend to treat? Yes; at present it is water.
25. That at present is not filled up? Yes.
26. Then you propose to allow the filtrated water to escape from there into Long Bay? Yes.
27. Will it be deprived of all sediment or deposit by the time it gets into the water? Yes; the water will pass the test established by the Commission for the purification of rivers in England.
28. Then it would not be likely to interfere with the depth of the water at Long Bay, or to silt up the Bay in any way? No; because it will first be used to fill up the reclaimed area.
29. Have you been over these works yourself? Yes.
30. Do you understand thoroughly the whole principle on which the project is proposed to be carried out? Yes.
31. Do you consider it will be effectual? Yes.
32. Have you given attention to the estimated cost? Yes; it is estimated on the actual cost of works in Sydney.
33. Do you think it is reasonable? Yes.
34. Do you think the work is an essential one? Yes; very essential, indeed.
35. Is there any other scheme which you could suggest which would be of greater benefit to the residents and the public? No; this scheme was thought out by me before Mr. Stayton came to the Colony, and the details were worked out by Mr. Smijth, who is in the Department, and who made a report. Then Mr. Stayton had large and recent experience in England, and I sent him over to make an entirely new report. They coincided to a great extent. The alterations were chiefly owing to the increase of population and buildings in the interim.
36. As far as your experience goes in the construction of these works, has it led you to the opinion that the residents are prepared to contribute towards the cost of the work in rates? I was under the impression that there was rather a feeling against the works at North Shore; but I understand from a meeting that was held in the Under Secretary's office to-day of all the mayors and some of the aldermen that they have changed their opinion, and are now prepared to advocate the work.
37. Do you think that the cost which would be entailed upon the present residents at the higher rate of payment would be oppressive, and would you rather have the period extended so as to make the present payment less? I would rather have the term extended. A question was asked on a previous occasion respecting which I have since obtained statistics: That is, the present cost of the removal of nightsoil as against the cost of these works. At present the whole of the boroughs on the North Shore pay at the rate of £3,298 for the removal of nightsoil.
38. What will be the cost to them of the proposed sewerage works? If the whole of the works were executed and paid for in twenty-eight years the cost would be £7,570 a year—that is with a 7½d. rate.
39. If the term were extended to sixty years would it not be considerably less? It would then be £5,875; with a 6d. rate.
40. These works will be of a permanent and durable character? Yes.
41. Those who live sixty years after us will benefit by them as much as the present generation will? With proper care the works would last twice sixty years.
42. Will the tunnel be bricked and cemented inside? Yes.

W. C.
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10, Oct., 1888.

43. How long would that work last if faithfully done? It is impossible to assign any limit. Similar works done by the old Romans now exist.
44. *Mr. Kethel.*] Are they in use? No; because they are too large for present purposes, and besides the present inhabitants are too lazy to use them.
45. *Chairman.*] Do you think, as a general principle, that an extended time would be fairer? Yes. I think as a young country we have a much longer future to look forward to than they have in England, and there the time is extended.
46. Is it the case that the old rudely constructed drain, known as Busby's Bore, which supplied Sydney with water 50 years ago, is still in existence? Yes. It is now in good order. It was never lined with cement; it is merely an excavation in the rock.
47. As far as you know this proposed work generally, have you no hesitation in recommending it as one which it is desirable to carry out in the interests of the public? Yes.
48. Both for a sanitary point of view and for immediate convenience? Yes.
49. *Mr. Copeland.*] I notice in your report and Mr. Stayton's report that periods of twenty-eight and sixty years are mentioned. Why do you adopt those two periods? Twenty-eight years is the period prescribed in the New South Wales Act. Sixty years is the extended term in England.
50. What period of repayment is fixed in the case of the present City Sewerage Works? Twenty-eight years.
51. Do you think that twenty-eight years is not a sufficiently long period for this money to be repaid? The development of the place is so great, and things change so much, that I really think sixty years would be just.
52. Have you considered that a great many of these places will require a large expenditure, and that the country will be unable to continue borrowing if the repayments came in so slowly? I have not looked at it in that aspect; but as the places develop and require those improvements, each independently become able to pay for the loans.
53. Would you be in favour of other towns and municipalities having the same privileges extended to them that are here proposed? Yes. The very first minute I made when I took charge of the sewerage was that the Government ought to propose a law prohibiting any town or person draining into any river where the water is so unspeakably precious as it is here.
54. In view of the large number of growing towns which are in existence now, and which will be in the course of a few years, do you think it would be at all fair to continue borrowing money to carry out those works in the various towns unless we get the money in again within a period of something like twenty-eight years? I am not prepared to enter into that question.
55. Of course, if there were only one or two places, it would be a simple matter to give plenty of time, and be generous and liberal; but would you advocate the same privileges being given to places like Newcastle, Bathurst, Goulburn, Armidale, Wagga Wagga, Albury, and all those places? Yes; but they are hardly all ripe for it just yet. Schemes have been prepared for Goulburn, Albury, and Parramatta, and are in course of preparation for Newcastle.
56. Do you think people would be prepared to pay the drainage rates on the shorter period of twenty-eight years? I think so. However, the municipal representatives of the people are here to-night, and will be able to speak for them.
57. Will the main sewer be constructed through rock or will it consist of pipes? It is made through rock. We are limited in size in all these things by the smallest gallery that a man can work in. This is the smallest duct we can make where we have to tunnel.
58. Do you think that an expenditure of this kind would materially enhance the value of the adjacent property? Yes; I think a very casual inspection of North Shore would show that.
59. Therefore, in point of fact, the additional expenditure by way of rates would scarcely be felt, as it would be compensated for by increased value? Yes; by increased value and by increased health. There would be less illness, and those who are not absolutely ill would enjoy more robust health.
60. *Mr. Humphery.*] Will the sum of £77,000 cover the cost of constructing the whole of the works shown by the red, green, and blue lines shown on this plan? No; £77,000 would cover all but the expenditure that is shown in the Schedules B and C at the back of the report.
61. Is it shown in the plan what portions of the works are not to be included in the first part of the scheme? The works shown by the red and blue dotted lines are not included in the scheme for the smaller sum. All with the works shown in the full lines are included in the proposed expenditure of £107,000.
62. In your estimate of the rate which it will be necessary to strike to cover the cost of construction with interest, spread over a period of sixty years, have you taken into consideration the probable increase in the annual rates during the time the works are in course of construction—that is, seven years—or have you taken the present annual rates? It has been calculated as the rates increase.
63. If the cost of construction be £77,000 would not that require only about £3,000 a year for repayment of principal and interest? Yes; the calculations I have given you were on £107,000.
64. Would a rate of 5d. be ample to cover the cost and interest if spread over a period of sixty years? Sixpence for £107,000; 4½d. would be sufficient for £77,000.
65. Would these works be available during the whole period of sixty years? Yes, and for a very much longer period.
66. Would they be ample? £107,000 would cover all.
67. But the works now proposed to be constructed would be useful during the whole period of sixty years? Yes.
68. So that those who bear the burden of the debt during the latter part of the sixty years would receive some consideration for their contributions? Yes.
69. It would be a benefit to the future population as well as to the existing population? Yes.
70. *Mr. Kethel.*] I observe that the outfall works are to consist of a certain area of land, to be reclaimed from the harbour. Is the portion tinted green on the plan the outfall of the sewer? Yes.
71. With what material is it intended to fill up that space? Well, with the best material we can get—sand. It will not be filled up at once. It will be gradually filled up.
72. Will you erect a dam across the entrance and fill in with the material? No. We will fill in the material as stated gradually from the shore.
73. Do you think it possible with any material you can place there to thoroughly filter the sewage matter, or intercept all offensive matter carried down by it? It is not possible, unless you first treat it chemically. We will treat it chemically with lime and sulphate of iron.

- W. C. Bennett, Esq.
10 Oct., 1888.
74. Will you have intercepting tanks? Yes; tanks built for the receipt and precipitation of the sewage. It will be treated chemically, and then it will flow out over this land.
75. What will be the height above high-water mark of the mouth of the outfall sewer? Nineteen feet above high-water mark.
76. The mouth will be near Willoughby Falls? Yes.
77. Is it your opinion that the mode of treatment will so effectually remove any offensive matter from the sewage that it will not contaminate the waters of Long Bay, and become a nuisance to the people occupying the shores of Middle Harbour? I think it will be so purified that it will not be a nuisance. If the ordinary old chemical process does not purify it sufficiently, this new process will be still more effective.
78. With reference to the main sewer, will the greater part of it be tunnelled through solid sandstone rock? Yes.
79. Is it your intention to line the main sewer through the rock, or any portion of it? It will be half-bricked in cement so as to prevent the sewage from percolating through. It will be wholly bricked where necessary.
80. Have you made any provision in this scheme for flushing the sewers? Not any absolute provision; but all the manholes and lampholes are so arranged that they can be made flushing stations if required.
81. What fall have you given the main sewer? One in 400. The gradients in every case are self-cleansing.
82. With that grade is it your opinion that the sewage fluids will have sufficient velocity to flow along the bottom of the sewer without depositing any of the matter they hold in suspension? In every case they will have the limit of velocity. 120 or 130 feet per minute is considered the minimum velocity, and in all these cases it will have a very much greater velocity.
83. *Mr. Street.*] You have stated that you do not consider there will be any contamination of the waters of Long Bay from this discharge of sewage. Do you think that the discharge of sewage on the reclaimed land and the process of deodorization will not be offensive in the atmosphere in that locality? I do not think so.
84. Of course a large quantity of sewage will be deposited on this made land? Yes.
85. Do you not consider that that will cause an offensive state of the atmosphere? No; because as soon as we get a skin of soil on it we will begin to grow something which will have the effect of absorbing and making inoffensive the sewage.
86. *Mr. Kethel.*] Have you seen the sewage farm on which the city sewage of Adelaide is deposited? No; but I have had experience at our own sewage farm at Webb's Grant. The effluent water is perfectly pure.
87. *Mr. Street.*] Is the process at Webb's Grant similar to this proposed process? No; that is not the process except with regard to filtering through sandy soil. Here a chemical process is proposed.
88. Is there any offence in the atmosphere at Webb's Grant? No.
89. *Mr. Garrard.*] How long will the works take to complete? I do not think we can hope to complete them in less than two years.
90. By that time I presume the water supply will be taken to North Shore? Before that time.
91. So that you will have sufficient water for flushing purposes? Yes.
92. *Mr. Copeland.*] What is the usual dip or fall allowed per mile for sewerage? It depends a great deal on the construction of the sewer and the quantity of the sewage.
93. Will 1 in 400 be sufficient? At Bondi it is only $3\frac{1}{2}$ feet to 1 mile, that is about 1 in 1,500; 1 in 400 will be ample.
94. Will it be sufficient in case there is no water to flush the main sewer, and will there be no sediment? If there is no water for water-closets they cannot have sewerage proper. Scullery-water, and such like, which is equally offensive might be carried away; but if you have no water for water-closets you will have no water for flushing. But without any flushing-water this will be ample.

George Henry Stayton, Esq., M.Inst.C.E., Engineer, Sewerage Branch, Roads and Bridges Department, sworn and examined:—

- G. H. Stayton, Esq.
10 Oct., 1888.
95. *Chairman.*] Have you been engaged in designing these sewerage works for North Shore? Yes.
96. They have been brought to their present state under your supervision? Yes; the present scheme has.
97. Had anything been done before you took it in hand? A scheme was prepared in 1882 by Mr. Smyth. That was for an area of 350 acres—the portion coloured green on this plan. (*Plan submitted.*)
98. That is not identical with the present scheme? No. The present scheme is an enlargement including the portion coloured red, and dealing with an area of 888 acres.
99. Does that include the gross area of the North Shore Drainage Scheme? Yes.
100. Have you had considerable experience in the construction of sewerage works in England? Yes.
101. From the result of your experience do you feel assured that this work if carried out will be effectual in every way? I do.
102. The drainage is to be carried out by gravitation? Yes; to the outfall.
103. Will not the depth of the tunnel on the high land of North Shore be very great? The depth of the tunnel at that particular point would be over 200 feet. That circumstance will not affect the cost of the subsidiary drainage at all, because the connections will be made with a pipe-sewer at the ordinary depth from the surface, and the sewage will be carried down the shafts in a special manner.
104. Will that apply to manholes, ventilation, and so forth? There are openings for a variety of purposes—inspection, ventilation, and so on.
105. At what intervals would they be? I cannot quite remember, but the number of shafts is mentioned in the report.
106. I suppose it is about the usual number? Yes.
107. Is there some professional rule by which you are guided in that matter? There is no professional rule. Local conditions determine the question. The report shows that there are 295 shafts and manholes.
108. Is that for giving access to the main tunnel or the others? Extending over the whole system. That is, 295 openings in 24 miles of sewers.
109. Then you have sub-mains connecting with the main tunnel? Yes; four sub-mains.
110. Then you have subsidiary mains? Yes.
111. Are they all at the same depth? That depends on the configuration of the ground, and what their duty is. The small sewers are at an average depth of 5 or 6 feet.
112. Do you think that the project as submitted would be an effectual one for the purpose of draining the North Shore suburbs generally? I think so, undoubtedly.

113. How many municipalities are comprised in the scheme? Three—St. Leonards, East St. Leonards, and Victoria. G. H. Stayton, Esq.

114. Do you happen to know whether the residents of those different municipalities are agreeable or anxious to have the works carried out? I know nothing of the local opinions, except what I have heard from the Mayors to-day, who were unanimously in favour of the scheme.

10 Oct., 1888.

115. That would not come within your province? No.

116. Are you engaged only in carrying out the professional part of the work? Yes.

117. We have heard something about an improved modern system of filtering; what is the nature of that generally? The very latest system adopted in England is that now being carried out by the Metropolitan Board of Works, which body has expended about £50,000 in making experiments to determine which chemicals and what quantities should be used. They are now carrying out works at a cost of £750,000 with a view to treating the whole of the London sewage. It is proposed to use 3·7 grains of lime and 1 grain of sulphate of iron per gallon of sewage. This proposal is based upon the same quantities. The sewage would first of all be received at the outfall; it would then pass through strainers. The chemicals would then be mixed with it, and it would pass into and through the precipitating tanks. After standing at least three hours in the tanks the clarified effluent would be drawn off and passed through the earth filters, which would be 5 or 6 feet deep. When it left the filter beds and passed out into the bay it would be perfectly clear and inoffensive. The question of sewage filtration was very largely considered by Lord Bramwell's Commission, as it was termed. They sat for some months and made a very exhaustive inquiry into the whole question of the metropolitan sewage. They reported that earth filtration, combined with precipitation and prepared filters, gave the best effluent known. That system is now being acted upon wherever practicable. They took the evidence and opinions of the very highest authorities they could get from all parts of England. I would also like to mention that the same system which is proposed for North Shore—although the chemicals are not exactly the same for the reasons I have stated—has been adopted in many English towns. The process of precipitation which the Sewage and Health Board considered and reported upon in 1876 as undesirable, is entirely different to the combined system of straining, precipitation, aëration, and earth filtration now in use in England, and recommended for North Shore. The modern process is carried on without creating nuisance. The effluent is purified and clear, and the sewage sludge is reduced to one-fifth of its bulk by the use of filter-presses, and is thus rendered fit for agricultural purposes. Up to 1875 the principal towns which had adopted chemical processes (as is shown by the Local Government Board Blue Book) were Bradford, Birmingham, Bolton, Coventry, Edmonton, Hertford, Leeds, Luton, and Tottenham. In all these instances precipitation is continued, but upon the modern system, and the process has worked so satisfactorily that it has been recently extended at Coventry, Luton, Hertford, and Edmonton. The combined system of precipitation and earth filtration has also been adopted in the following towns and districts within the last seven or eight years, viz.:—Accrington, Acton, Chiswick, Codnor, Colchester, Frome, Hendon, Henly-on-Thames, Petersfield, Royton, Salford, Sheffield, Stratford-on-Avon, Swinton, the River Lea Valley Sewerage, the Thames Valley Main Sewerage (south side), the Thames Valley Main Drainage (north side), the Wandle Valley Main Drainage, Walthamstow, Wednesbury, Willesden, and Wimbledon. Some of these are very large districts, with large populations. With regard to the possibility of any nuisance being created by these works, to my own knowledge the sewage works at Wimbledon, Coventry, Chiswick, and Acton are in the vicinity of dwelling-houses, and in the first three instances the processes are now so successfully carried out that the Court of Chancery has decided that no nuisance whatever exists from the operations. The works at Chiswick are about 350 yards from Chiswick House (owned by the Duke of Devonshire), and a considerable number of large houses are quite as near. The works and the process are brought up to date in all essential particulars in these instances, and amply demonstrate the fact that no injury whatever would be done to Middle Harbour by the adoption of the contemplated sewerage scheme.

118. *Mr. Copeland.*] What chemicals do they use? Sulphate of alumina, lime, and various chemicals, according to the quality of the sewage. At Coventry a great deal of dye refuse is carried off by the sewers, and the sewage is treated differently to the sewage of other towns.

119. *Chairman.*] Do the schemes to which you have just referred include the use of land for agriculture or horticulture? Yes, they have earth filtration areas on which crops are grown.

120. And they cultivate those areas? Yes.

121. Is that absolutely essential to the system you speak of? It is most necessary that it should be done. Earth filtration is absolutely necessary for the chemical process.

122. Have you made the same provision here as they have made there? Yes.

123. Adjoining this area to be reclaimed there is a market garden shown on the plan? That is at a much higher level.

124. Has that no connection with your proposed works? No, that is 40 or 50 feet above it.

125. Therefore it could not be worked with your system? No, not at all.

126. What is the area at the head of the bay which you propose to reclaim? Between 6 and 7 acres. Of course the whole of that would not be required for some years to come, and it would be necessary to start from the outside and gradually reclaim inwards.

127. *Mr. Copeland.*] How many years do you contemplate it will take to reclaim the 6 or 7 acres? I think that 6 or 7 acres would be sufficient for the whole of this drainage area.

128. For how long? For all time continuously, because this drainage area would not contain more than 30,000 or 40,000 people at the outside, and that space would be sufficient for the purpose.

129. What is the present population? About 15,000. That is, on this particular area.

130. Do you not think the population is capable of greater expansion than you have named? I do not think this area will be more largely built upon. The figures I have given are based on an allowance varying from fifty-two persons per acre in the more populated parts to twenty-two persons per acre in the residential parts. That gives an average of thirty-four persons per acre. The suburban rate for London is thirty-one persons per acre, and the same rate was estimated for the suburbs of Sydney. Sydney itself was calculated at forty-seven persons per acre. So that, taking the average at thirty-four, and allowing for a small increase, there would probably not be more than 35,000 people on this area if it were closely built upon.

131. *Chairman.*] Are the works proposed to be constructed in concrete of brick and cement? Yes.

132. Is there much rock? Yes, there is a considerable amount of rock excavation. The main tunnel will be lined and made good with concrete in order that the flow of the sewage shall be uniform. 133.

- G. H. Stanyon, Esq.
10 Oct. 1888.
133. Then it will not be solid rock where the tunnel is? The tunnel will have to be made in solid rock.
134. And you will line that also? Yes.
135. Can you form any approximate estimate of the durability of a work of that sort? Scarcely.
136. The reason why I ask that question is because a question has arisen with the Committee as to the term over which repayment should extend: whether for twenty years or sixty years. Of course, the life of the work would have a great deal to do in governing the Committee in coming to a decision? The class of work which would be executed here is such that I can safely say that in eighty or one hundred years it ought to be thoroughly efficient, and with slight repairs it would last for a much longer time.
137. I think that in evidence you gave some time ago you said that repayment for works of this sort was extended over a longer period at home as a rule? Yes. It was originally a much shorter period.
138. The works being permanent, and lasting for so long a time, is it supposed that those who have the advantage of them at a later period should contribute as well as those who happen to use them immediately after they are constructed? Yes; that is so. Every year several millions of money are advanced by the English Local Government Board upon the longer period for that very reason.
139. In carrying out large works of this sort are they not regarded as a safe investment for money? Where municipal authorities have taken large loans their stock is invariably considered very good indeed, and is well quoted in the market.
140. Supposing that the Government required to raise money for the purpose of constructing works like these for a period of fifteen or twenty years, could not approximately the same money be raised at the end of that time, and would not the original works form a fair security when that time arrived? Yes, certainly; they would be equally valuable at the end of fifteen years.
141. Would it be a fair asset for the amount of money which had been advanced? Certainly. The English Public Health Act of 1875 gives the Local Government Board a discretionary power. They may sanction loans for such term as they think fit. It depends on the nature of the works, e.g., for wood pavements they only lend money for seven years. For gasworks, machinery, and so forth, the period varies from twenty-five to fifty years; according to the class of work. For water and sewerage works they lend money for sixty years. In the latest and very largest works the term has been extended beyond that.
142. These are understood principles? Yes; these are accepted principles. There is another reason why this question will press itself very strongly in this Colony. Population increases so rapidly, unprecedentedly so in some parts,—that works have to be provided for double or even three times the present population. It would press very hardly in some cases upon the present property owners or ratepayers to provide for such a long way ahead. They are laying the foundation of works which will equally benefit the next generation.
143. *Mr. Garrard.*] And equal to the requirements of the next generation? Yes.
144. *Mr. Sydney Smith.*] What area of land will be left unprovided for within the municipalities by this system of sewerage? It takes the whole of Victoria. It does not take the whole of East St. Leonards, because there are parts of that municipality which are not at present populated. It takes all the heart of St. Leonards and includes portions now very thinly built upon. It does not extend along Military Road beyond Blöxsomé Road. But if it is ever required, a considerable part of the slope on the north side of the Military Road, between the Military Road and Long Bay, could be included. The area can be considerably extended in various ways if it is ever required.
145. Have you provided in this system for the whole of the populated parts? Yes, for the whole of what is coloured red on the plan.
146. Is there any residential portion not provided for? There is a small portion beyond the Cemetery. It was so undefined when the survey was made that it was impossible to say what would be done with it. But these sewers can be extended for, say, two streets in length, and they would thus come up to the municipal boundary.
147. It could be all worked in with the present system? Yes.
148. What about the low-lying portions? They are simply narrow margins on the water frontage, and I do not think that any evil or nuisance whatever would accrue from allowing the residents to continue that drainage; provided the drains are properly carried below low-water mark. Should it ever occur that from some of these places the amount of sewage was so great that it would create a nuisance, the question could be dealt with either by the Shone system or some other low-level pumping system.
149. Does the estimated cost include the work in connection with the sewerage connections and everything? It includes only the sewers.
150. Not the house connections? No.
151. Will that be an additional cost to the ratepayers? Yes; that is so all the world over.
152. Have you made any calculations as to what that additional cost will be? No.
153. Will it not be something considerable? Yes. I cannot answer that question definitely, because the cost of private drains depends upon the nature of the work to be done.
154. In this particular place I understand it is mostly composed of rock? Partly rock. In some places rock will not be met with. To compensate for that the greatest portion is on a slope, so that in many instances the house drains need not be laid more than 2 ft. 6 in. or 3 ft. deep, because the natural slope would ensure ample fall. It would not, therefore, be especially expensive. I cannot say exactly how much it would be.
155. With regard to the amount, what would it cost extending over a period of sixty years; is it estimated to be £4,230 per annum? No. The amount should be £4,553. The rate for sixty years is not, as stated in the report, about 4 per cent.; it is 4.42 per cent. All the sixty years calculations are based on 4.42 per cent. That provides for interest and repayment.
156. *Mr. Copeland.*] Would 0.42 per cent. go towards payment of the principal and 4 per cent. to interest? Yes; 4.42 per cent. was taken from the official tables issued by the Local Government Board, so that they are perfectly correct. The 4 per cent. in the report is a misprint. I said about 4 per cent., and I had not those tables by me at the time. It is really 4.42 per cent.
157. That makes a difference of nearly 1½ per cent. between the shorter and longer periods? Yes; on the £77,000 outlay it reduces the annual cost from £5,570 to £4,553, and that annual cost includes the cost of labour and chemicals for treatment, and supervision; in fact, the whole working expenses. But an expenditure of £77,000 does not now include all that is desirable to be taken into consideration. The conditions have altered during the past two years, and they are such that it is most desirable to consider the whole scheme.

MINUTES OF EVIDENCE—DRAINAGE WORKS, NORTH SHORE:

scheme as foreshadowed in this report. At page 10 of the report the estimate shows that for a main sewer, sub-mains, outfall works, and subsidiary sewers, Schedule A, the cost would be £77,000. The sewers in Schedules B and C would make up the difference between £77,000 and £107,000. It was then thought that the sewers in Schedules B and C might stand over for a period of seven years; but the recent development of the district in certain parts has been such that it is most essential that the whole scheme should be considered and provided for. £107,000 at twenty-eight years would increase the annual expenditure to £7,570; at sixty years, to £5,875; or, in other words, a 7½d. or a 6d. rate respectively.

G. H. Stayton,
Esq.
10 Oct., 1888.

158. The present system in the boroughs is known as the earth-pan system? They have both earth-pans and cess-pits.

159. But principally earth-pans? Yes.

160. The present charge to the ratepayers is something like £3,100 per annum? I do not think that that is strictly correct. From the information supplied by the municipalities it appears that they make charges varying from 4d. to 6d. per pan per week. There are over 3,000 houses in the district, but there are a certain number of those houses which do not have their pans emptied by the municipal authorities. The occupiers attend to them themselves, and empty the excreta somewhere within their own premises. If the whole of the houses were attended to in the same way by the Councils, the cost of emptying the dry earth-pans would be over £3,000 a year.

161. Do you think it is desirable to allow the residents to empty their pans on their own premises? It depends upon what the premises are like. Of course, some premises are very large, and the pans might be emptied without any nuisance. On the other hand, where the back-yards are contracted, it is not at all desirable.

162. *Mr. Copeland.*] I suppose the material is dug into gardens? Yes. In which case it depends on the area of the land whether it is injurious.

163. *Chairman.*] And in some measure on the character of the soil? Yes.

164. *Mr. Sydney Smith.*] In addition to that there is the house drainage which would be provided for, and which I presume now empties itself into the gutters? Yes, and into certain drains laid by the municipalities, which discharge into the natural water-courses, and which have obviously become very foul. There is one point in connection with the annual cost which I omitted to state. Assuming that the rateable value in 1894 amounts to £300,000 (it is now £217,000), the rate for the whole scheme would then be 6d. for twenty-eight years and 4½d. for sixty years' repayment.

165. *Mr. Kethel.*] It was stated by Mr. Bennett that it was intended to screen the sewage, or to precipitate the matter held in suspense, before it was allowed to go on the filter beds? To strain it first and then precipitate it.

166. How is the solid matter disposed of after it is strained? The straining is to take out any specially large or hard substance in the sewage which might interfere with the process of precipitation. The sewage itself, after precipitation, goes to the bottom and forms a sludge. That sludge would then be collected together and drawn into a mud pit. It would there be collected in receptacles. As stated in the report, the amount of sludge for some time to come would probably not exceed 5 tons per day. That would then be dug into the earth and covered up, or be subjected to pressing and be converted into dry cake. Fifty tons of sewage sludge when thus treated will decrease to 10 tons.

167. To what purpose is it intended to apply this dry cake? It might be used by the market-gardeners or agriculturists for manuring purposes.

168. In view of the fact that it will have to be treated with certain chemical substances to get it into that condition, would not the presence of those chemical properties impair its efficiency for manuring purposes? I think not.

169. Is it not possible that the chemicals may render it injurious for plant food? The experience is very much to the contrary. Thousands and thousands of tons are made every day, and disposed of to farmers, in England.

170. Does your experience go to prove that the chemical substances required to precipitate the solid matter and prepare it to become dry cake do not impair its efficiency as manure? No; before the cake is finally turned out, it is sometimes fortified and made of greater value, and then it is of greater service for agricultural purposes.

171. *Mr. Garrard.*] What is the height above sea-level of the sewer at Blue's Point? Forty feet at Milson's Point; 55 feet at Blue's Point.

172. What is the reason for that difference in the levels? Forty feet is the termination of the main sewer; and 55 feet is the end of a branch sewer which ends at Milson's Point.

173. Is it possible to bring all those areas which are outside the coloured portions on the plan within the present scheme; for instance, Queen's Park and beyond there? Some of those streets could be.

174. That is to say, are your mains sufficiently large to bring in that extended area of drainage? Yes; the mains are sufficiently large.

175. Does that hold good with respect to the area on the further side of the Military Road to which you have referred? Yes.

176. Has there been any consideration given to the large area on the western side of Lane Cove Road; will that have to be treated separately in future? There has not, so far as I am aware. The fall there is towards the river.

177. *Chairman.*] Did you state that in England this pressed cake is sold to farmers? Yes.

178. Then it is made into that condition for sale? Yes.

179. It does not alter its efficacy as a soil stimulant? No.

180. Is it done by a process of drying? Yes; drying and pressing.

181. The same constituents remain in the manure as before? Certainly.

182. And that could be done here? Yes; either with or without being fortified by the addition of other chemicals.

183. *Mr. Kethel.*] Does not the application of lime to sewage tend to liberate the large amount of ammonia contained in it, and reduce the quantity of ammonia which is essential to plant manure? I have never heard that question raised, and I am not prepared to answer it.

Dr. John Ashburton Thompson sworn and examined :—

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184. *Chairman.*] Are you Deputy Medical Adviser to the Government? Yes.
185. Have you been very much impressed with the necessity for a proper system of sewage in Sydney and its suburbs during your professional career? Yes.
186. It is the case, I suppose, that the public health is considerably interfered with from the want of proper drainage and sewerage? I have very little doubt that the death-rate of the city and suburbs might be reduced by 5 or 6 per 1,000 if proper drainage and scavenging were employed.
187. I have frequently seen it stated in the newspapers that certain of the suburbs of Sydney have been more exposed to typhoid, for instance, than others. Would that be in some measure attributable to imperfect drainage? I think it is attributable to imperfect drainage in part and in part impure sources of water supply. But I should, perhaps, mention that the statistics which are supposed to show the relative prevalence of disease in small areas are not very accurate for several reasons. One very important reason with respect to typhoid fever and diseases of that class, which are indications of the state of a district as to drainage and scavenging, is that a large proportion of the deaths take place in hospitals, and are credited to the districts in which the hospitals happen to stand. That is a very serious cause of error in the statistics. When the figures are taken for the whole of the suburbs and city they are perhaps tolerably correct, but when you come to compare one suburb with another or with the city then the figures fail.
188. Are not the germs of typhoid and diseases of that character more likely to be generated in imperfectly drained localities than in localities which are better drained? Yes; no doubt of that. Prevalent typhoid and diarrhoeal diseases are always owing to excremental contamination of air and water.
189. Have you had much experience of the systems of drainage adopted in the old countries of Europe? Yes. I know something about the subject, but I am not an engineer.
190. Have you had occasion to make yourself sufficiently acquainted with the subject to enable you to form an opinion of one system as being much more favoured than others? Yes; that is part of my special business, and I have made myself acquainted with it.
191. Are you aware that it is proposed to construct a system of sewerage for the suburb of North Shore, as it is called? Yes.
192. Do you think that the system proposed is a desirable one, as far as you have made yourself acquainted with it? I do. I do not know that any better system could be adopted.
193. As a medical man do you think it is desirable in the interests of the health of the community that a system of that sort should be adopted? I have no doubt of that.
194. You are not aware of any injurious effects that would be likely to be produced by the great depth of the principal drains or tunnels by which the sewage is proposed to be carried off? No, I think not; provided there is proper ventilation.
195. Without proper ventilation would it be dangerous? Yes.
196. Have you known any injurious effects to result from the system of deodorisation or filtering which is proposed to be resorted to in this case at Long Bay? No; I have not.
197. Is it the case that in many parts of the world it is regarded as a desirable means of utilizing sewage to adopt it to agricultural purposes? The proposal is to precipitate, and then to filter, and I think that that is recognized to be the best plan, in most cases, of dealing with sewage. Its use for agricultural purposes is subsidiary, and I think for my own part that much stress ought not to be laid upon that, and upon any possible profit which may arise in that way.
198. But is it not a desirable means of utilizing the solid matter? Yes; very desirable.
199. And probably might be made useful in other respects for producing green crops? Yes; it is very desirable that it should be utilized in that way.
200. Although that would be a subsidiary part of the scheme, do you not think that it would be an important one at the same time? Yes. What I mean is that the main thing is to get rid of the sewage. You might make some money by the way, but that should not be reckoned upon or seriously regarded.
201. *Mr. Sydney Smith.*] Do you think it is desirable to allow the ratepayers to empty nightsoil into gardens? Certainly not in populous places.
202. Is it dangerous to the health of the inhabitants? Yes; I think it is.
203. Would you recommend that it should be allowed in any place? Not in any populous place.
204. In any of our suburbs, such as North Shore? Certainly not, more especially where a considerable portion of the drinking water is taken from tanks or wells. Even after the town water supply has reached a neighbourhood people within a certain distance of mains are compelled to take it, but there is no law compelling them to close the old sources of water supply. Many people think that water from wells is sweeter and softer, and when it contains sewage it is a fact that it is often sweeter than perfectly pure water.
205. Irrespective of that it is unsatisfactory? Irrespective of pollution of well-water I think it is highly undesirable, and it should be strictly forbidden.
206. Under the Nuisances Prevention Act is it not prohibited in certain places? Yes.
207. Do you think that ought to be extended to all municipalities? Yes; if a district is populous enough to be erected into a municipality the Nuisances Prevention Act ought undoubtedly to be proclaimed at the same time.
208. *Mr. Copeland.*] Do you think that vegetables grown by the use of this sewage would be likely to convey disease? I do not think so. There is one rule that should be observed with regard to vegetables from a sewage farm, that is that they should be boiled. One should not grow on a sewage farm lettuce, water-cress, or anything eaten raw.
209. What means would there be of preventing vegetables of that kind from being grown on a sewage-farm and eaten raw? I do not think it could be prevented; the people can be instructed, that is all.
210. There would be a danger that while on the one hand you are preventing danger by effective drainage, on the other hand, if you use this sewage for market-gardening and agricultural purposes, you will probably produce another means of spreading disease? I think the danger is remote and depends entirely on what sort of thing you grow. If you manure wheat land you will do no harm at all. It is only dangerous when the sewage is used in market-gardens where lettuce, water-cress, and other things eaten raw are grown.
211. Cabbages would not be injurious through being manured with sewage? Nothing is injurious unless the crude sewage is sticking to it. Cabbage must be boiled, and anything adhering to it is effectually killed by the boiling. Lettuce is usually eaten raw, therefore you should not manure it with sewage.
212. Would boiling be sufficient to kill any germs of disease? Entirely sufficient.

213. Do you think that the method supposed to be adopted by the Chinese gardeners of watering cabbages with liquid manure is likely to spread disease? I have never eaten salad in Sydney—that is all I can say; but I have eaten cabbages, and I do not care how they are grown as long as they are boiled.

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214. *Mr. Kethel.*] In some parts I believe a large amount of cattle fodder is grown on sewage farms. For instance, in Adelaide very extensive crops of green fodder and various root crops and grasses are grown, and cattle are stall-fed on these crops. What is your opinion, as a professional man, with regard to fodder of that kind, grown on land where liquid sewage is actually flowing around the plants while growing, and the cattle being fed exclusively on that fodder for many months;—would the fact of their being fed in that way be injurious to the flesh of the animal, and make it unwholesome, and would it be injurious to the milch cows? Fodder so grown is fit food for milch cows. There is no evidence at present to show that there is danger in that practice; but that answer must be taken subject to the way in which the sewage farm is managed. If the sewage is improperly applied to the land, so that the growth is very speedy, watery, and rank, it does produce an effect upon milk; for example—milk from animals so fed does not keep quite so long as milk from animals otherwise fed; but a farm which produces that sort of food is improperly managed. If the supply of sewage is moderate, carefully applied, and not beyond the needs of the plants, they produce no bad effects upon the cattle. On the contrary, this is a very proper way of utilising the sewage.

215. *Mr. Street.*] Is it not a fact that vegetables grown upon sewage land develop, in boiling, a much more offensive odour than vegetables grown in more natural soil, showing absorption to some extent of the injurious matter in their growth? I have heard that said, and what I said just now with regard to cattle-feed, of course, holds good with regard to vegetables; but practically, I think I get my vegetables often enough from Chinamen, as other people do, and I cannot say that I have noticed anything of the sort. I know nothing accurate on that point.

216. Do you consider that in this process of deodorising sewage and precipitating it, there will be no offensive contamination of the atmosphere in the neighbourhood? No; I think not. The experience of similar works in England shows that is a remote contingency.

217. It is not injurious to the health of the people? It is not injurious to health, and not even a nuisance to them, apart from actual injury.

Mr. P. W. Glacken, Mayor of East St. Leonards, sworn, and examined:—

218. *Chairman.*] Are you the Mayor of East St. Leonards? Yes.

219. Have you been long a resident in the municipality? About nine years.

220. Has it grown considerably in population? Yes; within the last six years the population has doubled itself.

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221. What is the number of your inhabitants now? About 6,000. We have 1,138 houses in the borough, and we generally take an average of five for each house.

222. Has the municipality you represent made itself acquainted with the project for draining the whole of North Shore? Yes; our Council has given the matter consideration, but more from a business than a scientific point of view.

223. Do they know the principle generally on which it is proposed the work should be carried out? Yes.

224. Do they concur in the construction of the work? Yes.

225. Are they prepared to pay the amount which will be annually charged for its construction? Yes; I think they will do so very willingly. I have a return, showing the valuations of the borough. From 1885 up to the present time it has increased 70 per cent. in the assessment value. In 1884-5 the valuation of property in the borough was £45,000; this year it is £75,000.

226. The general receipts were increased by so much? Yes; the rates have increased proportionately during that time.

227. *Mr. Copeland.*] Were these valuations made by the same valuers? No; we advertise for valuers every year. For many years the Council Clerk made the valuations, with an assistant.

228. Is your population largely increasing? Yes. I think about six years ago it was 3,000; now I take it to be 6,000.

229. Is it going on increasing? Yes.

230. Is the rate of increase much greater than it was six years ago? Yes.

231. There is an alternative project spoken of. That is, whether the period of repayment by the municipalities should be twenty-eight years or sixty years. Sixty years, of course, would mean a much lesser annual rate than twenty-eight years. Have you given any attention to that question in your Council? That matter has not been put before our Council for consideration.

232. Have you formed any individual opinion about it yourself? I would favour the term of sixty years. Being a permanent work, twenty-eight years would bear rather heavily upon the present population.

233. You are not a professional man? No.

234. Do you think there would be no doubt about your municipality being prepared to contribute the stipulated annual payment? I think so. I may be allowed to submit to the Committee one or two facts which have been brought before me. From August last year till August this year we received, for the removal of night-soil, £965 6s. 1d. in our borough alone. That was by contract for services rendered. The regular charge is 6d. per pan per week for houses up to six rooms; above that we charge 9d. There are two services per week if required.

235. What is the gross sum? £965 6s. 1d.

236. That is more than you would pay under the proposed system of drainage? I assume that it is more, when we consider the increase of population. By the time the sewer is constructed—in two years' time—there will be increased population.

237. Has the question of incurring this expenditure been submitted to the ratepayers? Yes; it was not submitted as a question at elections, but it was submitted to a public meeting in 1885, and it was then enthusiastically received.

238. Do you not think it would be desirable, before committing the borough to this expenditure, to submit the question at a municipal election, and have a vote? I do not think so.

239. I suppose you are aware that that course is adopted sometimes? Yes; when there is any question of difference of opinion—when there is reason to suppose that the people, or any particular portion of the people, are opposed to any proposal, but not when no complaint seems to arise.

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240. Do you think that there is unanimity of opinion on this subject? I would not like to say unanimity, but the portion objecting would be very small.
241. What percentage? I have not heard anybody speak against it, and I have talked over the matter frequently with ratepayers.
242. When the matter has been brought before the Municipal Council, has it been unanimously approved of there? Yes; in fact, all the people at North Shore are most anxious for a scheme of sewerage.
243. Has there been any general expression of opinion as to the desirability of extending the repayment over sixty years? No; that has not been put before the Council.
244. Do you think the people would be prepared to incur the responsibility of repaying the amount in twenty-eight years? I think they would prefer sixty years.
245. But I suppose you have not consulted the people of sixty years hence about it? It would be difficult to confer with them, and it would be difficult to make some of them understand it.
246. As a matter of business, do you not think it would be better to confine the term of repayment to something like a reasonable period—to the present generation, in fact? I do not think so.
247. Would you propose, in debts of any other character, that the term of repayment should be extended to the next generation? I would not come before this Committee in that case. I would do the best I could for myself.
248. You would not propose that your grandchildren should pay off a debt of yours? I would, if the terms were good, and I got the chance.
249. I suppose you have no doubt whatever that if Parliament adopts this scheme the people will be prepared to pay the amount back again in the term of twenty-eight years? I think they would prefer sixty years.
250. Do you think they will be also prepared to accept the term of twenty-eight years? I cannot answer that question. I know the people are very anxious to have a system of sewerage.
251. If Parliament voted for this scheme, you do not know whether the people would be prepared to take it up at twenty-eight years? I think they would take it up. I know that they would prefer a term of sixty years; and if a poll were taken, they would be unanimously in favour of the term of sixty years.
252. Still you are aware, perhaps, that the existing Act provides for a term of twenty-eight years? Yes.
253. So that if this scheme were submitted to Parliament under the existing Act, there is no doubt that the people would accept the proposal and take upon themselves the responsibility of repaying the money in twenty-eight years? If there was no alternative, and if you said, "take twenty-eight years or nothing," I do not think they would give up the system of sewerage.
254. Do you not think that the increased value of property, on account of this public expenditure, would more than compensate for the additional expenditure in rates? Yes. Looking at our rates for the last year, I find that there was received, under the shilling general rate, £3,765; therefore, a rate of 6d. in the £ in our borough for drainage would yield £1,880 per annum. Seeing that our ratable value has increased from £45,000 in 1884-5 to £75,000 in 1888, it is certain that the burden will become less and less upon the people, and I do not think we shall require a 6d. rate. At the same rate of progression, in six years more the assessed value in our borough would be about £135,000.
255. Therefore, there will be no financial difficulty in the way of the people repaying this money under the terms provided by the Act? No; I think the people would be very glad to adopt it, because at the present time a house worth £50 a year is charged 6d. per week for removal of nightsoil—that is, £1 6s. a year. A 6d. rate would only amount to £1 5s. a year.
256. Do you know the scheme submitted to the Committee? Yes.
257. Has your Council no objection to it in any way? None, to my knowledge.
258. Are they quite satisfied with the details of the scheme? Yes.
259. Do they wish to suggest any amended scheme? There is only one suggestion which I would submit. I believe these works are to be placed under the Sydney Water and Sewerage Board. I would suggest that a separate Local Board should be constituted to take charge of the works.
260. That is, in order that your municipality should have control of the works? Yes; the municipalities or some persons selected for that purpose. That is, because we are separated from the other boroughs by the water. The population on the city side is so great that we can never expect to get representation on the Board in Sydney. The people like to have representatives of their own localities. If something is not soon done in the way of drainage, we shall have malaria on the North Shore. Careening Bay and Neutral Cove are getting into a very bad state.
261. Do you think there is any likelihood of injurious effects being produced by this sewerage scheme at Long Bay? I would not like to give an opinion on such a scientific question.
262. *Mr. Humphery.*] Are the majority of the houses in your municipality rated at less than £50 per annum? No; I should say that the majority are rated at more than that. There is only one portion of the borough where there are such small valuations. At Kirribilli, most of the houses are rated at over £300 per annum.
263. *Mr. Sydney Smith.*] Have you borrowed any money on your rates? Yes; I think it is £21,000 or £23,000.
264. At what rate of interest? The last loan of £6,000 was borrowed at 5 per cent.
265. Is your rate 1s. in the £? 1s. in the £ general rate; 3d. in the £ for lighting.
266. Is there no sewerage rate? Last year we had, but we did not levy a sewerage rate this year.
267. Did you borrow on your general rate only, or on the lighting and general rates? We borrowed on the general rate.
268. When you borrowed you had a lighting rate in force? Yes.
269. And a sewerage rate as well? No; that rate was only imposed for one year.
270. For what reason did you discontinue it? We had made a good deal of sewerage from time to time, and the people were very liberal in subscribing money to make drains, and it was thought expedient not to impose the tax for some time. It was not entirely abandoned.
271. What was the amount of the rate? 1d.
272. What system is adopted with regard to house drainage? The drainage, as far as practicable, is drained into what we now call our main sewer. There is a very large sewer or drain through the centre of the township, and as far as practicable the sewage is taken to that, and it then finds its way into the bay.
273. Is it conveyed through pipes all the way? There is very little gutter drainage in our place. We have a great quantity of pipes, but it is principally drained into this main sewer.

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274. What does it cost you generally for attending to the drains and scavenging? Scavenging costs £5 8s. a week; but that is a self-paying arrangement. We charge the ratepayers for removal. We also pay an Inspector of Nuisances out of the tax we charge for the removal of nightsoil.
275. Do the Council undertake the removal of nightsoil, or is it done by contract? It is a contract with the Council. The Council charges the ratepayers so much. Last year the revenue came to £965. We paid the contractor £865, so that we had a profit of £100.
276. I suppose the Inspector of Nuisances has a great deal to do in attending to the removal of nightsoil? Yes; and the removal of rubbish, as well as the administration of the By-laws.
277. Is any of the nightsoil buried in the gardens? Only in places where they have large areas of ground.
278. Is it permitted in those cases? Yes; under the By-laws we give permission, but we are very careful in seeing that they have large areas of ground.
279. Does the household drainage cause a great deal of nuisance at present? It goes to the pipes under the surface.
280. Have you any system of flushing? No; if complaints are made, we sometimes send a water-cart down to flush the drains.
281. Are the pipes connected directly with the houses? With the yards.
282. Are any of them connected with the houses? No; of course they receive the slops from the houses in the yards.
283. What provision is made to prevent foul gases getting into the houses? Only the ordinary sinks and traps.
284. There is no regular system of flushing the drains? No; the storm-water finds its way into the pipes. We have ventilating shafts wherever we can.
285. If you had the proposed system of drainage, do you think that a great deal of the present nuisance would be prevented? Yes; and the value of property would be considerably enhanced. There would be a large increase of population, as it is a favourite place for residing now, except for the want of drainage.
286. Have you any alterations to suggest in the proposed system? No; I have every confidence in the gentlemen who have charge of it.
287. Do you think it is a very complete system as far as your borough is concerned? Yes; as far as I am competent to judge.
288. *Mr. Copeland.*] You have stated that the annual income in your borough is £3,756 a-year? Yes; for a shilling rate.
289. That is the general rate? Yes; 1s. general rate, and 3d. lighting rate.
290. You have stated that you have borrowed £21,000 at 5 per cent.? Yes.
291. When you borrowed that money did you issue debentures? Yes.
292. What provision have you made for the repayment of the principal? There is no sinking fund.
293. Then at present your interest on that loan will amount to £1,050 a-year? I think it amounts to more. It is only lately that we have borrowed at 5 per cent.
294. At any rate, you have to pay over £1,050 by way of interest, without making any provision for repayment of principal? Yes.
295. You have provided no sinking fund whatever? No.
296. In the face of this present liability, do you think that it is wise for the Council to take upon itself additional responsibility in the way of this expenditure for drainage;—will the Council be strong enough to make provision for repayment of the loan of £21,000, which will have to be repaid some time or other? I have heard Mr. Stayton's evidence as to the amount which will have to be paid by these boroughs for carrying out their scheme, and I do not think we shall have any difficulty in paying our share. We assume that the rates will continue to increase each year, so that the burden will annually become less on the people, and it will be no hardship.
297. Some of this increase will have already taken place before the scheme is carried out? Yes. It is to be assumed that it will go on at the same rate of progression; in fact, I should say more rapidly.
298. *Mr. Garrard.*] Is this charge of £965 per annum for the disposal of night soil made for the dry-earth service and cesspits together, or is it the dry earth alone? For both.
299. What is the proportion of dry-earth pans to cesspits? I cannot say. We have passed a By-law, which we have given notice of, for dispensing with the cesspits altogether.
300. Where is the nightsoil deposited? I do not know.
301. Do you cast the responsibility on the contractor? Yes; so long as he has proper carts. At one time it used to be deposited in the reserve; but I think it is now taken into the country.
302. Have you had long experience as a Borough Councillor? Yes.
303. Do you know any borough which provides a sinking fund for loans? No; the question surprised me.
304. Do you think that the enhanced value of the borough property is sufficient guarantee? Yes.
305. Have you yet borrowed up to the limit under the Municipalities Act? No.
306. Do you think it is a very slight matter to take the responsibility of a drainage rate of this kind? I do not think we need to hesitate for a moment.
307. Do you think that the people would gladly pay more than they are paying now to get rid of the sewerage? I think so. From conversations I have had with the ratepayers, I believe that they would be willing to pay a little extra.
308. Does the greater part of the sewage matter now go down to Careening Cove? Yes; and Neutral Bay.
309. Are there not loud complaints about that? Yes; it is in a very dangerous state. It is not safe to ride along the foreshores at present, and it will be worse in the summer months.
310. *Mr. Humphery.*] If the term of repayment for this sewerage scheme were spread over sixty years, the present financial position of your borough would not be affected at all? No; not in the least.
311. *Mr. Sydney Smith.*] You say that you have a lighting rate of 3d. in the £—what are the expenses in connection with lighting? We do not save anything on that account. We keep on putting up additional gas-lamps.
312. The expenses would be as much as the revenue derived from the rate? Yes; there might be a little; but there are so many applications for lamps that we have seldom any funds left.

Mr.

Mr. F. Smith.

Mr. Frederick Smith, Mayor of Victoria, sworn and examined :—

- 10 Oct., 1888. *Chairman.*] Are you Mayor of the Borough of Victoria? Yes; this is the fourth year I have been Mayor. I have been ten years connected with the Borough.
314. Are you an old resident in the district? Yes, for twenty-five years.
315. Are you aware of the proposed sewerage works? Yes.
316. Is your Council also aware of them? Yes.
317. Do they understand the principle on which the works are based? Yes.
318. Are they consenting parties to the proposal? Yes.
319. Are they prepared to pay the rates for which they will become responsible? Yes; I have no doubt of that, or very little doubt. I have not been made aware of the rate likely to be imposed.
320. From your knowledge do you think they will be ready to contribute the amount required? Yes.

Captain Benjamin Jenkins, Mayor of St. Leonards, sworn and examined :—

- Captain Jenkins.
10 Oct., 1888
321. *Chairman.*] Have you been for some time a resident of North Shore? Yes.
322. Is your Municipality St. Leonards? Yes.
323. Are you Mayor of that Municipality? Yes.
324. Have you been Mayor for some time? Yes, for four years.
325. How long have you been connected with the Municipality? Ten years.
326. How long have you resided in St. Leonards altogether? Fourteen years.
327. Are you aware of the drainage works proposed to be carried out there by the Government? Yes.
328. From what you know of the Council, are they consenting parties to the work being undertaken? Yes.
329. Are they prepared to pay the necessary rates which the work will entail? Yes.
330. Do you think that feeling is entertained by the ratepayers generally? Yes; the general feeling is to have the scheme carried out. They are almost unanimous. We are unanimous in the Council, and it is also the general feeling of the public.
331. Have you heard any objection urged to the principle on which the work is proposed to be carried out? No.
332. *Mr. Kethel.*] Do not some of the residents on the Middle Harbour side object to the outfall of the sewer? I never heard of any. I think that they get plenty of the sewage as it is; the creek which runs down there is very much polluted.
333. The creek flowing over Willoughby Falls? Yes.
334. So that so far as the people in the immediate neighbourhood of Willoughby Falls are concerned, this scheme would rather remove pollution than increase it? Yes.
335. *Mr. Street.*] What is the ratable value of property in your borough? About £6,000 is the annual revenue for a rate of 1s. in the £.
336. How far does your boundary go? From the old sugar works along Middle Harbour down to Middle Head and Bradley's Head, and across to Mossman's Bay. East St. Leonards and Victoria form our southern boundary.
337. Is the earth closet system in use in your municipality? Yes; and cess-pits.
338. Do you know the annual amount received for the removal of night-soil? About £400. There is a great deal of land in which people bury night-soil.
339. In the more scattered localities and larger areas? Yes.
340. *Mr. Garrard.*] Are you discontinuing the system of burying night-soil? Yes; there is a certain acreage of land prescribed before permission will be given.
341. Are you still giving permission? No, not in the thickly populated portions.
342. Are you rather restricting than extending that privilege in the part of the borough which is most largely built upon? Yes. In the thickly populated parts none is buried.
343. Is your drainage surface drainage? Yes.
344. And from the southern slopes it has to go through some portion of the Borough of East St. Leonards? Yes. From the top of Ridge-street it goes into Neutral Bay, Shell Cove, and other places.
345. Has there been any complaint on the part of the Municipality of East St. Leonards? Yes. They had an action against us some time ago, and we have now to pay £90 a year for letting it go down there.
346. What is the indebtedness of your borough? We kept out of debt until this year, when we borrowed £5,000.
347. Is that your only debt? Yes.
348. Do you think that the proposed scheme is immeasurably better than the present surface drainage? Yes.
349. Have you a lighting rate in your borough? Yes; 3d. in the £.
350. Is the municipal rate 1s. in the £ on nine-tenths of the annual value? Yes.
351. Have you no other rates? We have laid down some drain-pipes and we charge a certain amount to those houses which drain into them.
352. Have they any system of pipes for East St. Leonards? I think in some places they have pipes. It is still carried on the surface.
353. If there is any serious objection to a scheme on the part of the inhabitants are not they always ready to hold public meetings? Yes.
354. Is it your experience that where municipal councillors do not interpret public feeling rightly the public are always ready to call meetings and bring them to book? Yes.
355. When does your term expire? Next February as Mayor, and February 12th as Alderman.
356. In view of the coming election have you any fear of facing the public on this question? No.

George Henry Stayton, Esq., M.I.C.E., Engineer, Sewerage Branch, Roads and Bridges Department, recalled, and further examined :—

- G. H. Stayton, Esq., M.I.C.E.
10 Oct., 1888.
357. *Mr. Sydney Smith.*] Following up a question which I asked with regard to what is intended to be done with the sum of £107,000, I wish to ask if that sum is only intended for the main sewers and not for connections with the houses? No. The estimate of £107,000 is for the main sewers and all other street sewers.
358. Have you any idea what cost will be entailed on property owners for connecting with the sewers? No. I cannot give any opinion that would be of service. 359.

359. What do you think it would cost per house? I cannot give an opinion of any value.
 360. Can you not give us any reliable opinion? I am afraid not.
 361. *Mr. Garrard.*] When examined before on this matter did you not state that it would depend upon the nature of the ground—whether it was composed of rock or soil? That would be an important element.
 362. Is it any part of your work to estimate the cost of connections with sewers by individual property owners? No.

G. H. Stayton,
 Esq.,
 M.I.C.E.
 10 Oct., 1888.

THURSDAY, 11 OCTOBER, 1888.

Present:—

JOSEPH PALMER ABBOTT, Esq. (VICE-CHAIRMAN).

The Hon. GEORGE CAMPBELL.
 The Hon. FREDERICK THOMAS HUMPHERY.
 HENRY COPELAND, Esq.
 ALEXANDER KETHEL, Esq.

JOHN RENDELL STREET, Esq.
 JACOB GARRARD, Esq.
 SYDNEY SMITH, Esq.

The Committee further considered the proposed Drainage Works at North Shore.

Mr. Walter L. Vernon sworn and examined:—

363. *Vice-Chairman.*] Are you a resident of North Shore? Yes.
 364. Have you been Mayor? Yes, of East St. Leonards; but I come to-day as a ratepayer, and not in an official capacity. I am an alderman, but I come here merely as a ratepayer.
 365. What are you by profession? I am an architect and surveyor, and an engineer to some extent. I am an architect principally.
 366. Have you had under consideration the proposed scheme of sewerage works for North Shore? Yes. For some considerable time.
 367. Have you studied it in its details? I have never gone into the question of grades and so on, because I would not touch a question of that kind; but the general scheme I have looked at carefully.
 368. What is your opinion as to the proposed scheme? My opinion is that it is the only possible scheme taking the physical nature of the country into consideration. At the same time I think that some part of the outfall works are to a slight extent experimental.
 369. In what respect? I do not think the question of desiccation has been fully solved yet, and therefore although it is possible that the effluent water may come out clear into Long Bay, I think at the present moment there is just a chance that it will not be absolutely fresh and pure, as it comes from the area proposed to be reclaimed for that purpose. At the same time I do not see any alternative at all.
 370. Do you think that the proposed scheme will satisfy the present population and the possible population for some years to come? Yes; it is equal to a very large population. It is an absolute necessity that something should be done.
 371. At present does all the drainage of North Shore go into different parts of the harbour? It runs down each creek and waterway, causing daily more and more danger to health. In fact the whole of the Shore almost is contaminated in a more or less degree. It is very dangerous in some places, especially Neutral Bay, Careening Cove, and Lavender Bay.
 372. Was not Lavender Bay a few years ago the cleanest spot around Sydney? I should think so.
 373. Have you considered the question of the payment by the Councils within twenty-eight years? I should say that under the circumstances twenty-eight years is far too short a term, because the expenditure for this scheme would be equal to something like half the present ratable value, or, in other words, about £120 per house, which is a very large proportion for any population to pay for drainage. Of course that is reckoning for the present population.
 374. Does that estimate take into consideration the cost of connecting with this system? No. I reckon that the owners themselves will have to spend £10,000 additional in changing from the earth closet system to water closets, and in making drainage connections. That will be a very considerable tax in the first instance, although I think it will be cheerfully borne. But that has to be taken into consideration, and I am strongly of opinion that twenty-eight years is far too short a term in which to allow a large scheme of that kind to be paid for by the people, because it is a scheme for a very long time to come.
 375. What length of time do you think it would be fair to extend it over? Sixty years has been mentioned. That is the usual time in England. Works are graduated there, and for permanent works of this description the extreme term is granted.
 376. Of sixty years? Yes; and in some cases a little more if circumstances permit of it. For works of a more perishable nature, such as road-making, fencing, or buildings, the time is shorter.
 377. Do you think that if they were compelled to pay within twenty-eight years it would be a very heavy tax upon the population of St. Leonards at the present time? I do not think they could do it.
 378. These works would serve double or treble the present population? I should think the main sewer would be as good one hundred years hence as it is now.
 379. And the population is capable of increasing within these drainage limits to double or treble its present extent? Yes. You can hardly form a calculation as to the increase.
 380. *Mr. Copeland.*] I understand you are quite satisfied with the proposed scheme as a scheme? Quite.
 381. You have no fault to find with the levels or anything of that kind? I should advocate the whole scheme being carried out and not merely a portion.
 382. That is for an expenditure of £107,000? Yes. I might also be allowed to make the remark that I think it would be a great advantage to the boroughs if the present reticulations were used as far as possible. If the existing drains could be worked in with the new scheme it would save expense, and be a consideration with the boroughs.
 383. The only difficulty in your mind is the question as to whether the desiccating work would be complete or not, and whether or not the water would run away in an impure state? That is the only question in my mind.
 384. Have you considered the scheme for purifying the drainage? I have.
 385. Have you read the report of Mr. Stayton? Yes.

Mr. W. L.
 Vernon.

11 Oct., 1888.

- Mr. W. L. Vernon.
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386. Have you read about the method to be adopted for precipitating it? Yes.
387. Having read that you are still of opinion that it may not have the desired effect? I think it will to a great extent, but I am not quite sanguine enough to believe that it will be absolutely perfect, because I do not know a single case anywhere where it is absolutely perfect.
388. Having this portion tinted green for filtering beds as well? Yes. My objection to the area spoken of is that it is all sand. Of course that cannot be helped. On these filtering beds, generally speaking, there is a surface water carrier and underneath a series of deep drains which take the water off until it has percolated 5 or 6 feet through soil and it is then carried away to the outlet. But in this scheme it will be taken through sand, and it seems to me that the sand will be very liable to choke the lower pipes. Therefore I do not think the filtration will be so thoroughly efficient as it would be if you had a better subsoil. Of course it is not possible to get it.
389. You think the sand would choke the lower pipes. Do you mean the main channel? There is generally a lower system of pipes.
390. I understand this is to be a tunnel? But I refer to this portion marked green on the plan in the filtering beds. This is just one of those cases where the scheme must take its chance. I do not see what help there is for it.
391. Have you had practical experience of similar drainage works? I have.
392. Have you seen this proposed scheme of Mr. Stayton's carried out anywhere? I have seen a somewhat similar one.
393. Was it not efficacious in that case? Well it was to a great extent because the subsoil was gravel and chalk—the best you can have. But we found that the results from the tanks and so on were of no commercial value.
394. The question more particularly to be considered is whether the water itself would escape in a purified state—sufficiently clean not to vitiate the shores of the harbour? It did so in the case I refer to. It went into a trout stream.
395. Then the reason you have for fearing that it will not have the same effect in this case is that here the soil is composed of sand? Of course I would qualify the statement to some extent by saying I believe it will purify the sewage to a very large extent; but I think there is always a fear that it will not be fully purified on account of the sand, and also because I think the area is rather small.
396. Can you suggest any amendment on the scheme? No. It is the best possible one under the circumstances.
397. What proportion did you say the liability incurred by this scheme would bear to the value of the houses? I think it is about one-half of the present ratable value. The present ratable value is £217,000, and the cost of the scheme would be about £107,000.
398. Are you afraid that it would impose too much responsibility on the different boroughs? It would if the term of repayment were fixed at twenty-eight years; but, with an extended term of repayment, I think there is every likelihood of the population increasing very largely if this work were carried out, and then it would become a very light matter. 6d. in the £ would more than cover it in ten years time.
399. *Mr. Kethel.*] In reference to the purification of the sewage, in making your remarks have you considered that it is subjected to two processes, namely, screening and then precipitation; then, after the removal of all the solid matter that can be removed, it is poured out and run over filtering beds? Yes.
400. Still you doubt whether it will be sufficiently effectual to remove every trace of offensive matter? I have a strong doubt about it.
401. Are you aware that there are several acres of land to be filled in to form the filtration beds—that is, a portion at present covered with water? Yes.
402. Would it not be quite possible to mix with the sand portions of lime, charcoal, or similar material, to improve the filtering qualities of the beds, so as to prevent any offensive matter being retained in solution? Everything that science can do might be done to reduce it to a minimum.
403. The main sewer will be at a great depth. Do you know what depth it will be below the surface—say at the reserve? I know it must be a great depth.
404. The question that suggests itself to some members of the Committee is whether the cost to the householder for connecting with the sewers at such a great depth will not entail an immense expenditure? The reticulating drains are only about 6 feet down. There are shafts here and there.
405. *Mr. Sydney Smith.*] What do you think will be the cost per house for connecting with these pipes? £10 per house.
406. I presume the ratepayers thoroughly understand that in this scheme the Government will only construct the main sewers, and that the ratepayers will have to pay for the connections? They understand that through their representatives, the aldermen. They all understand it, and I presume the public do.
407. There is no objection on their part? None whatever.

John Trevor Jones, Esq., Engineer of Water and Sewerage Board, sworn and examined:—

- J. T. Jones, Esq.
11 Oct., 1888.
408. *Vice-Chairman.*] Are you a civil engineer? Yes, an hydraulic engineer.
409. What is your official position? Engineer to the Water and Sewerage Board of Sydney.
410. Have you considered the proposed sewerage scheme for St. Leonards? I did so some time ago.
411. Is this the scheme as shown on the plan before the Committee? Yes. The scheme is Mr. Stayton's revised plan based upon Mr. Bennett's original scheme.
412. Have you formed any opinion about it? Yes, and I have given evidence before the local Municipal Council in favour of this scheme. That was some time ago. It was only at mid-day to-day that I knew I was to give evidence on this subject. Having refreshed my memory, I am prepared to give evidence; but I cannot profess to be quite so clear with regard to the figures as I was on that occasion.
413. What do you think of the adaptability of the scheme to St. Leonards? I think it is admirably adapted to St. Leonards.
414. The formation of St. Leonards being rather peculiar, with so many hills, is it not difficult to adapt any scheme to it? It is only difficult on account of the hardness of the strata through which you have to go. Otherwise, there being plenty of fall, there are great facilities for drainage.
415. You see what the fall is by the main tunnel from Milson's Point to Long Bay? Yes.
416. What is the fall the whole distance? The fall is 20 ft. in the whole length, but I am not sure as to the length.

J. T. Jones,
Esq.
11 Oct., 1888.

417. Do you think that will be sufficient? I think so.
418. Do you know what area of St. Leonards the scheme will serve? I believe it purports to be capable of serving 880 acres. I think it is capable of being extended.
419. Do you know where it is proposed the outfall works should be? I know that place very well.
420. Is that the best place where they could put those filtering beds or desiccating works? I do not think they could find a better, if they found one equal to it. I think that it is admirably suited to the purpose, seeing that they are going to treat this sewage and render it fit to enter into an estuary of the harbour without detriment to the water.
421. Do you know anything of the desiccating scheme proposed? Have you had any experience of it? I have not had any experience of it. I know it from theory and reading about it.
422. What opinion have you formed about it? From what I can learn, the most approved modern system is that by water-carriage. The sewage is first treated chemically, to deposit silt and clarify it; then it is put through an earth filter, which in my opinion is in the last degree the perfection of treatment. As far back as ten years ago the system was to trust to a chemical process. This proposes to superadd filtration to the chemical process, which I believe is the last degree of perfection in the treatment of sewage.
423. Do you anticipate that there will be any nuisance created in the neighbourhood of those filter beds? No; far from it. I think that the process will eliminate all chances of that, because I know that satisfactory results were obtained by the chemical process, and I know the purifying effect of passing sewage through earth. If it is faithfully done, I quite anticipate that the sewage water will be pure enough to enter into a trout stream or an inland river.
424. Have you considered this work from a financial aspect with regard to the repayment of the loan? I have considered that the period named for the extinction of the debt—twenty-eight years—is too short, and the period recommended by Mr. Bennett and also by Mr. Stayton would find more favour with me, and, I think, with the community.
425. It would make no difference to the Government so long as they got their interest? I should hardly think so. I do not think that a debt of this kind, while the interest is paid, can be any encumbrance to the Government.
426. *Mr. Copeland.*] What is the necessity for making the main tunnel at such a great depth? That is with a view to tapping both sides, to make one system of works serve both purposes. If you did not do that—if you intended to sewer both sides of the main ridge, you would require to have several main works.
427. To allow for the sewerage on both sides is it necessary to take the main tunnel at this depth? Yes.
428. It would not be possible to take it to a shallower depth, and so save a great deal of shaft sinking? No. I think it is quite as shallow as you can put it. The outfall is at 19 feet. That appears as if you could lower the outfall at the first glance, but the engineer has demonstrated to me that he requires all that; that the works for treating the water will require all that fall.
429. You spoke just now very much in favour of the most modern system of treating sewage. Is the system now proposed by Mr. Stayton in accord with the most modern method of treatment? With one exception it is. The very latest process is the electric system. Large sums of money are being contributed now to try that system, and promises are made that we shall have a still more efficient system in that.
430. Otherwise this system proposed by Mr. Stayton is quite up to date and in accord with the most approved methods of treatment? Yes; I know of nothing superior to it.
431. It was mentioned last night by one of the Mayors that they would be much more satisfied if they had some control over the management. Do you think that it would be at all possible to have the municipalities represented in any way, or is there any means by which they could have more control over the management than they have at the present time? They could have direct control, but I am of opinion that it would be a mistake to yield it for various reasons arising from my former experience.
432. What would be your opinion of a proposal somewhat to this effect: That those municipalities should borrow their own money on giving security; that they should have control over the whole works and execute the works with their own engineers, in the same way as in Victoria they carry out their water schemes? That is under Government control in Victoria, or it was when I was there. The construction was always under the control of the Government, and so far the administration was under its control; but in some of the inland towns the Government has given to the municipalities partial control over their water supply. But in this case I presume you wish an answer as to whether or not it would be desirable for them to make all these works, to have the full control of them, and to be responsible to the ratepayers for their success. I think it would be a very dangerous experiment. We know now—at least I am perfectly convinced—that the scheme as proposed would be carried out in the most economical and scientific way. I am not quite so sure whom a municipal body would employ to carry out the scheme. They might differ, and they might have various plausible reasons for differing from this scheme, and they might so far deviate from what is deemed, by me at any rate, to be scientific.
433. Is there not some danger of the Water and Sewerage Board becoming overlaid if they take control of the works of the whole of the suburban municipalities? The construction would be conducted by the Government I presume. The Board would only have to administer the works, and I do not think that would be too much for the Board to undertake.
434. To administer the whole of the water and sewerage works of all the municipalities in the metropolitan area? Yes; it would be an economy in one way, because one staff would do the whole of the work. Numerous staffs tend to increase the expenditure.
435. You have said that you think it desirable to extend the term of repayment to sixty years, and that it would be no burden to the Government? I cannot for a moment see why it should be thought objectionable on the part of the Government.
436. Do you not think there must be some limit to the borrowing powers of the Government, when you consider the number of places throughout the Colony which have an equal claim to the assistance of the Government in borrowing money for water and drainage works? There may be a limit, but so long as it can be shown to be reproductive work I hardly think that there should be a limit. I fancy that all works of a reproductive character may be safely entered into by the Government, and certainly a scheme for sewerage for a populous place like St. Leonards is certain to be reproductive.
437. Do you not think it would be safer for the Government to be getting back their money in a more limited time than a period of sixty years? There might be an element of safety in it, but I think it may be assumed that municipal works are a very safe investment for the Government or anyone else in a prosperous Colony like this.

- J. T. Jones, Esq.
11 Oct., 1888.
438. Still I suppose if the payments were coming in at a more rapid rate there would be more probability of their being allowed to go out again to benefit some other section of the community? There is that reason, certainly.
439. Otherwise you think it would be desirable, in the interests of these people, that the term should be extended to sixty years? I am of that opinion, because it will be burdensome to take it up earlier.
440. From what you know of the people in those municipalities are you of opinion that they would be prepared to take the responsibility if the Government were to vote this sum on condition that it was repaid in twenty-eight years? I think they would accept it. I am almost certain they would accept it although they would prefer the longer term of repayment. With regard to sewerage I may add this fact: that in my experience of Sydney and suburbs sewerage is as eagerly sought for when once it is within reasonable distance of the premises as water is, because the residents find that it is a cheaper way of disposing of their rubbish, besides being a far more efficient way.
441. *Mr. Kethel.*] Have you visited the Adelaide sewage farm where the sewage of the city is disposed of? I had barely a look at it. I went with the intention of spending ten days in Adelaide. I went inland first and in coming back I found that people in Sydney, especially the Mayor, were alarmed about the condition of the water supply, so that I had not a sufficient opportunity of visiting the sewage farm.
442. Do you know the nature of the system by which the sewage is there treated? It is treated by being dug into the ground of a sewage farm.
443. Is the soil of that farm specially prepared for filtration purposes. I think it is, but I am not quite certain about it.
444. *Mr. Street.*] Have you made yourself acquainted with the mode of the construction of the tunnel in this scheme? Yes.
445. Is it desirable that that tunnel should be lined? I think not, because it will be all in rock.
446. It has been stated that it is possible there might be percolation of sewage water through the sand stone rock which might become offensive in the lower levels? I do not think there is any such danger.
447. Will it be a considerable additional expense to carry out this lining of the tunnel? Yes. If there is a fissure at all in the rock the result would be not that the sewage would flow out, except underneath. The result would be that more water would filter into the sewer from the upper level. There would be constant filtration into it.

Mr. Chas. Chatfield sworn and examined :—

- Mr. C. Chatfield.
11 Oct., 1888.
448. *Chairman.*] What are you? I am a clerk. I come before the Committee as a ratepayer.
449. Have you read any of the reports on this subject? I have read the reports as printed some time ago.
450. Where do you reside? Just at Willoughby Falls.
451. That is in the locality of the outfall? Yes; at the top of the hill above the outlet.
452. I understand that you object to this scheme? I can only object to it in a general way. I cannot give any opinion founded on professional knowledge. I have been a resident in the neighbourhood for about three years past. I have made my home there, and I wish to make it there for some years to come. As I heard one witness say just now I am not at all satisfied that the sewage can be so dealt with as to become innocuous.
453. Have you had any experience? No, except what I have read. First of all there is the outlet from the sewer which must give forth some effluvia; and, secondly, the question is: will the water that will percolate through the earth be entirely innocuous? I wish to point out that Middle Harbour is one of the most beautiful places in New South Wales. It is certainly one of the most beautiful places near Sydney, and a great resort of pleasure parties. At Long Bay, where they propose to let out the sewage water, there is scarcely any tide whatever. There is no actual movement of the water as there would be in a tide-way; and if it should so happen that what is let into the water is noxious it will remain there for all time, spoiling that place, which in the course of a few years will probably have a large population, as well as other parts of St. Leonards.
454. Is there not a good rise and fall of the tide there as well as in the other bays in the neighbourhood? The water rises about 4 feet; but what I speak of is that there is no actual movement in the water as there is in a tide-way.
455. Is that because it is so shut in? For instance, if a boat were moored there, with no wind at all, it would not move, no matter which way the tide was going. The water seems to creep in and out.
456. Your only objection to it is a possible danger of its becoming a nuisance? Yes; that is my main objection. There is another thing, but it is for a more experienced person to mention, it is rather doubtful to me whether there is any necessity for that very large tunnel. It seems to be a most expensive work. There are two watersheds on the two sides of the hill. If it is necessary to drain both sides let Middle Harbour take its own drainage and let the drainage of the other side be taken by its own natural watershed.
457. Would not that necessitate two separate systems for the desiccating process and the disposal of the sewage? The question is whether that would be more expensive than a tunnel nearly 2 miles long; and then we should consider the doubt as to whether anything noxious will be carried into Long Bay. We should look to the future. In twenty or thirty years time the whole of the peninsula out to Middle Head may be thickly populated.
458. There are large military reserves in that locality? I was not aware of that.
459. What you anticipate is density of population, and that this will become a nuisance. Will not all the foreshores become equally offensive if there is a dense population and such a scheme as this is not carried out? Yes; that is the case. The question is whether something else could not be suggested.
460. Are you prepared to suggest anything else? Yes; that the tunnel, instead of being carried out in the direction proposed, should be carried out towards the mouth of Middle Harbour, where there is a proper tide. That would be a much more expensive affair; but the question is whether it would not be warranted by the future increase of population.
461. Would not the offensive matter then flow up Middle Harbour and destroy the bays? If it is only allowed to flow out at ebb tide, as I understand it is proposed, it would be carried out pretty well to the ocean.

462. *Mr. Kethel.*] What becomes of the drainage of that portion of St. Leonards proper which lies west of your residence? I believe that the whole of it, or nearly the whole, which is included in this scheme, flows into the creek.

Mr. C. Chatfield.
11 Oct., 1888.

463. And flows over Willoughby Falls? Yes.

464. So that instead of Willoughby Falls being a pleasure resort now, as it was years before, the creek is now full of filthy matter from the surface drainage? Yes; it is fast becoming so, but I do not see anything in this scheme which will stop it.

465. If scientific appliances are used to treat the sewage and filter it so that, as far as possible, every particle of offensive matter may be taken from the water, do you not think it will be less liable to pollute the waters of Middle Harbour than the present state of things? It would be so, if you are quite sure that the best scientific appliances and the greatest care will be used, and the water rendered innocuous. There is no doubt about that, but will not the overflow be open to the air, and so pollute the air. I refer to the first outflow.

466. It is first to be screened of all solid matter; flow into tanks; and then be subjected to some other process. By the application of chemicals it will be precipitated, and all solid matter taken from it. It will then be allowed to flow out over an area of 6 or 7 acres, which are to be reclaimed from Middle Harbour, and filled up with soil especially suited for filtration purposes. Whether this water is pure or not, it will appear absolutely pure before it is allowed to flow into the waters of the Harbour. Are you aware that there is a sewage farm at present receiving the sewage of South Sydney? I have heard of it.

467. If you were told that the sewage is simply allowed to flow on that farm, that it filters through the soil, leaving the fertilising substances held in suspense on the surface of the ground, and that it flows away as a pure and absolutely colourless stream of water, deprived of every noxious ingredient, would you believe that it is possible under any improved system so to purify the sewage as to take all noxious properties from it? Certainly; that is if the water is chemically pure so as not to affect the fish or the water. I might mention that the Cammeray Road, which runs close to the proposed farm, is a great resort of the pleasure seekers of all the North Shore.

468. Are you aware that in some parts of England, adjacent to the large cities, works like these are in existence adjoining the residences of very wealthy men? Yes.

469. And that the absence of bad smells is so marked that none of those people have hitherto complained of that? I am assured that that is a fact.

470. In that case is it not your opinion that, with additional scientific appliances and discoveries every day, engineers will be able to treat this sewage so as to remove anything noxious or offensive? Yes; my reason compels me to believe that, but living in this place, I have an objection, on account of the possibility of failure.

George Henry Stayton, Esq., Engineer, Sewerage Branch, Roads and Bridges Department, sworn and further examined:—

471. *Vice-Chairman.*] I understand that you are prepared to add some evidence to what you gave last night? Yes; there were several questions put to me by hon. members, one or two of which I was not able to answer with sufficient explicitness. I have since looked up the questions, and perhaps the information may be of use to the Committee. *Mr. Kethel* asked particularly with regard to the effect of sewage sludge, after it had been pressed into cake, upon crops. I have here the "Proceedings of the Institution of Civil Engineers" in England, by which it appears that at a recent meeting, there was a discussion upon this very question. I would like to read the following paragraph, which shows the value of sewage sludge as a fertiliser. On page 187 of vol. lxxviii. of the "Minutes of Proceedings of the Institution of Civil Engineers" the following particulars are given, viz.:—"The manager of the Wimbledon Sewage Farm has, during the past two years, carried out a series of experiments in order to ascertain if possible the value of pressed sludge. The plots experimented upon were contiguous to each other, the subsoil, 18 inches below the surface, being stiff clay. As is well known, the summer of 1885 was one of excessive drought. The crops experimented upon were mangolds, swedes, potatoes, cabbages, and permanent pasture, and the sludge-cake was tried in conjunction with farmyard manure and superphosphate. The farmyard manure was of excellent quality and quite rotten. The sludge-cake was spread on the land as it came from the presses, and was then ploughed in, as in the case of farmyard manure. The crops from each plot were set aside as taken up, and were carefully weighed, all of a like nature being taken up on the same day. The quantities of manure applied per acre were as follows:—Farmyard manure, 16 tons; sludge-cake, 16 tons; superphosphate, 5 cwt. The weights of the crops yielded are given below, the results being tabulated in tons per acre:—

G. H. Stayton,
Esq.
11 Oct., 1888.

Manure.	Potatoes.	Hay, as carried.	Mangolds.	Cabbages.	Swedes.	Average.
Sludge-cake	15·35	2·94	23·84	20·35	3·30	13·15
Superphosphate	12·14	2·50	25·18	20·62	2·59	12·60
Farmyard manure	12·50	2·63	26·16	17·77	2·32	12·27
Unmanured	14·46	1·74	23·06	18·48	0·87	11·72

I think that is very good proof as to the value of pressed sewage sludge as a fertiliser.

472. *Mr. Kethel.*] If it should be deemed desirable hereafter to apply the system of electricity to the sewage, would it be possible to do so with the works as designed and proposed to be constructed by you? It could. Another point which has been dwelt upon by different witnesses is with regard to the period of repayment. I have all along considered that this is a very important point, and it will certainly have to be threshed out and settled before long, because it strikes at the root of the whole question of water supply and sewerage works. In my previous evidence I stated casually that different periods have been sanctioned in England; but I have here the Local Government Blue Book, and I find that from 1871 to 1885 the Local Government Board had granted loans to different municipal authorities amounting altogether to over £34,000,000. Among the loans which were granted during one particular year were the following:—Burton-upon-Trent, £100,000, sewerage works, 60 years; Huddersfield, £150,000, waterworks, 100 years; Lancaster, £15,000, waterworks, 65 years; Liverpool, £3,250,000, waterworks, 70 years; Oldham, £100,000.

G. H. Stayton, Esq., £100,000, sewerage works, 60 years; Rochester, £8,500, sewerage works, 60 years; Rochester, £6,700, waterworks, 70 years; Wakefield, £300,000, waterworks, 80 years; Wigan, £10,000, waterworks, 80 years. The London Metropolitan Board of Works have borrowed no less than £36,000,000 since 1856, but by redeeming the debt by one-sixtieth part annually, there is now owing £27,000,000 only. The ratable annual value of London is about £32,000,000. That, I think, is sufficient proof that the period has been considerably extended.

11 Oct., 1888.

473. *Mr. Garrard.*] Will the tanks at the outfall works be covered tanks? Yes.

474. One witness seemed to fear that there would be effluvia from the outfall end of these tanks. Will they be protected by covers? The sewer will be entirely underground at the outfall.

475. *Mr Street.*] Did you state that the outfall would be at a certain height? Yes; 19 feet above high water mark.

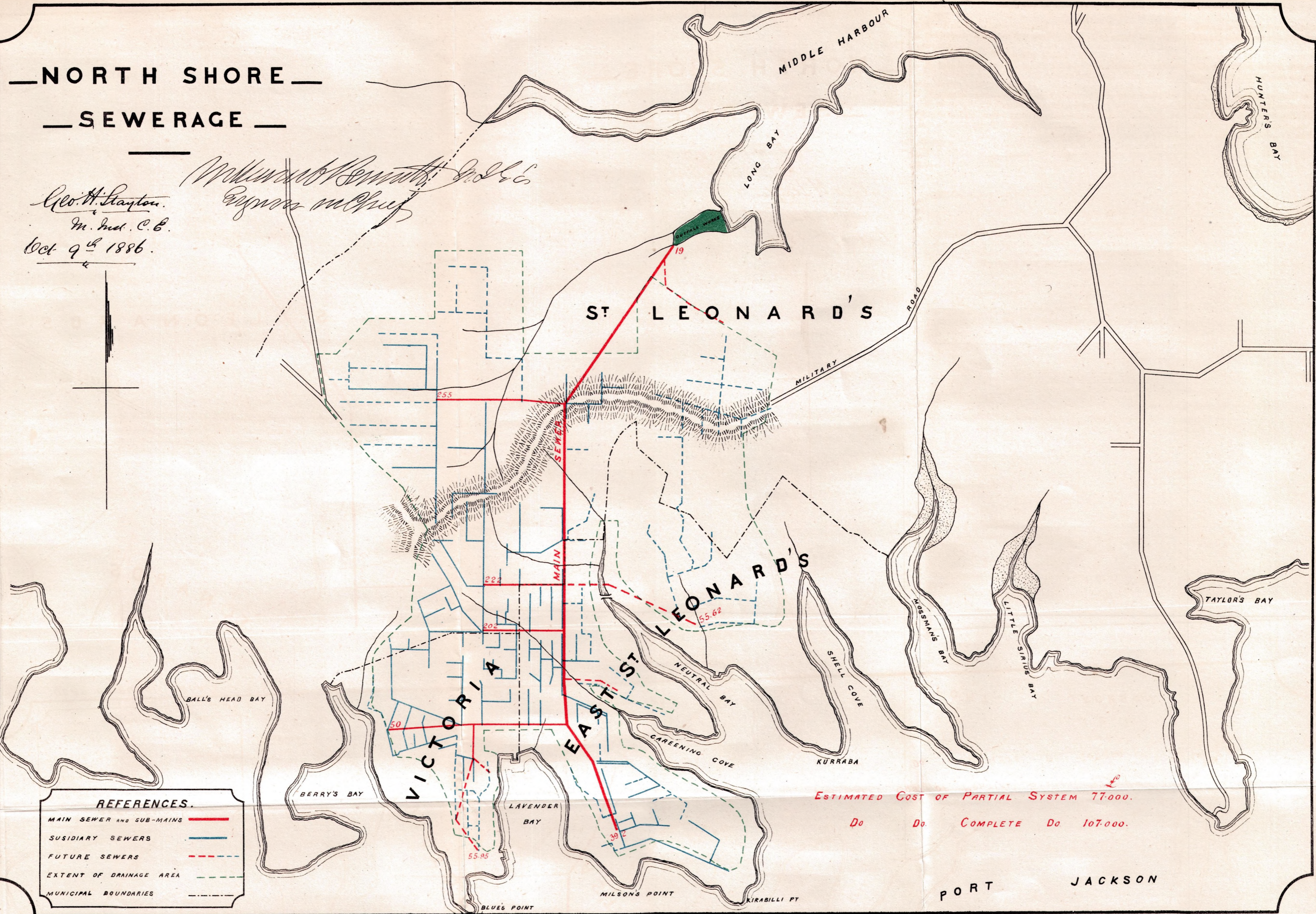
476. With a covered way into the tanks? Yes; into the covered tank.

477. So that there would be no exposure at the mouth of the sewer? None whatever.

[One plan.]

— NORTH SHORE —
— SEWERAGE —

W. H. Smith, Esq. C.E.
Engineer in Chief
Geo. H. Stanton.
M. Inst. C.E.
Oct 9th 1886.



REFERENCES.

MAIN SEWER AND SUB-MAINS	
SUSIDIARY SEWERS	
FUTURE SEWERS	
EXTENT OF DRAINAGE AREA	
MUNICIPAL BOUNDARIES	

ESTIMATED COST OF PARTIAL SYSTEM 77,000.
 Do Do COMPLETE Do 107,000.

PORT JACKSON

1888.

LEGISLATIVE ASSEMBLY.
NEW SOUTH WALES.

NORTH SHORE DRAINAGE WORKS BILL.

(MESSAGE No. 9.)

Ordered by the Legislative Assembly to be printed, 6 December, 1888.

CARRINGTON,
Governor.

Message No. 9.

In accordance with the provisions contained in the 54th section of the Constitution Act, the Governor recommends, for the consideration of the Legislative Assembly, the expediency of making provision to meet the requisite expenses in connection with a Bill to sanction the carrying out of certain drainage works on the north shore of Port Jackson, in the county of Cumberland.

Government House, Sydney,
30th November, 1888.

1. The first part of the document discusses the importance of maintaining accurate records of all transactions. It emphasizes that this is essential for the proper management of the organization's finances and for ensuring compliance with applicable laws and regulations.

2. The second part of the document outlines the specific procedures that must be followed when recording transactions. This includes the requirement to use standardized forms and to ensure that all entries are supported by appropriate documentation, such as receipts and invoices.

3. The third part of the document addresses the issue of internal controls. It stresses that a robust system of internal controls is necessary to prevent errors and fraud, and to ensure that the organization's assets are protected.

4. The fourth part of the document discusses the role of the accounting department in providing accurate and timely financial information to management. It highlights the importance of regular reporting and of maintaining clear communication channels between the accounting department and other parts of the organization.

5. The fifth part of the document concludes by reiterating the overall goal of the document: to ensure that the organization's financial records are accurate, complete, and reliable. It encourages all employees to take responsibility for their role in maintaining the integrity of the organization's financial information.

1888.

LEGISLATIVE ASSEMBLY.
NEW SOUTH WALES.

SEWERAGE SCHEME FOR NORTH SHORE.

(PETITION FROM RESIDENTS OF ST. LEONARDS.)

Received by the Legislative Assembly, 20 December, 1888.

To the Honorable the Members of the Legislative Assembly of New South Wales, in Parliament assembled.

The Petition of the undersigned residents of St. Leonards and others interested,—

RESPECTFULLY SHOWETH :—

That the carrying out of the Sewerage Scheme for North Shore, as proposed by Mr. G. H. Stayton, and recommended by the Public Works Committee, would be detrimental to the interests of property-owners, ratepayers, and residents of North Shore, and (in an indirect manner) of the residents of Sydney also, for the following reasons :—

- (a) The outfall of the proposed sewer at the head of Willoughby Bay (near Willoughby Falls), Middle Harbour, is too close to the centre of population, and the dealing with the sewerage, even with the best appliances, and under the most careful supervision, will cause a nuisance to the residents not only of the immediate neighbourhood but of a large portion of St. Leonards, whose only access to Middle Harbour is by the Cammeray Road, which runs close by Willoughby Falls.
- (b) The population of the neighbourhood of the proposed outfall has increased at least tenfold during the last five years, and the natural beauty of the locality is such that in the course of a few years a large number of residents would be attracted thereto, unless prevented by the presence of the sewerage works.
- (c) The rise and fall of the tide at the outlet is so small that there is scarcely any motion in the water, the nearest tidal channel being about a mile and a half distant. The effluent from the sewerage works will therefore not be quickly carried away, and in the course of time will render the waters of Middle Harbour impure, and thus impair the incalculable value of one of the most beautiful pleasure and health resorts to which the residents of the metropolis have access.

Your Petitioners would also point out that Mr. Stayton's scheme deals with only a comparatively small portion of North Shore—viz., about 880 acres of the present thickly-populated localities—and that apparently no provision has been made for the eastern portion of Tunks Ward, which, though at present sparsely peopled, is eminently suited to carry, and doubtless will carry, a large population, whose wants in the near future will be a considerable factor in this matter.

In consideration of the facts that the outfall is too close to the present and prospective population, that the waters of Middle Harbour are likely to be polluted, and that Mr. Stayton's proposals are not sufficiently comprehensive, your Petitioners pray that the adoption of the scheme herein mentioned may be deferred with the view of ascertaining whether another could not be proposed, to which such serious objections could not be taken—one which would provide as an essential that the effluent should be discharged into a strong tidal channel—and if we may be allowed, we would respectfully suggest that the sewerage be carried to, and dealt with somewhere near, Middle Head, thus providing for the eastern portion of Tunks Ward.

And your Petitioners, as in duty bound, will ever pray.

[Here follow 472 signatures.]



1888.

NEW SOUTH WALES.

LANDS FOR PUBLIC PURPOSES ACQUISITION ACT.

(RESUMPTION OF LAND AT ALEXANDRIA IN CONNECTION WITH SYDNEY SEWERAGE WORKS.)

Presented to Parliament, pursuant to Act 44 Vic. No. 16.

NOTIFICATION OF RESUMPTION OF LAND UNDER 44 VICTORIA No. 16.

NEW SOUTH WALES, } By His Excellency The Right Honourable
to wit. } CHARLES ROBERT, BARON CARRINGTON,
a Member of Her Majesty's Most
(L.S.) Honourable Privy Council, Knight
CARRINGTON, } Grand Cross of the Most Distinguished
Governor. } Order of Saint Michael and Saint
George, Governor and Commander-in-
Chief of the Colony of New South
Wales and its Dependencies.

WHEREAS I, the Governor aforesaid, with the advice of the Executive Council of the said Colony, have duly sanctioned the carrying out of certain works for and in connection with the sewerage of the City of Sydney and its suburbs in the said Colony, for and towards the completion of which said works public funds are available under the provisions of the Loans Vote 50 Vic. No. 28: And whereas the lands hereinafter described are required for the construction of the said works: Now I, the Governor of the said Colony, with the advice of the Executive Council of the said Colony, in pursuance of the powers in this behalf given to or vested in me by the "Lands for Public Purposes Acquisition Act," do, by this notification published in the Gazette and in a newspaper, that is to say, in the "Sydney Morning Herald," circulated in the Police District wherein the said lands are situated, declare that the land hereinafter described has been resumed for the public purposes hereinafter mentioned, that is to say, for and in connection with the sewerage of the said City of Sydney and its suburbs, to the intent that upon the publication of this notification in the Gazette, the legal estate in the said land shall forthwith be vested in the Minister for Public Works and his successors, on behalf of Her Majesty, for the purpose of the said last-mentioned Act, for an estate of inheritance in fee-simple in possession, freed and discharged from all trusts, obligations, estate, interests, contracts, charges, rates, rights-of-way, or other easements whatsoever; and to the intent, further, that the legal estate therein, together with all powers incident thereto or conferred by the said Act, shall be vested in

the said Minister as a trustee, with the powers stated in the said last-mentioned Act: And I declare that the following is the description of the land hereinbefore referred to, that is to say:—

All that piece or parcel of land containing by admeasurement ten perches and three-fourths of a perch, situate in the parish of Alexandria, county of Cumberland, and Colony of New South Wales, and being lots numbered two hundred and twenty-three and two hundred and twenty-four on a plan of Begg's subdivision of a part of the Underwood Estate, Paddington, deposited in the Lands Titles Office, Sydney, and numbered A. 1,783: Commencing at a point on the north-east boundary of Harris-street, distant four hundred and seventy-nine feet six inches, and bearing south 60° 10' east from the north-east intersection of Soudan-street with Harris-street; and bounded on or towards the north-west by the south-east boundary of lot numbered 225 in the said subdivision, being a line bearing north 29° 50' east for a distance of one hundred and three feet eight inches; on or towards the north-east by the south-west boundary of a Municipal reserve, being a line bearing south 44° 56' east for a distance of thirty-one feet one inch; on or towards the south-east by the north-west boundary of lot numbered 222 in the said subdivision, being a line bearing south 29° 50' west for a distance of ninety-five feet six inches; and on or towards the south-west by the north-east boundary of Harris-street, being a line bearing north 60° 10' west for a distance of thirty feet to the point of commencement, and said to be the property of Ebenezer Vickery and others.

In witness whereof, I have hereunto set my Hand, and caused the Great Seal of the Colony to be hereto affixed, at Government House, Sydney, this twelfth day of July, in the year of our Lord one thousand eight hundred and eighty-eight, and in the fifty-second year of Her Majesty's Reign.

By His Excellency's Command,

JOHN SUTHERLAND.

GOD SAVE THE QUEEN!



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1888.

NEW SOUTH WALES.

LANDS FOR PUBLIC PURPOSES ACQUISITION ACT.

(RESUMPTION OF LAND UNDER, FOR SEWERAGE PURPOSES, PARISH OF BOTANY.)

Presented to Parliament pursuant to Act 44 Vic. No. 16.

NOTIFICATION OF RESUMPTION OF LAND UNDER
44 VICTORIA No. 16.

NEW SOUTH WALES, } By His Excellency The Right Honourable
to wit. } CHARLES ROBERT, BARON CARRINGTON,
a Member of Her Majesty's Most
Honourable Privy Council, Knight
(L.S.) Grand Cross of the Most Distinguished
CARRINGTON, Order of Saint Michael and Saint
Governor. George, Governor and Commander-in-
Chief of the Colony of New South
Wales and its Dependencies.

WHEREAS I, the Governor aforesaid, with the advice of the Executive Council of the said Colony, have duly sanctioned the carrying out of certain works for and in connection with the sewerage of the City of Sydney and its suburbs, in the said Colony, for and towards the completion of which said works public funds are available under the provisions of the Loans Act 52 Vic. No. 17; and whereas the land hereinafter described is required for the construction of the said works: Now I, the Governor of the said Colony, with the advice of the Executive Council of the said Colony, in pursuance of the powers in this behalf given to or vested in me by the "Lands for Public Purposes Acquisition Act," do, by this notification published in the Gazette and in a newspaper, that is to say, in the "Sydney Morning Herald," circulated in the Police District wherein the said land is situated, declare that the land hereinafter described has been resumed for the public purposes hereinafter mentioned, that is to say, for and in connection with the sewerage of the said City of Sydney and its suburbs, to the intent that upon the publication of this notification in the Gazette, the legal estate in the said land shall forthwith be vested in the Minister for Public Works and his successors on behalf of Her Majesty for the purpose of the said last-mentioned Act, for an estate of

inheritance in fee simple in possession, freed and discharged from all trusts, obligations, estate, interests, contracts, charges, rates, rights-of-way, or other easements whatsoever, and to the intent further that the legal estate therein, together with all powers incident thereto or conferred by the said Act, shall be vested in the said Minister as a trustee with the powers stated in the said last-mentioned Act: And I declare that the following is a description of the land hereinbefore referred to, that is to say:—

All that piece or parcel of land situate in the parish of Botany, county of Cumberland, and Colony of New South Wales: Commencing at high-water mark of Cook's River; and bounded on the west by the eastern boundary of previous resumption for Main Southern Sewer, being a line bearing north 27 degrees 50 minutes east 390 links; thence by a line bearing east 27 degrees 50 minutes south 422½ links to west side of Government Road; thence by the west side of above road, being a line bearing south 7 degrees 56 minutes west 106·4 links; thence by a line bearing west 27 degrees 50 minutes north 201·35 links; thence by a line bearing south 27 degrees 50 minutes west 263 links to high-water mark; thence by the high-water mark of Cook's River, to the point of commencement,—containing 1 acre 0 roods 27 perches, and being the property of the representatives of the late Robert Lord.

In witness whereof I have hereunto set my Hand, and caused the Great Seal of the Colony to be hereto affixed, at Government House, Sydney, this sixth day of December, in the year of our Lord one thousand eight hundred and eighty-eight, and in the fifty-second year of Her Majesty's Reign.

By His Excellency's Command,

JOHN SUTHERLAND.

GOD SAVE THE QUEEN!

1888.

NEW SOUTH WALES.

METROPOLITAN WATER AND SEWERAGE ACT.

(BY-LAWS.)

Presented to Parliament, pursuant to Act 43 Vic. No. 32.

METROPOLITAN WATER BY-LAWS.

WHEREAS by the Metropolitan Water and Sewerage Act, 43 Vic. No. 32, the Board of Water Supply and Sewerage is authorized and empowered from time to time to make, alter, and repeal By-laws:

Now the Board of Water Supply and Sewerage, under and by virtue of the powers contained in the Metropolitan Water and Sewerage Act, 43 Vic. No. 32, do hereby make the By-laws following, that is to say:—

1. The following rates and charges are those which the owners and occupiers of lands and tenements shall pay in respect of water supplied by the Board, that is to say:—

(For water supplied for domestic purposes otherwise than by measure.)

- (I.) On every house or tenement of twenty pounds annual value and under, ten shillings per annum.
- (II.) On every house or tenement above the annual value of twenty pounds, a rate of sixpence for each pound sterling on the amount of the valuation up to three hundred pounds inclusive; fivepence for each pound on the amount of the valuation in excess of three hundred pounds up to seven hundred pounds; fourpence for each pound on the amount of the valuation in excess of seven hundred pounds up to one thousand pounds; threepence for each pound on the amount of the valuation in excess of one thousand pounds up to four thousand pounds; and twopence for each pound on the amount of the valuation in excess of four thousand pounds.
- (III.) Vacant lands of the annual value of sixty pounds and over shall be subject to a rate of twopence for each pound sterling on the amount of the valuation.

(For water supplied by measure.)

- (IV.) The rates to be charged for water supplied from stand-pipes shall be one shilling and sixpence per 1,000 gallons.
- (V.) The rates to be charged for water supplied from the mains by measure shall be one shilling and sixpence per 1,000 gallons.
- (VI.) Water-troughs will be charged for at the rate of twenty shillings per annum each.
- (VII.) Water for steam boilers and gas engines will be charged for by measure at the rate of one shilling and sixpence per 1,000 gallons.
- (VIII.) For water supplied to shipping, the charge will be one shilling and sixpence per 1,000 gallons. Her Majesty's Navy will be supplied free of charge.

2. Assessed rates must be paid half-yearly in advance. In the case where a meter is used, accounts will be rendered, and payments become due quarterly. Cheques and Post Office Orders will be received in payment of rates; but if the cheque tendered by any person as payment for rates due is dishonoured, the Board may cut off his service, and proceed for the recovery of the amount by Warrant for Distress. Cheques and Post Office Orders must be crossed in favour of the Board. Stamps will be received as payment of rates.

3. The minimum quantity of water to be charged for by meter where water is supplied for domestic purposes, as well as for purposes other than domestic, shall be the quantity which equals the assessed rate at one shilling and sixpence per 1,000 gallons. If the meter account be found to exceed the assessment, then the excess of the meter account over the assessment shall be charged in addition to the assessment. The Board may supply water for the making and mixing of concrete for foundations of wooden blocks, stone cubes, or other form of permanent roadway or pavement, at the rate of £1 10s. per 1,000 square yards, by superficial measurement of road surface; and for concrete generally for masonry, at the rate of threepence per cubic yard, as measured on the work.

Building charges, &c.

4. The Board may supply water for building purposes at the rate of five shillings per room for dwelling houses. All other buildings shall be supplied by meter at one shilling and sixpence per 1,000 gallons.

Before affixing service pipe, &c., license to be obtained from Board.

5. Before any person shall affix any service-pipe to any pipe of the Board, or alter, repair, or in any manner interfere with any pipe of the Board, or any service-pipe, cock, or fitting connected with any pipe of the Board, he shall obtain from the Board a license in that behalf to execute any such work; and any unlicensed person affixing, altering, repairing, or in any manner interfering with any such pipe, service-pipe, cock, or fitting as aforesaid shall be liable to a penalty not exceeding ten pounds.

Licensed plumber.

6. Before any such license shall be granted by the Board, the person applying for the same shall satisfy the Board that he is a competent plumber. His competency must be certified to by three master-plumbers.

Before pipes can be uncovered two days' notice to Board must be given.

7. Any person, whether licensed as aforesaid or not, who shall offend by opening any ground so as to uncover any pipe or pipes, the property of the Board, without giving two days' notice to the Board of his intention so to do, or who shall in any way tamper, interfere with, or alter any pipe, the property of the Board, without the permission in writing of the Board being first obtained, or who shall wilfully or negligently break, injure, or open any lock, cock, valve, pipe, work, or engine, the property of the Board, shall be liable for each such offence to a penalty not exceeding twenty pounds.

Board or licensed plumber only empowered to tap mains, &c.

8. The Board only, or a plumber duly licensed by the Board, under the superintendence and according to the directions of the officer appointed by the Board for that purpose, is empowered to tap the main in the streets or elsewhere and attach service-pipes thereto, or extend the same generally as the case may be. Any person infringing this clause shall be liable to a penalty not exceeding twenty pounds.

Penalty for communicating with pipes of the Board without notice.

9. Any person, whether licensed as aforesaid or not, who shall lay any pipe to communicate with the pipes of the Board without giving two days' notice of the day and hour when such pipe is intended to be made to communicate with the pipes of the Board, or who shall make such communication, except under the superintendence and according to the directions of some officer of the Board, or who shall lay any leaden or other pipe to communicate with a pipe of the Board of a strength and material not sanctioned by the Board, shall be liable for each such offence to a penalty not exceeding five pounds; and, in the event of continuing the offence, to a further penalty of two pounds for each day after the notice of the offence from the Board.

Fee for tapping main.

10. Every application for water must be accompanied by the payment of a fee of three shillings for the tapping of any main.

Penalty for using unauthorized fittings.

11. Any person who, being an owner or occupier of lands or premises supplied with water under this Act, for the purpose of taking, in a manner not authorized by this Act, any such water, uses in or places on, or affixes or attaches to, such land or premises, or to any prescribed fitting, or wilfully permits to be used in or placed on, or affixed or attached to, such lands or premises, or to any prescribed fitting, any fitting, instrument, or thing not authorized in that behalf by the Board, or who alters, misuses, injures, or removes any prescribed fitting, except for the purpose of necessary repair, shall, upon conviction thereof, forfeit and pay to the Board a sum not greater than ten pounds, without prejudice to the right of the Board to recover from him damages in respect to any injury by such owner or occupier done, or wilfully permitted to be done, to the Board's property, and without prejudice to the Board's right to recover from him the value of any water wasted, misused, or unduly consumed.

Owner to lay and maintain services.

12. The owner or occupier must, at his own expense, lay down and maintain all the pipes and apparatus upon his premises. All pipes must be of galvanized wrought iron, where possible, and where lead pipes are used they must be of equal thickness throughout, and of at least the respective weights following, viz.:—

Weight of lead pipes.

$\frac{3}{8}$ -in.	5 lb. per yard
$\frac{1}{2}$ -in.	6 lb. "
$\frac{5}{8}$ -in.	9 lb. "
1-in.	12 lb. "
1 $\frac{1}{4}$ -in.	16 lb. "
1 $\frac{1}{2}$ -in.	20 lb. "

Where wrought-iron pipes are used, they must be of the kind known as galvanized wrought-iron lap-welded steam tubes.

Defective fittings to be removed.

13. Any consumer's pipe, cock, cistern, or other fitting laid, fixed, or used otherwise than in accordance with these Regulations and with the provisions of the Act, or which shall in the opinion of the Board, be or become of bad or defective quality, or shall conduce to the waste, misuse, or contamination of the water, shall, upon the Board giving notice in writing, be discontinued and disused; and the Board may require the same to be removed, replaced, or repaired, and may stop the supply of water to the said consumer until such pipe, cock, cistern, or other fitting shall have been removed, replaced, or repaired to the satisfaction of the Board.

Quality of fittings for iron pipes.

14. No person shall use, in connection with the water of the Board, any iron pipe, tee, thimble, bend, reducing coupling, plug, &c., unless it be of the best manufacture, true in section, straight, and of equal thickness, properly and truly cut with Whitworth's standard gas thread, and perfectly sound and new, and free from all defects. Every such tee, bend, tube, &c., shall be capable of withstanding a hydrostatic pressure equal to a column of water 400 feet in height.

Joints.

15. Every person shall make all joints between tees, bends, thimbles, couplings, elbows, and cocks, &c., with white or red lead and flax. All joints on lead pipes, and lead pipes with brass unions, shall be of the kind known as "wiped joints."

16. No person shall lay any service-pipe on private property, below the ground surface, at a less depth than ten inches.

17. No person shall lay any pipe or other apparatus through any sewer, drain, ashpit, cistern, or manure tank, or through, in, or into any place where, in the event of the pipe becoming unsound, the water of the Board conveyed through such pipe would be liable to be fouled, or to escape without observation—unless such pipe or apparatus be laid through an exterior cast-iron pipe or box of sufficient length and strength to afford due protection to the same, and to bring any leakage or waste within easy detection.

18. No person shall use any tap, stop-cock, bib-cock, ball-cock, valve, closet cistern, service-box, waste-not regulator, bath tap or valve, or other fitting in connection with a supply of water of the Board which is not of the best quality, and approved by the Board.

19. No person shall use any stop or bib-cock which is not loose-valve, screw-down, high-pressure cocks, made of hard brass or gun-metal, and in every respect of best quality and workmanship.

20. No person shall use any cistern or tank that is not provided with an equilibrium ball-valve, and the overflow-pipe laid and fixed in a suitable manner, open to inspection, and in a position approved by the Board.

21. No person shall fix or use any service-pipe which communicates with any cistern, tank, or vessel intended or used for the reception of rain-water, or made or used below the surface of the ground, except with the express permission of the Board.

22. No person shall construct or use any water-closet fitting not approved by the Board Engineer, or supplied from the service pertaining to the tenement through a proper closet-cistern, or service-box, fitted with approved waste-preventing apparatus. No person shall fix or use any service-pipe which communicates directly or indirectly with the basin or trap, or otherwise than with the cistern of a water-closet.

23. The Board will not supply any water to any bath, the outlet of which is not distinct from and unconnected with the inlet or inlets; and the inlet or inlets shall be placed above the highest water-level of the bath. The outlet of such bath shall be provided with a perfectly water-tight plug, valve, or cock. No such bath shall have any overflow waste-pipe that is not laid and fixed in a suitable manner, open to inspection, and in a position approved by the Board. No bath shall exceed in dimensions 6 ft. 6 in. long by 2 ft. 6 in. wide by 2 ft. deep unless supplied by meter. The Board will not supply water to any bath unless the same shall be so constructed as to prevent a waste of water.

24. Except by the permission of the Board, every tenement shall have an independent service-pipe connected with the main of the Board; and no person shall connect more than one tenement with the main of the Board from one service, except by permission of the Board.

25. No person shall fix a service-pipe so as to communicate directly with any urinal, and every urinal shall be supplied only through a cistern or service-box, fitted with waste-preventing apparatus approved by the Board.

26. No person shall use water supplied by the Board for other than domestic purposes, except the supply is by meter.

27. No person, except with special consent of the Board, shall affix a meter, the dial of which is not capable of registering (1,000,000) one million gallons.

28. If any meter shall not correctly indicate the water passing through it, the Board may charge for the supply according to the average daily consumption for any month preceding the date upon which such meter shall have been examined and found to be in order; or at the request of the consumer, or by direction of the Board, the said meter shall be tested and the charge for water supplied regulated accordingly.

29. No person not duly authorized by the Board shall disconnect any meter or other apparatus from the service-pipes, or in any way interfere with the same.

30. If any person shall connect any service-pipe, or branch service-pipe, with any steam boiler for the purpose of feeding or supplying the same with water, without first affixing a self-acting valve for preventing the pressure of the steam reversing or affecting the dial of the meter, he shall be liable to a penalty not exceeding five pounds; and a further penalty of two pounds for each day after notice of the offence from the Board to each offender.

31. No person shall use a hose attached to any tap or pipe (used for the purpose of supplying the water of the Board for domestic purposes to any house or premises) for watering any garden, laying dust, or for any other purpose whatsoever, unless where a water-meter is fixed and the water supplied by measure; and any person offending against this By-law shall be liable to a penalty not exceeding five pounds.

32. No person shall place any tap in any garden or screwed tap in any yard or to or outside of any dwelling or premises supplied with the water of the Board to which a hose could be attached unless a water-meter is fixed and the water supplied by measure; and any person offending against this By-law shall be liable to a penalty not exceeding five pounds.

33. Any person using water supplied by the Board shall keep all pipes and other appliances in connection with the supply of water to such person in a proper state of repair.

Inspection of work.

34. All work at any time done or to be done on private lands or premises in connection with the water supply, whether such work consist in the laying and fixing of new services, or in the extension or alteration of existing services and fittings, shall be inspected by the proper officer of the Board, and no such work shall be commenced until after the expiration of two days' notice thereof first given to the Board. In no case shall the water be turned on to any lands or premises where any such work shall have been executed until the said work shall have been inspected by the said officer, and certified by him, on the prescribed form. No under-ground or enclosed work shall on any account be covered up or concealed from view until the same shall have been duly inspected and passed by the inspector; and any person offending against this By-law shall be liable to a penalty not exceeding five pounds.

Supply and use of water open to inspection.

35. The supply and use of water, whether for domestic purposes or under special agreement, shall be open to inspection and admeasurement whenever required; and such information must from time to time be afforded as will be sufficient to enable the Board to obtain a satisfactory account of the quantity of water actually consumed, and of the pipes, taps, cisterns, and other apparatus and conveniences for receiving and delivering such water. Any officer of the Board may at all reasonable times in the day-time enter on the premises of any person using water supplied by the Board, for the purpose of inspecting the service pipes or other appliances of such person.

Board may repair.

36. If the service pipes or other appliances of any such person shall on any inspection be found to be out of repair, the Board may forthwith, without notice, repair the same in such manner as may be deemed necessary, and the cost of any such repairs may be recovered by the Board from the owner or occupier of such premises.

Board have control of water supplied to public parks, &c.

37. The water supply to the public parks and gardens shall be exclusively under the control and direction of the officers of the Board; and any person turning on the water, or otherwise interfering with such water supply, shall be liable to a penalty not exceeding five pounds.

Notices and applications to be made upon printed forms.

38. All notices and applications required by these By-laws are to be made upon printed forms, to be obtained at the Board's office. Notices sent by post must be prepaid. Any sums paid by the Board on account of notices sent by post and not prepaid will be charged against and recovered from the sender.

Board may discontinue supply.

39. The Board shall be at liberty to discontinue the supply of water immediately on the discovery of any breach of these Regulations.

Interpretation of terms.

40. In the construction of these By-laws, the word "person" shall be deemed to extend to and include a corporation, or any body or number of persons, and the masculine shall include the feminine gender.

41. Any person committing a breach of any By-law to which no specific penalty is attached, or who shall refuse or neglect to obey any injunction in any such By-law, shall, upon conviction, be liable to pay a penalty not exceeding twenty pounds, and, in case of a continuing offence, a further penalty not exceeding five pounds for each day after notice of such offence shall have been given by the Board to such offender.

NOTE.—Attention is directed to the following Rules:—

Reward for information as to fittings.

The Board will pay a reward of not less than ten shillings to any person who will give such information as shall lead to the conviction of any person or persons who shall wrongfully attach (temporarily or otherwise) any pipe to any of the mains or services of the Board, or to any pipe, cistern, or apparatus connected therewith, or to or into which the water of the Board shall flow, or who shall wrongfully draw off, use or take the water of the Board, or who shall knowingly permit the said water to be wrongfully drawn off, used, or taken.

Reward for information as to waste.

The Board will also adequately reward any person (not being the person in fault) who shall communicate timely information to the Board of any leakages or waste of water, whether the same be accidental, negligently or wilfully occasioned or suffered, or who shall give such information as shall lead to the conviction of any person or persons who shall steal or cause to be stolen, or improperly appropriated, the water of the Board.—*Vide* section 73 of Act 43 Vic. No. 32.

Sample fittings

A set of standard fittings, such as are at present approved, is exhibited in the Board Engineer's office; but the Board will give due consideration to the claims of any other fitting which may be presented for approval, and if considered satisfactory the same will be purchased and placed among and become one of the standard approved fittings.

No gratuities allowed.

The Board do not permit their officers, workmen, or agents to solicit or receive any fee or gratuity whatever, and desires to be informed of any infraction of this Regulation, and also of any act of incivility or neglect of attention on the part of such officers, workmen, and agents, or any of them.

Attention is also directed to the following clauses of the Metropolitan Water and Sewerage Act, 43 Vic. No. 32:—

Meter to be supplied and maintained by consumer.

55. Every person who shall have agreed with the Board for a supply of water by measure, shall at his own expense, unless he hire a meter from the Board, provide a meter and keep and maintain the same in good working condition to the satisfaction of such officer as may be appointed by the Board, and in the event of any repairs being required notice in writing shall be immediately given by such person to the Board and a registration of the quantity used shall be taken before such repairs are effected.

Notice of removal, &c., of meter.

56. Every person requiring to remove or alter the position of any meter shall give six days notice in writing to that effect to the Board, and a registration of the quantity of water used shall be taken before such removal or alteration is made.

57. If any person who under the provisions hereinbefore contained ought to provide any meter, neglect or refuse, after having been required by the Board so to do, to provide such meter, he shall for every day during which such neglect or refusal continues forfeit a sum not exceeding two pounds.

Penalty for neglecting to provide meter

58. If any person who has provided any meter as aforesaid, fail to give the notice hereinbefore required of any repairs required for such meter he shall forfeit a sum not exceeding ten pounds.

Penalty for neglecting to give notice of repairs of meters

59. If any person refuse or delay to have such meter properly repaired and put in correct working order after having been required by any officer of the Board so to do, the Board may shut off the supply of water from the premises of such person either by cutting the service-pipe or otherwise, until such meter shall have been properly repaired and certified by some officer of the Board as being in proper working order.

Water may be cut off if meter not in order.

60. If any plumber or other person fix or refix any meter upon any premises supplied with water by the Board, without having first obtained a certificate from the Board that the said meter has been examined and found in correct working order, he shall forfeit a sum not exceeding ten pounds.

Penalty for fixing uncertified meter.

61. If any person remove or alter the position of or in any way interfere with any meter without giving such notice as aforesaid, he shall for each such offence forfeit a sum not exceeding twenty pounds over and above the damage which he may be found liable to pay in any action at law at the suit of the Board.

For removing or altering meter without notice.

62. The officers of the Board may enter any house, building, or lands, to, through, or into which water is supplied by the Board by measure, in order to inspect the meters, instruments, pipes, and apparatus for the measuring, conveyance, reception, or storage of water, or for the purpose of ascertaining the quantity of water supplied or consumed; and may from time to time enter any house, building, or lands, for the purpose of removing any meter, instrument, pipe, or apparatus, the property of the Board, and if any person hinders any such officer from entering or making such inspection, or effecting such removal, he shall, for each such offence, be liable to a penalty not exceeding five pounds, but, except with the consent of a Justice, this power of entry shall be exercised only between the hours of ten in the forenoon and four in the afternoon.

Power to officers of Board to inspect meters.

67. After pipes have been laid under the authority of this Act, for the supply of water to any street or part thereof, the Board shall cause a notice, in the form contained in the Third Schedule hereto, or to the like effect, to be published in four consecutive numbers of the *Gazette*, and in one or more newspapers circulating in the locality; and the owner or occupier of every tenement referred to in such notice shall, within three weeks from the date of the last publication of such notice in the *Gazette*, cause a proper pipe and stop-cocks to be laid, so as to convey a supply of water to such tenement. And after fourteen days from such last publication the owner or occupier of such tenement shall, unless the Board refuse to supply him with water, be liable to pay the rates and charges for such supply, although no such pipes and stop-cocks be laid, or no such water be used in such tenement.

Notice to lay service pipes.

68. Any owner or occupier of any dwelling-house, or part of a dwelling-house, within a Water District, who shall wish to have water from the waterworks of the Board brought into his premises, and who shall have paid or tendered to the Board the portion of water rate in respect of such premises, by this Act directed to be paid in advance, may open the ground between the pipes of the Board and his premises, having first obtained the consent of the owners and occupiers of such ground, and lay any pipes from such premises to communicate with the pipes of the Board.

Pipes laid by owners or occupiers. Power to inhabitants to lay service pipes.

69. Such pipes shall be of a strength and material approved of by some officer of the Board, and every such owner or occupier shall, before he begins to lay any such pipe, give to the Board two days notice of his intention to do so.

Notice to Board of laying pipes.

70. Before any pipe is made to communicate with the pipes of the Board, the person intending to lay such pipes shall give two days notice to the Board of the day and hour when such pipe is intended to be made to communicate with the pipes of the Board, and every such pipe shall be so made to communicate under the superintendence and according to the directions of the surveyor, or other officer appointed for that purpose by the Board. And the bore of any such pipe shall not exceed three-quarters of an inch, except with the consent of the Board.

Communication with pipes of Board to be made under superintendence of surveyor.

Bore of service pipes.

71. Any person who shall have laid down any pipe, or other works, or who shall have become the proprietor thereof, may remove the same after having first given six days notice in writing to the Board of his intention so to do, and of the time of such proposed removal, and every such person shall make compensation to the Board for any injury or damage to their pipes or works which may be caused by such removal.

Service pipes may be removed after giving notice.

72. Any such owner or occupier may open or break up so much of the pavement, if any, as shall be between the pipe of the Board and his house, building, or premises, and any sewer or drain therein for any such purpose as aforesaid (doing as little damage as may be, and making compensation for any damage done in the execution of any such work). Provided always that every such owner or occupier desiring to break up the pavement of any street, or any sewer or drain therein, shall be subject to the same necessity of giving previous notice, and shall be subject to the same control, restrictions, and obligations in, and during the time of breaking up the same, and also reinstating the same, and to the same penalties for any delay in regard thereto as the Board are subject to under the provisions of this Part.

Power to break pavements.

PROTECTION OF
THE WATER.

In case of any
breach of this
Part of this Act
water may be
cut off.

73. If any person supplied with water by the Board wrongfully does, or causes or permits to be done, anything in contravention of any of the provisions of this Part, or wrongfully fails to do anything which under any of those provisions ought to be done for the prevention of the waste, misuse, undue consumption, or contamination of the water of the Board, the Board may (without prejudice to any remedy against him in respect thereof) cut off any of the pipes by or through which water is supplied to him or for his use, and may cease to supply him with water so long as the cause of injury remains or is not remedied.

Penalty for
waste of water.

74. If any person, supplied with water by the Board, wilfully or negligently causes or suffers any pipe, valve, cock, cistern, bath, soil-pan, water-closet, or other apparatus or receptacle to be out of repair, or to be so used or contrived that the water supplied to him by the Board is or is likely to be wasted, misused, unduly consumed or contaminated, or so as to occasion or allow the return of foul air or other noisome or impure matter into any pipe belonging to or connected with the pipes of the Board, he shall, for every such offence, be liable to a penalty not exceeding five pounds.

Penalty for
misapplication
of water.

75. If any person—

- (1.) Not having from the Board a supply of water for other than domestic purposes, uses for other than domestic purposes any water supplied to him by the Board; or
- (2.) Having from the Board a supply of water for any purpose other than domestic, uses such water for any purpose other than those for which he is entitled to use the same,

he shall for every such offence be liable to a penalty not exceeding forty shillings without prejudice to the right of the Board to recover from him the value of the water misused.

No pipe to be
fixed to con-
sumer's pipe
without per-
mission of
Board.

76. It shall not be lawful for the owner or occupier of any premises supplied with water by the Board, or any consumer of the water of the Board, or any other person, to affix, or cause or permit to be affixed, any pipe or apparatus to a pipe belonging to or used by such owner, occupier, consumer, or any other person, or to make any alteration in any such communication or service-pipe, or in any apparatus connected therewith, without the consent, in every such case, of the Board. And if any person acts in any respect in contravention of the provisions of the present section, he shall, for every such offence, be liable to a penalty not exceeding five pounds, without prejudice to the right of the Board to recover damages from him in respect of any injury done to its property, and without prejudice to their right to recover from him the value of any water wasted, misused, or unduly consumed.

Penalty for
unlawfully
taking water

77. If any person, not being supplied with water by the Board, wrongfully takes or uses any water from any reservoir, watercourse, conduit, or pipe belonging to the Board, or from any pipe leading to, or from any such reservoir, watercourse, conduit, or pipe, or from any cistern or other like place containing water belonging to the Board or supplied by them for the use of any consumer of the water of the Board, he shall for every such offence be liable to a penalty not exceeding five pounds.

Inspection of
water.

78. The surveyor or other person appointed for that purpose by the Board may, between the hours of nine o'clock in the forenoon and four o'clock in the afternoon, enter into any house or premises supplied with water by the Board in order to examine if there be any waste or misuse of such water; and if any such surveyor or other person at any such time be refused admittance into such dwelling-house or premises for the purpose aforesaid, or be prevented from making such examination as aforesaid, the Board may turn off the water supplied by them from such house or other premises.

Polluting the
water.
Penalty for
bathing in water
of the Board.

79. If any person bathe in any stream, reservoir, aqueduct or other waterworks belonging to the Board, or wash, throw, or cause to enter therein any dog or other animal he shall for every such offence forfeit a sum not exceeding five pounds.

Penalty for
throwing dirt
therein.

80. If any person throw or convey or cause or permit to be thrown or conveyed any rubbish, dirt, filth, or other noisome thing into any such stream, reservoir, aqueduct, or other waterworks as aforesaid, or wash or cleanse therein any cloth, wool, leather, or skin of any animal, or any clothes or other thing he shall for each such offence forfeit a sum not exceeding five pounds.

Penalty for
letting foul
water flow
thereinto.

81. If any person cause the water of any sink, sewer, or drain, steam-engine, boiler, or other filthy water belonging to him or under his control, to run or be brought into any stream, reservoir, aqueduct, or other waterworks belonging to the Board, or shall do any other act whereby the water of the Board shall be fouled, he shall for each such offence forfeit a sum not exceeding five pounds, and a further sum of twenty shillings for each day (if more than one) that such offence continues.

Penalty for
nuisance in
watershed area.

82. Where any owner or occupier of any land within the watershed to be proclaimed as hereinbefore provided, or any reservoir or source of supply transferred to, or vested in the Board, does, or permits to be done on his land any act, or permits to remain thereon any matter or thing, which in the opinion of the Board is likely to injure the water supply, if notice to discontinue or remove the same be given to him in writing by the Board, and if he neglect or refuse to discontinue such act, or to remove such matter or thing, he shall for each such offence forfeit a sum not exceeding five pounds, and a further sum of twenty shillings for each day (if more than one) that such offence continues.

86. The following provisions shall take effect for the purpose of protecting the water in the mains or other pipes of the Board from all impurities from closets and other receptacles of faecal matter or urine—

- (i.) It shall not be lawful for any person to connect with the main any pipe delivering the water directly into the closet-pan or other receptacle for faecal matter or urine without the intervention of a cistern or cisterns into which the water from the main shall first be received, and any person so offending shall forfeit and pay a penalty not exceeding fifty pounds.
- (ii.) The Board may employ any artificers or workmen to cut off or otherwise disconnect from the main any pipe directly discharging the water into a closet without the intervention of a cistern [hereinafter termed "directly connected"]; and which in the opinion of the Board may endanger the purity of the water by the absorption of noxious gases, or suction of faecal matter or urine into such pipe, or into the main, or otherwise: For the purpose of effecting such disconnection the Board's artificers and workmen may enter into and upon the premises of any person or corporation whatsoever to do, or cause to be done, anything in his opinion requisite or necessary in relation thereto.
- (iii.) Whenever the Board shall have caused any pipe to be cut off, or disconnected, or other work to be done in relation thereto, they shall forthwith serve the owner or occupier of the premises with a notice in writing, requiring him to pay the actual cost or expense incurred. And such owner or occupier shall pay the amount to the Board, and if the amount be paid by an occupier only he may deduct the same from the rent then due or accruing. Upon such owner or occupier making default in any such payment after the delivery of such notice as aforesaid the Board may sue for and recover the same with full costs of suit.
- (iv.) The owner of every dwelling-house or premises which shall have therein or thereon any closet with a pipe or branch-pipe directly connected with the main, shall be required to fix and erect a cistern or cisterns for the reception of the water intended to be used for the closet, and every cistern shall be made of such materials and dimensions, and of such model or plan of construction, and with such ball-cocks, stop-cocks, waste-pipes, and other appliances as shall be deemed requisite and have been approved by the Board for securing the water from pollution through any noxious gases or matter evolved or derived from such closets or otherwise. Every owner neglecting to comply with the provisions of this section shall forfeit and pay a penalty not exceeding five pounds.
- (v.) Whenever any owner shall have neglected to fix and erect a cistern, with its appliances, as is in the last preceding sub-section provided for, the tenant or occupier of the premises is hereby authorized and required, after receiving a written notice thereof from the Board in that behalf, to fix and erect such cistern, with its appliances before mentioned, within fourteen days after the receipt of such notice, and the said tenant or occupier shall, upon payment by him of the charges and expense of such fixing and erection, be entitled either to deduct the amount so paid from the rent then due or accruing, or, at his option, to sue for and recover the same, with full costs of suit, from the owner as for money paid to his use.
- (vi.) Any person who shall, without the authority of the Board, re-establish any such connection which may have been cut off, removed, or severed by him, or who shall in any manner wilfully injure or tamper with any connection-pipe, cistern, ball-cock, stop-cock, or waste-pipe which may have been approved by the Board, so as to destroy, diminish, or endanger its efficiency, may be summoned for such offence before two Justices, and on conviction thereof shall be adjudged to pay the amount of the charges and expenses which the Board may have incurred (and which they are hereby authorized to incur) in repairing or restoring the same to a state of efficiency. Every such offender shall also forfeit and pay a penalty not exceeding ten pounds, and the amount of charges and expenses and penalty respectively shall, when recovered, be paid over to the Board.

87. Where several houses or parts of houses, in the separate occupation of several persons, are supplied by one common pipe, or where water is supplied to courts, alleys, and right-of-way by stand pipes, the several owners or occupiers of such houses, or parts of houses, or of the several houses, or parts of houses, in every such court, alley, or right-of-way, shall be liable to the payment of the same rates for the supply of water as they would have been liable to if each of such several houses, or parts of houses, had been supplied with water from the works of the Board by a separate pipe.

88. The rates and charges for water, and all sums due to the Board under this Part, shall be paid by and be recoverable from the owner of the premises or the occupier or person requiring, receiving, or using the supply of water; and all rates shall be paid in advance by equal payments on the first day of January and the first day of July in each year, and the first payment shall be made at the time when the owner or occupier of any tenement shall become liable to pay such rates and charges, and all such rates and charges may be enforced and recovered in respect of any premises in the said City of Sydney, or in any such Municipality as aforesaid, situate within one hundred and fifty feet from the alignment of any street or public highway along which a main water pipe belonging to the Board is laid, although such premises are not actually supplied with water from such main.

Recovery of rates
and charges.

Schedule.

89. If any such person refuse or neglect to pay on demand to the Board any rate, charge, or sum due to the Board under this Part, the Board may recover the same with costs, or may order a warrant under the hand of their President or Vice-president in the form contained in the Fourth Schedule hereto, to be from time to time issued to some constable or other person named therein to levy such rate, charge, or sum by distress and sale of goods and chattels of the person occupying the premises in respect of which such rate, charge, or sum is due at the time when the warrant of distress is executed, and in case no sufficient goods and chattels of such occupier be found on the premises to satisfy such distress, the owner of the premises, or if he be absent from the Colony, his agent shall be liable for such rate, charge, or sum, and the same may be recovered from him.

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[6d.]

1888-9.

NEW SOUTH WALES.

PARLIAMENTARY STANDING COMMITTEE ON
PUBLIC WORKS.

REPORT

TOGETHER WITH

MINUTES OF EVIDENCE

AND

APPENDIX

RELATING TO THE

PROPOSED BRIDGE AT THE SPIT,
MIDDLE HARBOUR.

Presented to Parliament in accordance with the provisions of the Public Works Act,
51 Vic. No. 37, section 8.

SYDNEY: CHARLES POTTER, GOVERNMENT PRINTER.

NAMES OF THE MEMBERS OF THE COMMITTEE.

LEGISLATIVE COUNCIL.

- The Honorable JOHN LACKEY, Chairman.
- The Honorable GEORGE CAMPBELL.
- The Honorable WILLIAM HENRY SUTTOR.
- The Honorable JAMES WATSON.
- The Honorable FREDERICK THOMAS HUMPHERY.

LEGISLATIVE ASSEMBLY.

- JOSEPH PALMER ABBOTT, Esquire, Vice-Chairman.
- HENRY COPELAND, Esquire.
- JACOB GARRARD, Esquire.
- ALEXANDER KETHEL, Esquire.
- SYDNEY SMITH, Esquire.
- THOMAS MICHAEL SLATTERY, Esquire.
- JOHN RENDELL STREET, Esquire.
- DANIEL O'CONNOR, Esquire.

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PARLIAMENTARY STANDING COMMITTEE ON PUBLIC WORKS.

BRIDGE AT THE SPIT, MIDDLE HARBOUR.

REPORT.

THE PARLIAMENTARY STANDING COMMITTEE ON PUBLIC WORKS, appointed during the present Session of Parliament, under the Public Works Act of 1888, 51 Vic. No. 37, to whom was referred the duty of considering and reporting upon "the expediency of erecting a Bridge at The Spit, Middle Harbour," have, after due inquiry, resolved that it is not expedient the work should be carried out; and, in accordance with the provision of sub-section IV, of clause 13, of the Public Works Act, report their resolution to the Legislative Assembly:—

The bridge, as proposed, would cross Middle Harbour at The Spit, near the site of the present ferry; and according to the design it would be constructed of two central openings of 60 feet each, with two spans of 125 feet each on either side. The central spans would be formed by continuous lattice girders, revolving upon a central swing pier; the 125 feet spans would be independent lattice girders. The roadway of the bridge would be 32 feet wide; the height of the superstructure, which would rest upon wrought and cast iron cylinders, 30 feet in the clear above high-water; and the approaches, which would be 1,500 feet in length, would consist of timber spans, and an earthwork embankment. The total estimated cost of the work is £62,000.

As far back as 1881 representations were made to the Government in favour of the construction of a bridge across Middle Harbour, and since then the question has been before several Ministers for Works successively, the result, so far, being that a sum of £62,000 for the work was placed on the Loan Estimates for 1888, and passed.

The Committee, after a careful investigation, have arrived at the conclusion that the bridge should not be erected, and that the requirements at The Spit in the form of improved arrangements for crossing that part of Middle Harbour can for the present, and for many years to come, be met by means of a steam-punt.

They have come to this decision for several important reasons:—

- (1.) The expensive nature of the bridge compared with the alleged beneficial results which its construction would bring about.
- (2.) The present overland traffic to Manly and its neighbourhood, or that which is probable for some years to come, is not likely to be increased to such an extent as to warrant the erection of the proposed bridge, seeing that, even with this bridge, unbroken land communication could not be had between Manly and Sydney, unless by travelling round by way of the bridges across Lane Cove, the Parramatta River, and Iron Cove, a distance so great as to make the journey practically impossible.
- (3.) Inasmuch as persons passing between Sydney and Manly by way of The Spit must make use of the steam-ferry boats running between Sydney and North Shore, concerning which no witness examined by the Committee made any complaint, there should be no inconvenience experienced in the use of similar means of transit at The Spit, provided sufficient measures be taken for ensuring safety and expedition.

(4.)

- (4.) It is the intention of the Department of Public Works to at once place a steam-punt of the best description at The Spit, in lieu of the ordinary punt at present there, and the plan of this steam-punt shows that it will be sufficiently commodious to afford all the accommodation likely to be required for some time to come, while the width of Middle Harbour at The Spit being much less than the distance from Sydney to North Shore, the crossing in the punt at The Spit should occupy much less time, and could be carried out with as much regularity as the ferry service between North Shore and Sydney.
- (5.) It does not appear that the construction of the bridge would do much, or more than a steam-punt, to promote settlement, and the area of Crown land in the neighbourhood of Manly, the value of which would be increased by the improved means of access to it which the proposed bridge would afford, or the probable increased value, is not sufficiently large to justify the expenditure of £62,000, and the subsequent annual charge for interest upon that sum and other expenses connected with the maintenance of the bridge.
- (6.) The bridge, being a low-level one, would, to a certain extent, impede the present water traffic in Middle Harbour, and would be a more serious impediment when the shores of that estuary become, as in the course of a few years they may, extensively populated.

The bridge, as already stated, is estimated to cost £62,000; but as it is not quite certain that this would be the exact cost, the expenditure might be greater. Mr. W. C. Bennett, Commissioner and Engineer-in-Chief for Roads, says upon this point that the sum named will cover the total cost of the bridge and approaches as far as he can estimate; he has been guided by the prices paid for other works, and has reason to think that the estimate ought to be a fair one. But as no provision is made in the design of the bridge for footways, apart from the ordinary roadway, the cost would probably have to be increased to ensure the complete safety of pedestrians, especially if the bridge were to carry a tramway, though at present the possibility of a tramway crossing the bridge is not a matter for serious consideration. If these footways were provided, the estimate of £62,000, according to Mr. Bennett's evidence, would be increased by at least £3,000. By an appendix to the evidence of Mr. J. A. M'Donald, Assistant Engineer to Mr. Bennett, it also appears that if certain alterations were made in the design of the bridge the total cost would exceed to a very considerable extent the sum mentioned in the reference of the work to the Committee. But supposing the cost of construction to be £62,000, the annual charge against the bridge, representing interest and depreciation, working expenses, painting, &c., would be £3,604. All bridges in this Colony are free to the public, and therefore there could be no receipts from this bridge, unless at some future date a private company secured the right to use it for the purposes of a tramway, in which case the payment by the company would be credited against the annual charge arising from the expenditure upon the construction of the bridge. Against this large expenditure and this annual charge there must, of course, be placed the advantages which it is contended will arise from the construction of the bridge. First, there is the beneficial change from the present slow and unsafe method of crossing at The Spit by means of an ordinary punt,—an advantage, however, which can be secured without incurring the expense necessary for the erection of a bridge. Then there is the pleasure which would be afforded people by a drive from North Shore to Manly, or from Manly to North Shore; but as Sydney residents would not be likely to find much interest in such a drive while the necessity exists to use the ferry between Sydney and North Shore, the persons using the bridge in this way would be principally residents of North Shore, or Manly, and their number would be few. Further, there is the convenience which would be afforded those persons who are fearful of crossing the Heads in the Manly Beach steamers during tempestuous weather; but in their case also the number would be few, and they could cross at The Spit in a well-appointed punt with as much safety and comfort as over a bridge. Another reason advanced in favour of the bridge is an expectation in the minds of some of the residents of Manly that North Head, or a large portion of it, will eventually be dedicated by the Government as a public park, and

and it is considered that a bridge will afford suitable access to that locality. Inasmuch, however, as there is nothing to show that such a dedication is to be made, there is no ground for regarding this as a sound reason why the bridge should be erected. Lastly, there is the idea that the bridge would largely add to the value of Crown land around Manly, and by promoting settlement bring about much more profitable sales of land and a considerable addition to the population. But the evidence shows that the quantity of Crown land, the value of which would be affected by the bridge, is small, and therefore that the increased price likely to be obtained for it would, in comparison with the cost of the bridge, be of small consequence; and there is little or nothing in the statements of the witnesses examined by the Committee to induce the belief that the population of Manly and its neighbourhood would, after the erection of the bridge, increase more rapidly than now, or more than it would if some other and less costly improved means of crossing Middle Harbour at The Spit were provided in the place of the existing punt.

In relation to the second of the reasons which have influenced the Committee in their decision, it seems evident that if an extensive overland traffic between Sydney and Manly is to be brought about it must be by making the connection between the two places by land complete, and of such a nature that the journey from one place to the other shall be at least as convenient, if not more so, than the means which at present exist for communication by water. But the erection of this bridge, beyond the improved facilities it will afford for crossing at The Spit, will do nothing in the way of attaining this object. The overland journey must end at St. Leonards, and resort must be had there to the North Shore ferry boats, or it must be extended to the distance of about 20 miles, access to Sydney from the northern side of the harbour being had by crossing over the Parramatta River and other bridges. It is very improbable that with the existence of such obstacles the overland journey would be made by many persons, and it appears less likely when the facilities and attractions associated with the journey by water between Sydney and Manly are taken into consideration. The distance between the two places by water is seven miles; the journey is accomplished by the steamers of the Port Jackson Steamship Company, which run with perfect safety and uninterrupted regularity in any weather, in 35 or 40 minutes; and the maximum cost per trip by season ticket is 4d. Added to this should be the fact that the vast majority of those who travel between Sydney and Manly, either as residents of Manly or as visitors to that suburb, do so because of the benefit to health believed to be derived during the passage down and up the harbour. Even with tram communication between Manly and North Shore, it is very doubtful whether the journey from Manly to Sydney could be made as quickly and cheaply as is the case with the present water trip. To business men, therefore, and other persons to whom time is a consideration, and to the large proportion of the travelling public, who invariably give their patronage to what is safe, comfortable, expeditious, and cheap, the water journey to Manly would undoubtedly be preferred to a journey by land, the chief recommendation in connection with which would be that Middle Harbour could be crossed by means of a bridge.

Referring to the third of the reasons mentioned, it will be found from the evidence that the conveniences for crossing Middle Harbour by means of a steam-punt will be quite equal to what is experienced in relation to the steam-ferry boats running between Sydney and North Shore. No one among the witnesses examined considers that a steam-punt is equal to a bridge; but it is admitted that it may be made as convenient as what is met with in the traffic between Sydney and North Shore. That the steam-punt which it is proposed to place at The Spit will be safe and commodious, and will, moreover, perform its work expeditiously, will be shown further on; meantime it may be mentioned that the engineers responsible for both the plans of the proposed bridge and those of the steam-punt admit that the punt will get rid of the present difficulty experienced in crossing at The Spit. Mr. W. C. Bennett says (*Question 55*) that "there need be no very great difficulty if there were a steam-ferry there, except the inclines on either side." Mr. J. A. M'Donald, the engineer who prepared the designs for the bridge and the punt, states (*Question 651*) that the punt would certainly meet the requirements of the traffic for a time. Mr. Bennett does not think that the punt would, satisfactorily to the public, do all that

would

would be necessary for the next ten years; but Mr. M'Donald is of opinion (*Question 651*) that when the traffic has increased beyond what the punt will carry, the simplest plan would be to provide a duplicate punt, to run at intermediate intervals. Mr. Bennett alludes, as already mentioned, to the steep inclines on either side of The Spit; but this severe grade is shown by Mr. M'Donald's evidence to have been left with a view to putting the bridge in, and, if a steam-punt were decided upon, the grade could be eased down.

The intention of the Department of Public Works to place a steam-punt at The Spit, in lieu of the present ordinary punt, is influenced by the knowledge that, if the erection of the proposed bridge were sanctioned, it would be at least two years before the bridge would be completed, and some improved means of crossing Middle Harbour at The Spit is required at once. Therefore, plans for a punt have been prepared, and tenders for its construction invited. The punt is estimated to cost about £2,000, but it would probably be built for much less, as a tender for its construction, amounting to £1,487, has been received; and it is to be worked by steam and a wire rope, at an estimated annual cost, including depreciation, of £800, a large portion of which would be recouped by the annual receipts. Its carrying capacity will be eight ordinary-sized buggies each trip, with room for passengers on the side-walks; and it will cross and recross at intervals of 15 minutes, though the distance being short, it could do the journey much quicker. The punt, as proposed, is one of the latest design; and, according to the evidence of Mr. M'Donald, it would not be difficult to provide by means of it for the conveyance of the traffic connected with a tramway from one side of The Spit to the other. From this it will be seen that the punt is certain to meet the requirements of the ordinary traffic for some time to come. Eight ordinary-sized buggies every quarter of an hour would represent between, say, 6 o'clock in the morning and midnight, a traffic of 576 vehicles; and in the opinion of the Committee it is very improbable that there would be anything like such a traffic at this crossing, even if not only the Spit Bridge but also a bridge to connect Sydney with North Shore were built.

With regard to the question of the bridge promoting settlement and increasing the value of Crown land, it has already been shown that until land communication with Manly is complete, and there is no necessity to use the ferry boats between Sydney and North Shore, the traffic across the bridge must be very small; and therefore the bridge is not likely to promote in any appreciable degree, or more than a steam-punt would do, the settlement of population. Mr. J. W. Deering, Metropolitan and Coast District Surveyor, of the Department of Lands, who was examined by the Committee, and is well acquainted with the district about Manly and Middle Harbour, thinks the bridge would promote traffic to some extent from Manly Beach, but is of opinion that it would not be remunerative. He would regard the bridge as a highway along the coast, but admits that there is certainly no necessity for it at the present time, and that as far as concerns the question of traffic, a steam-punt would answer all purposes for many a day to come. As to the increased value of Crown land, which the erection of the bridge might be expected to bring about, Mr. Deering states that at Harbord, at Manly, near the water reserve, at Dobroyd, at Narrabeen, and at Manly Cove, there are about 4,118 acres which would be directly affected by the bridge. The approximate value of this area is about £73,980, and if the bridge were erected the increased value of the land might be estimated at 25 per cent., which would be represented by £18,500. But the fact that there is not likely to be much traffic over the bridge is evidence that its construction would not influence in any great degree the minds of persons purchasing this land to settle upon it, and though speculators may see in the bridge a step towards complete land communication with Sydney, it is improbable that they would regard it of the importance which would be indicated by an immediate increase of 25 per cent. in the value of land in the vicinity. But, taking Mr. Deering's figures, the increased value of the land which would be affected by the bridge is £18,500, and this at 4 per cent. would produce £740 a year, a very small reduction of the annual charge upon the public which would follow the erection of the bridge.

The last of the principal reasons which have led the Committee to conclude that the bridge should not be erected is that it would to a certain extent impede the water traffic in Middle Harbour. To this objection, however, the Committee do not attach very much weight. A high-level bridge would be so expensive that the erection

erection of such a structure could not be sanctioned except under the most pressing conditions as regards traffic; and a low-level bridge, however designed, must in some degree interfere with the passing to and fro of yachts and steamers. But the fact that the bridge, as proposed, would prove an interference with the water traffic deserves some consideration when placed in connection with the other objections against the structure, and to that extent the Committee regard it as one of the reasons why it is not expedient the bridge should be built.

The Committee might have examined other witnesses, for a large number of persons, principally objectors to the bridge, intimated their readiness to give evidence, but they were so satisfied from the results of the inquiry as far as they proceeded with it, of the inexpediency of carrying out the proposed work, and of the sufficiency of a steam-punt to meet requirements, that they closed the evidence, and on Thursday, 13th December, agreed to the following resolution:—

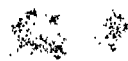
Moved by Mr. Kethel, and seconded by Mr. Campbell:—

“That the Committee do not consider it expedient to recommend the construction of the proposed bridge across Middle Harbour, at The Spit, as they are of opinion that the steam-punt proposed to be built by the Department of Public Works for a ferry Service at The Spit will be sufficient for all the traffic at that place for many years to come.”

JOHN LACKEY,

Chairman.

Office of the Parliamentary Standing Committee on Public Works,
11th January, 1889.



PARLIAMENTARY STANDING COMMITTEE ON PUBLIC WORKS.

MINUTES OF EVIDENCE.

BRIDGE AT THE SPIT, MIDDLE HARBOUR.

FRIDAY, 16 NOVEMBER, 1888.

Present:—

JOSEPH PALMER ABBOTT, Esq. (VICE-CHAIRMAN).

The Hon. GEORGE CAMPBELL.

The Hon. WILLIAM HENRY SUTTON.

The Hon. JAMES WATSON.

The Hon. FREDERICK THOMAS HUMPHERY.

HENRY COPELAND, Esq.

JACOB GARRARD, Esq.

SYDNEY SMITH, Esq.

JOHN RENDELL STREET, Esq.

DANIEL O'CONNOR, Esq.

The Committee proceeded to consider the proposed bridge at The Spit, Middle Harbour.

Joseph Barling, Esq., Under Secretary for Public Works, sworn and examined.

1. *Vice-Chairman.*] Do you know anything in reference to this matter? Yes. I will give just a short statement in reference to it. For many years the question of the necessity for the construction of a bridge over the Spit has been before the Government of New South Wales. I find that as early as 1881 representations were made to the Government of the day for the construction of a bridge over Middle Harbour, and I observe, on looking through the papers, that when the Honorable the Chairman of this Committee was Secretary for Public Works he gave instructions that the matter should be considered when the Estimates for that year were being dealt with. The question has been successively before Mr. Secretary Copeland, Mr. Secretary Wright, the late Sir A. Stuart, Mr. Secretary Lyne, and the present Government, the result of which has been that a sum of £62,000 for the work was placed on the Loan Estimates for 1888, and passed. I notice also amongst the papers that in 1883, Mr. Secretary Copeland directed that certain surveys should be made with the view of a railway or tramway being ultimately carried along the road, and subsequently Mr. Secretary Lyne, when the unemployed were about to carry out improvements to the road, gave instructions that the road should be constructed to tramway grade, which has been done. I may mention that a suggestion has been made by Mr. T. E. Willis for the erection of a high-level bridge near Clontarf, as shown on the plan I submit herewith. This proposal has been fully investigated by the Department, and evidence will be given on the point if required by the Committee. The main objections to it are that the bridge would have to be built on a reef, which would prevent the deepening of the channel at any future time, if the bridge were erected. The estimated cost of the work is £264,000.* Another objection is that there is at present no road to the site, and a large expense would have to be incurred to provide approaches. The engineer will produce a plan illustrating the matter. To show the growth of the traffic which has taken place on the road between Sydney and Manly, I subjoin the following statistics in reference to the punt traffic:—Previous to 1886 a collector was in charge, being paid at the rate of £1 per week, and retaining the tolls received. In 1886 the ferry was leased for £65 per annum. In 1887 the rent received was £165. In 1888 it was let at a rent of £276. From inquiry I have made at the Government Statistician's office I find that the estimated population of St. Leonards, East St. Leonards, Victoria, North Willoughby, and Manly is 20,070. With regard to the proposed bridge, I observe in looking over the evidence taken before the Select Committee on the North Shore, Manly, and Pittwater Railway and Tramway Bill, that many witnesses gave evidence that the height of a bridge at the Spit should be 100 feet. A rough estimate has been prepared of the cost of a high-level bridge at this place, which may be put down at something like £200,000† over the estimated cost of the bridge as proposed. It will be observed that two swing openings are proposed, and the cost of working the machinery may be put down at something like £300 per annum, but the interest alone on the additional amount required for the high-level bridge would, at 4 per cent., be £8,000 per annum, thus showing how very much more economical it will be to carry out the work as proposed, even allowing for the constant attendance of two men to attend to the swing. The following is a description of the intended structure:—This bridge, which is to form the connecting link between North Shore and Manly, will cross Middle Harbour at the Spit, near the site of the present ferry. As proposed, it will be constructed of two central openings of 60 feet, with two spans of 125 feet upon either side. The central spans will be formed by continuous lattice girders, revolving upon a central swing pier. The 125 feet spans are to be independent lattice girders. The roadway will be 32 feet wide. To allow of general harbour traffic the superstructure will be 30 feet in the clear above high water, and will rest upon wrought and cast-iron cylinders. The approaches to the main bridge, which are 1,500 feet in length, will consist of timber spans, and an earthwork embankment. £62,000 has been voted for the work.

J. Barling,
Esq.

16 Nov., 1888.

* NOTE (on revision) :—With a headway of 124 feet.

† NOTE (on revision) :—With a headway of 150 feet.

William Christopher Bennett, Esq., M.I.C.E., Commissioner and Engineer-in-Chief for Roads and Bridges and Sewers, sworn and examined:—

- W.C. Bennett, Esq., M.I.C.E.
16 Nov., 1888.
2. *Vice-Chairman.*] You know Middle Harbour, and have known it for many years? Yes.
3. Do you produce a design showing the proposed bridge at the Spit? Yes.
4. Will you tell us all you desire to state about this bridge? The best and cheapest place has been selected. Some two years ago the approaches to the punt were graded. The unemployed were engaged on it, and they made suitable approaches with tramway grades, at present available for the ferry, but arranged so as to be ultimately of use for the bridge.
5. So that the construction of the approaches on each side of the bridge is to a great extent already finished? The road to it is. Then we proposed to either embank the Spit along the sand or make timber open approaches. The latter course is the one that has been decided on within the last few days. We have only had borings made within the last few days to enable us to determine whether it would be safe to put a bank of such a height on the sand.
6. Will that add to the proposed cost? No; it will be the same.
7. Do you think this opening will be sufficient for the present and future traffic of Middle Harbour? I am quite sure it will. The opening in the Parramatta bridge is somewhere in the same proportion. It answers for all the traffic there.
8. Is it on the same principle as this? There will be some slight differences. We have adopted more recent improvements. Those girders are all to be steel.
9. What time would it take to open this bridge for a vessel to pass through? We will improve on the Parramatta River bridge. That is worked by hand. This will be worked either by steam or hydraulic power; we have not determined on that yet. If the water-pipes come sufficiently near, I think we would work by pressure from them; if not, we would have a steam-engine, accumulate sufficient water at a high pressure, and have a small hydraulic engine that would turn that in a couple of minutes.
10. The traffic that way has been increasing a great deal the last few years? Very rapidly indeed. I made the first road down there some twenty-five years ago—it cost about £300 the whole thing—across the Spit. The traffic has outgrown that, and since those inclines were made the traffic has grown very rapidly indeed.
11. And the present punt appliance? Is totally inadequate; so inadequate, that the Government on my recommendation are going to put a steam-punt there at once, pending the construction of the bridge, with the view that the punt can be removed when the bridge is built and utilised elsewhere.
12. You think then that this bridge will not interfere with the traffic of Middle Harbour to any inconvenient extent? I think not. There is a sentimental objection that yachts will not be able to go under it, but the ordinary openings of the bridge are to be 10 feet higher than the Parramatta bridge, and with the exception of half a dozen yachts, every boat in the harbour will be able to go under. Those half dozen are not fond of going up Middle Harbour; they go out to sea, where they have more scope, for a sail. It would be very unwise to put a bridge at a great height simply to accommodate a few yachts. If there is ever sufficient trade in larger sea-going vessels, they can pass through the swing.
13. Has not the population on the northern side of Middle Harbour been increasing very rapidly of late years? Very rapidly indeed.
14. As well as on the southern? Yes; on both sides.
15. *Mr. Humphery.*] You are of opinion that £62,000 will cover the total cost of the bridge and approaches? Yes; as far as I can estimate. We have been guided by the prices we have paid for other work, and I have reason to think that the estimate ought to be a fair one.
16. Will this bridge carry a railway or tramway? It will carry a tramway.
17. It will be constructed so that it will carry a tramway? Yes.
18. *Mr. Street.*] 32 feet I think you said was the breadth;—will that provide for the tramway and the vehicle roadway as well? Yes; it will provide plenty of room. If necessary we can put cantilevers for a footway.
19. *Mr. Garrard.*] How much would the cost be increased by an additional 10 feet in width? You might say it would be increased one-third. It would not exceed that.
20. Would it necessitate stiffer cylinders? Yes; it would necessitate larger cylinders in order to have a greater bearing area on the base, because the load would be increased. There would be heavier girders, and very much heavier cross girders; and then to increase the width of the swing would be a very large addition to the cost. In fact, if the width of the ordinary bridge were increased, I should be disposed to keep the swing at the present width.
21. What would be the estimated cost of providing these footways outside? I do not think they would cost more than £3,000.
22. You have not included that in this estimate of cost? No.
23. It would be very dangerous to pedestrians to be walking in the roadway on a long bridge like this with a large amount of traffic? Yes; I am fully alive to that.
24. Is it not desirable at once if this bridge is to be constructed to provide these footways for the safety of pedestrians? If they are going to have a tramway I think it would be desirable.
25. What depth are you supposed to sink to get a bearing for your cylinders on rock or hard soil? We have calculated on something between 30 and 40 feet.
26. Have you had borings there? We have not had borings until lately; we have borings now.
27. Have any other sites been proposed? Yes; there were several sites surveyed. There was a site brought under our notice by Mr. Willis; we made a survey for that, but it would be a gigantic affair.
28. Does that run across to Clontarf? Yes; a high-level, nearly as large as the proposed North Shore bridge.
29. A different route altogether from this? Yes.
30. I think you said it was intended to make this approach by timber work instead of embankment? Yes.
31. Does this join the new road that comes down there? Yes.
32. The new and the old roads run to much about the same place on the Spit, I suppose? Yes; but the old road is obsolete.
33. What incline have you put on the Manly side from this low-level bridge? I think it is not worse than 1 in 16 or 17.*
34. For any great distance? That is the ruling gradient a good deal of the way.

36.

* NOTE (on revision) :—It is 1 in 20 and 25, except at foot.

W.C. Bennett,
Esq.,
M.I.C.E.

16 Nov., 1888.

35. It would be considerably easier than the present one? Yes.
36. Are these all cast iron cylinders, or are some of them wrought iron? Our usual plan is to have cast iron cylinders below high-water mark and wrought iron from that up.
37. What other bridges are built that way? Parramatta River, Iron Cove, Manilla, in fact all the bridges built by the Department.
38. Is there much corrosion on the part of the wrought iron cylinders? No; I do not find it.
39. I suppose these cylinders are filled up in the usual way with concrete? Yes.
40. What width would be required for a single line of tramway? About 9 feet.
41. And for a double line? 18 feet.
42. That would only leave 12 feet? Yes; but then the tramway part of it would be available the same as the street for traffic.
43. But in the event of two trams going in opposite directions at the same time there would be no room for vehicles? The traffic should be regulated. There would be nearly as much room as there is in many of the streets.
44. How long do you estimate this bridge to last? It is almost impossible to say. It will certainly last 150 years.
45. Do you not think then that in view of the possible enormous growth of traffic there it would be wise to have it wider? It is hardly necessary to look forward so far.
46. The opening between the cylinders is 60 feet clear? Yes; it is a little wider than the Parramatta bridge.
47. And the headway? The headway is 10 feet more, that is in the fixed girders.
48. I suppose the estimate of cost is not likely to be exceeded—it is based on your experience of bridge building in other parts of the colony? Yes.
49. *Mr. Copeland.*] Is there not some proposal at the present time for building a tramway along this road? Yes.
50. Is that a private concern? A private company are trying to get a bill through the House; I reported strongly against it.
51. On what grounds did you report against it? I reported against it, then, because it was a narrow gauge; that was one reason. Another reason is that I am doubtful of the prudence of giving a private company rights on public roads.
52. I suppose if this bridge were built, this tramway company would expect to use it? They expect to pay for it too, I think; they expect to pay something reasonable.
53. Would they be likely to construct a bridge themselves;—would they be strong enough to do that? They talked of doing it.
54. I suppose they would not be likely to build it if they could get the Government to build it for them? Very likely the bridge they would build would be only suitable for themselves; the Government bridge would be useful for general purposes.
55. What real necessity is there for this bridge;—is there any difficulty in crossing at the present time? At present there is, but there need be no very great difficulty if there were a steam ferry there, except the inclines on either side; and the traffic is getting very great.
56. I suppose the whole of the vehicles between Sydney and Manly Beach would have to go by that route? Yes, any vehicle traffic there is must go that way.
57. I suppose this road would also be required for military purposes? Yes, it was on that ground I objected to the tramway being so narrow. If any urgent occasion came to concentrate a lot of rolling stock and get material and men down to the Heads rapidly or get them away, there would be no rolling stock but the limited rolling stock of this company; but if it is made the ordinary gauge the whole of the rolling stock of the colony could be brought there if necessary.
58. I suppose this bridge as proposed will be strengthened to carry heavy field-guns? It would carry any field-guns, decidedly. I do not think it would carry those heavy 100-ton guns or 50-ton guns.
59. You think this is the best site for the bridge attainable? Yes; I think it is, at a moderate cost.
60. Do you think there is really any better site—more useful site? I do not. There is a site which would require a very large outlay, and, as another objection, it is right on the top of a rocky shoal, which may have to be blasted out and excavated at some future time to admit vessels of a large draught coming up, and the bridge being there would make the blasting rather awkward and expensive.
61. Suppose you were to get a steam-punt, would it be capable of affording accommodation for the traffic? The steam-punt we propose now is only calculated to accommodate horse traffic; it would have to be a very much larger affair to accommodate a tram, and the grades are very steep. It would be rather an awkward affair altogether.
62. Would it be large enough to carry horses and vehicles? Yes; the one we propose would carry horses and vehicles. It would be the same as the one at George's River.
63. What would be the cost of that punt? £2,000.*
64. And the annual charge? £500 a-year.
65. Then there is the interest on the £2,000? Yes, and the depreciation.
66. What is the depreciation? The depreciation would be 10 per cent., and the interest 4.
67. *Mr. Garrard.*] Do you find 10 per cent. sufficient to allow for the depreciation of a steam-punt? If you have a sum provided for repairs also. Ten per cent. is the capital depreciation. I conclude you would have to put a new punt there every ten years.
68. Does £500 for maintenance include working and repairs? Yes. We have a steam-punt at Grafton that has been twenty years at work.
69. *Vice-Chairman.*] What would be the annual income from this steam-punt? It would be very difficult to say. The traffic would not be so great on the punt as it would over the bridge, if it were there, because many people would drive their vehicles who would not go over in the punt.
70. But the steam-punt would induce traffic? Yes; I should think the income would be £400 a-year.
71. What income do you reckon there would be from the bridge? That would depend altogether upon the tolls.
72. *Mr. Copeland.*] The interest in running this steam-punt would amount to £800 a-year, against which you have a probable reimbursement of £400, leaving an annual charge of £400 a-year. On the other hand, you propose to expend £62,000 on this bridge, which, at 4 per cent., would amount to £2,480? Yes; but then the bridge would be for all time, and afford greater accommodation.
73. The £2,480 interest would also be for all time? Yes, unless they put a toll on the bridge. 74.

* NOTE (on revision):—Since let for £1,450.

- W.C. Bennett, Esq., M.I.C.E.,
16, Nov. 1888.
74. In one case a steam-punt would necessitate an annual toll of £400; in the other case the bridge would amount to £2,480 a-year? Yes. You have not calculated the maintenance of the bridge, the painting, and so on; but still I think the additional cost of the bridge would be justified by the additional accommodation afforded to the public.
75. Do you think the steam-punt would not do for all the traffic at the present time, and, say, for the life of a steam punt—for ten years? I do not think so.
76. How many vehicles would this punt you propose carry over at one time? It would carry just as many as one of those North Shore steamers.
77. How long would it take to cross the water from shore to shore? Three minutes each way. Of course there would be the unloading at the wharf, and so on. Every ten minutes you could go.
78. On each trip would you carry as many as can be carried by this North Shore punt? Yes, nearly as many.
79. How often do the punts leave for the North Shore? Every quarter of an hour.
80. If you had one leaving every quarter of an hour at the Spit do you think there would be more traffic than there is across to North Shore? Not to begin with.
81. For the next ten years is there likely to be more traffic across the Spit, or across to the North Shore. You are not looking to have anything but a punt to the North Shore for the next ten years—it would take ten years to build the North Shore bridge, I suppose. What I want to get at is this: Whether, speaking as an officer of the Department, not having any predilections at all, you think a steam-punt, at an outlay of £400 a year, could not be made to do service for the next ten years? I do not think it would do it in a way satisfactory to the public. I think it would restrict the growth of settlement on the other side.
82. Before they had the bridge across from New York to Brooklyn, do you think the want of a bridge prevented Brooklyn from growing? I know it did not.
83. It has not prevented North Shore, St. Leonards, and those places from growing? No, it has not; but if they had had a bridge they would have grown much faster.
84. Do you not think they have grown fast enough;—do you think there are any other places in the Colony that require the expenditure more urgently than this, if provided with a steam punt, the same as they have to North Shore? In the way of bridges I do not.
85. What about the bridge across the Darling? I know there will be a good deal more traffic here than on any bridge across the Darling.
86. Do you estimate that a steam punt giving as much accommodation as the North Shore one could be worked at an annual outlay of £400? Yes; taking the probable income. Of course these are only rough estimates.
87. *Mr. Sydney Smith.*] And the cost of swinging the bridge—what would you estimate that to be? That would be £250.
88. And what about wear and tear to the swing? Of course, there would be the cost of that.
89. What percentage of depreciation would you allow on the first cost of the bridge? It is very hard to say that, except on the swing.
90. Would there be 5 per cent. depreciation? That would only give twenty years for the bridge. I said the bridge was likely to last 150 years, and that would be less than 1 per cent.
91. *Mr. Copeland.*] What would you reckon the cost of repair, roughly speaking? Painting would cost about £200 a year.
92. Grease and oil, and so on? That would be very little—£10 a year would do all that was necessary.
93. Would there be any other kind of repairs necessary? I do not think there would, unless there was an accident.
94. Then the total outlay for this bridge would amount to £2,930 a year—I suppose we might safely add the other £70 and make £3,000 a year—as against £400 per annum, less the receipts, for the punt? Yes; but then you estimate the receipts of the punt, and you do not estimate the receipts from the bridge. Even if there were no toll on the bridge for vehicles, the tramway company would have to pay something. They should be bound to pay rather more than the difference between the two.
95. Do you think it is safe to estimate on an income from a company that is not in existence? No; but if a company is not formed, and a toll is put on the bridge, the vehicle traffic will be so great as to pay very well.
96. Are there any tolls on any other bridges? No; but that is a matter for legislation.
97. *Mr. Humphery.*] Have you formed any opinion of what would be a fair charge to make the tramway company for the use of this bridge? No, I have not. That could easily be arrived at by a calculation like that Mr. Copeland has been making, but more detailed.
98. Are you of opinion that the tramway company should pay 4 per cent. of the cost of the bridge? Yes, I think they should.
99. *Vice-Chairman.*] The tramway company could not work without a bridge? The tramway company should pay the difference between £2,450 and the revenue derived from passengers; because if the tramway company were charged for the bridge, there should be a toll collected on the passengers, or an allowance made to the company for the possible toll.
100. *Mr. Humphery.*] That is the difference between the 4 per cent. on the cost of the bridge and the present returns from the punt? No; and the possible returns from the passengers on the bridge.
101. Allowing a fair increase every year? Yes; there are a great many elements in the calculation, but it would be easily arrived at. Those are the principal features.
102. Could you estimate what would be a fair charge to make the tramway company for the use of that bridge? Well, I could estimate it, but I would rather not do it now. I will send it down to the Committee.
103. *Mr. Suttor.*] Do you know how far this tramway company will run their lines on public roads in that district? They are to go from the present tramway terminus, and follow the military road, I think, and the Spit road that we have made, and on to near Manly. Then, I think they deviate a little beyond Manly from the ordinary road, and make what they call a railway of it.
104. You say they ought to pay something for running over the bridge;—ought they not to pay something for running over the main roads as well? I should think so: There will have to be an arrangement to keep the road in repair.
105. *Vice-Chairman.*] Would it be possible for the tramway to carry their service across the Spit by means of a steam punt? It would be possible, but it would be awkward, dangerous, and uncertain. The inclines close to the water were advisedly left steep. They were carried down to the probable level of the bridge

- bridge at an easy grade, and from that it was necessary to carry them down steep to the water's side; so that there would be a steep grade to encounter after getting out of the punt.
106. *Mr. Garrard.*] What would be the life of the timber approaches to the bridge? Thirty or forty years.
107. What proportion would that bear to the whole cost? About £12,000.

W.C. Bennett,
Esq.,
M.I.C.E.
16 Nov., 1888.

John Alexander M'Donald, Esq., M.I.C.E., M.I.M.E., Assistant Engineer, Department of Roads and Bridges, sworn and examined:—

108. *Vice-Chairman.*] Did you prepare a design for this bridge over the Spit at Middle Harbour? Yes; under Mr. Bennett's supervision.
109. What have you to tell the Committee about it? I do not think there are any points I can bring forward that Mr. Bennett has not, except in reference to any details.
110. *Mr. Garrard.*] What would be the increased cost of making this bridge 10 feet wider? I could bring you that calculation at the next sitting. [*Vide Appendix A.*]
111. What is the planking? On the whole of the iron bridge it is proposed to put a buckle plate deck, with a tarred metal roadway.
112. Do you find that answer better than the planking? Yes. It is in a constant state of repair, whereas when the timber decking is worn out it means an interruption of several weeks at least to repair it.
113. I suppose in the event of putting footways there they would be planked? Yes.
114. *Mr. Suttor.*] Have you been asked to make any calculation of the cost of this bridge with a headway, say, 100 feet? There have been two sites proposed for a high-level bridge.
115. What would be the cost of the Spit project? About £220,000 with 100 feet headway.
116. That is the total cost? Yes.
117. What was the cost of the other site? That is on the high-level site suggested by Mr. Willis, and the Commissioner had a survey taken of it. The estimate for that would be £260,000, exclusive of the new roadway, which would be very heavy work, with very bad grades, as steep as 1 in 15.
118. That is nearer the mouth of Middle Harbour? Yes. Another great objection to this the Commissioner has already referred to; it would be built on a reef, which has only about 9 feet of water on it at low tide, and if we built a bridge on that it would practically forbid removing the reef at any future time.
119. *Mr. Garrard.*] Is that what is called the Clontarf site? Yes.
120. *Mr. Suttor.*] Have you heard it proposed that the bridge should be 150 feet high;—have you made a calculation of that? Yes; but only a rough calculation.
121. *Vice-Chairman.*] I suppose the easiest way would be to tell us how much a foot it would take to raise it? No; the spans would be altered as you raised it. The estimated cost is £264,000.
122. *Mr. Suttor.*] I suppose it is not proposed to make a lower bridge than the one on this plan? No.

J. A.
M'Donald,
Esq.,
M.I.C.E.,
M.I.M.E.
16 Nov., 1888.

FRIDAY, 30 NOVEMBER, 1888.

Present:—

The Honorable JOHN LACKEY (CHAIRMAN.)

The Hon. GEORGE CAMPBELL,
The Hon. WILLIAM HENRY SUTTOR,
The Hon. JAMES WATSON,
The Hon. FREDERICK THOMAS HUMPHERY,
JOSEPH PALMER ABBOTT, Esq.,

HENRY COPELAND, Esq.,
JACOB GARRARD, Esq.,
ALEXANDER KETHEL, Esq.,
SYDNEY SMITH, Esq.,
THOMAS MICHAEL SLATTERY, Esq.

JOHN RENDELL STREET, Esq.

The Committee further considered the proposed bridge at The Spit, Middle Harbour.

Thomas Littlejohn, Esq., merchant, and resident of Manly, sworn and examined:—

123. *Chairman.*] You are a merchant in the city of Sydney? Yes.
124. And I believe Vice-President of the Chamber of Commerce? Not now.
125. Where do you reside? At Manly.
126. Are you a property holder? Yes; I have a small property.
127. Is your property in the neighbourhood of the proposed bridge at Middle Harbour? No.
128. You know the site of the bridge across the Spit? Yes.
129. Have you seen any design of the structure showing the height, width, and length of the bridge? I saw a sketch in Mr. Barling's office about ten days ago.
130. How long have you been a resident at Manly? For about four years permanently.
131. But you are an old colonist independently of that? Yes.
132. And you have watched the progress of Manly? Yes.
133. Has the population increased largely within your knowledge? Yes; it has more than doubled.
134. It is increasing in a greater ratio than it has ever done before? Yes. But I ought to explain that just lately there has been a lull in the accession to the population. I suppose, however, that we shall soon see them coming in again as numerously as before.
135. The greater number you have there the greater, of course, the proportionate increase? Yes.
136. Has it occurred to you during your residence at Manly that the residents have suffered inconvenience through the want of land communication with Sydney? Yes, to a considerable extent; and extra expense, besides inconvenience.
137. The crossing at the Spit is the only route by which what may be called semi-land carriage has been carried on? Yes.
138. This has caused great inconvenience, I take it? Yes.
139. Have the residents of Manly complained of it for some time? Yes; it has been a standing complaint. I ought to say, however, that some of the inhabitants do not want the improved access. For instance some of my own family say that our privacy will be invaded, and that our beautiful quiet will be destroyed.
140. I dare say there are other elements of objection to the construction of the bridge—vested interests—the steam-boat proprietors, for instance? Yes.
- 141.

T. Littlejohn,
Esq.
30 Nov., 1888.

- T. Littlejohn, Esq., 30 Nov., 1888.
141. Of your own knowledge have you been aware of any inconvenience caused from the want of improved land communication? Personally I have not been aware of any; but I know from report a good many instances in which great danger has been run, and where there has been great loss of property and nearly loss of life through the inconvenience of the crossing as it at present exists.
142. Do you think that if a bridge were constructed over the Spit it would be a favourite drive for people from Sydney? Yes.
143. It is a very pretty drive along the heights of the Military Road, and across from there to Manly? Yes. I should like in this connection to state a little of what I have seen in other places. I live on the side of Manly next to the North Head. The Roman Catholic grounds are a little off my fence, and beyond them seaward is that magnificent block of land consisting of the North Head. In travelling in Europe, Asia, and America, I have seen public parks in various places, but I have seen no place which is so exquisitely situated for laying out as a public park as is the North Head. I think that it ought to be viewed in that light by the authorities, and preserved for the purpose of making what I should call a Royal Park. The time is not far distant, perhaps, when the North Shore will become a very populous locality. In a few years there will be perhaps several hundred thousand inhabitants. Then I think that if this bridge is built visitors will come down that way from Sydney. Probably a number of visitors would be attracted by this park. I have in my mind's eye an aristocratic and leisured population in Sydney, who would be constant visitors, just the same as in the West End the inhabitants of London go to Hyde Park, Richmond Park, and other such places of resort. I think it would be a great pity to allow that splendid site to be sacrificed for any other purpose. It is capable of being laid out in the most beautiful winding roads and walks, and there are a great many beautiful hollows where tropical flowers and plants could be placed. I am advocating the erection of the bridge over the Spit in order that the formation of this park might be facilitated and accelerated.
144. What would be the distance from Sydney to Manly by way of the proposed bridge? I suppose that if people had to leave Sydney and cross the North Shore the distance would be about 10 miles.
145. Are you aware of the altitude of the proposed bridge? I am not.
146. I believe it is proposed to make it 30 feet from high-water-mark? It looks something like that from the design.
147. From your experience of the traffic there, do you think that would be sufficiently high? Not for all the traffic; if the swing bridges were not included it would admit only the small craft.
148. Do you think that the construction of the bridge would impede the traffic, and thus depreciate the value of property higher up? I do not think the interference with the traffic would affect mercantile affairs; it might affect yachtsmen to some extent.
149. But would it affect the value of the property? To its advantage. When I first went down to Manly there were no roads on my hillside; but as soon as roads were laid out, and people got access to the land, property went up. An allotment of 50 by 150 feet sold readily at £30—that is to say the seller was glad to get it; but now you would not get any of the blocks under £400 or £500, though about six or eight years ago those lots sold for £30 each. I think the property between North Shore and the Spit would benefit even still more by the bridge.
150. You have, I suppose, frequently been up Middle Harbour,—above the Spit? Yes; I have taken boats up from the Waterfalls to the Spit.
151. What distance would that be? By water probably not much more than 1 mile; it might be $1\frac{1}{2}$ mile or 2 miles, going up past the Quaker's Hat.
152. You think it would be a great advantage to have the bridge constructed across the Spit? An undoubted advantage, and I should say that the sooner it was constructed the better.
153. *Mr. Abbott.*] Have you gone into any calculation to show what the cost of the bridge would be likely to be as an annual charge against the public? No.
154. That has not entered into your consideration at all? No.
155. That is a matter of the most perfect indifference to the land owners of Manly? I do not know what area of land the Government still hold there, although if it is anything appreciable the increase to its value will be so great that the mere cost of the construction of the bridge will be a trifle.
156. If the Government want to get access to the Crown lands on the eastern side of the harbour there are places higher up, are there not, which could be bridged directly to these lands, giving direct communication; that is to say if the object of the Government is merely to give access to the land? From what I have seen of the elevations I should think it would be possible to put a bridge across in many places.
157. Do you think the Government would be justified in imposing upon the public for all time an annual charge of £3,604 for this bridge? Yes, more than justified.
158. In what way? Because of the price at which they would be able to sell the land.
159. You are assuming that this is the only place at which the Government can get approach to their Crown lands;—suppose they can get a better approach to the land which they have on that side of Middle Harbour,—do you think there would then be any justification for inflicting this charge upon the public every year? Well, I should say there would be no justification for adopting an inferior in preference to a superior approach, if a superior one could be found.
160. Is it not a fact that a great proportion of the houses at Manly Beach are vacant for a considerable portion of the year? During the last two years a great many houses have been vacant.
161. Are not a great many of them vacant in the winter? There are no more vacant in winter than in summer.
162. Do you not think the bulk of the people live there for the sake of the sea trip? Do you mean the present residents?
163. Yes? No; I do not think so. In my own case, I can say certainly not.
164. Would you come round by the road into Sydney if you had this bridge? I am half afraid that if there were an awful storm one morning I should prefer the bridge.
165. But with or without storm, would you come overland to Sydney in preference to taking the salt-water trip? Certainly not; that is, not as a rule.
166. It would be a sort of appendix to the pleasure of living at Manly? Yes; and it would perhaps enable us to get to town at times when the steamers were not running.
167. Would not a steam-punt give you all the accommodation you require for casual trips? Well, then you would deprive a great many country visitors of a pleasant trip.

168. Would not the steam-punt do for them? I do not think it would be capable of accommodating the immense volume of traffic. T. Littlejohn, Esq.
169. Do you mean to say that country visitors are so fond of travelling by land that they will go across to North Shore for the purpose of getting a land trip to Manly? Many of them would not come through Sydney. I anticipate the time when North Shore will be a large portion of this immense city, with direct communication all over the Colony. I presume that they would come down to Manly from places at which they were staying on the North Shore—perhaps to visit my projected park. 30 Nov., 1888.
170. You are assuming that the country will give up the land for the purpose of forming this park? Yes.
171. And upon that assumption you think the bridge ought to be built? Well, that is one of the features of the case.
172. Have you any idea of the value of the proposed park at Manly? I have not the slightest idea; but I am sure that it would be almost a hundred times greater than it is now in the course of a few years.
173. Is it worth half a million now? I should say more—its prospective value is incalculable.
174. *Mr. Copeland.*] Have you any idea how many of the people residing at Manly keep buggies? I can't say exactly; I think I know personally of about half-a-dozen.
175. How long does it generally take the steamers to travel from Manly to Sydney? The ordinary steamers, excluding the smallest and the oldest, do it in about half an hour and five minutes from wharf to wharf.
176. How many miles is it driving from Manly to Sydney and excluding the crossing in the punt at North Shore? I should say it would be a little over 10 miles.
177. Where would you cross the Parramatta River to make the distance 10 miles? I scarcely understand your question, as to the Parramatta River.
178. You would have to cross the Parramatta River if you did not use the North Shore ferry? That is a different thing altogether; I do not know where you would cross the Parramatta River, unless you went to Ryde, or to the bridge at Gladesville.
179. Well, can you give me the distance from Manly to Sydney by way of the Gladesville Bridge? No; I cannot.
180. Would it be 20 miles? I should not be surprised if it were 25 miles.
181. If you had to drive all the way from Manly to Sydney, then, the distance would be over 20 miles? At the present moment.
182. That is unless you made use of the North Shore ferry? Exactly so.
183. Is there any greater difficulty in using the steam ferry at Middle Harbour than exists in using the steam ferry at the North Shore; you see you would have to use one ferry, even if you had a bridge at Middle Harbour? No; I cannot see that there is any greater difficulty, but it would be a great advantage if carriages could go all the way from North Shore without having to use a ferry.
184. But you could not go all the way from Sydney without a ferry, unless you had a bridge over from North Shore? We want both bridges.
185. Could not the bridge at the Spit wait until you get the bridge from North Shore? I think it would be very advisable to accept that which is offered first, and to wait for the next.
186. You will take all you can get, and look for more? Just so.
187. What is the freight per ton of goods from Sydney or Manly? I cannot say, I have had no experience of it.
188. Do you think that if this bridge were built you would be able to get your goods from Sydney at a cheaper rate by road than you now pay by the steamers? I believe so, and with far less trouble.
189. By what means of carriage? It would have to be at present by drays.
190. You think the drays could take the goods overland better than the steamers could take them? I think so, for lately the steamboat company have imposed wharfage rates upon goods landed at their jetty in Manly.
191. And you cannot tell us what the steamer freight is? I cannot, except for small packages, and that would be no guide. I know that one or two of my neighbours have had furniture brought down by land across the Spit, as it exists at present, in preference to having it brought down by steamer.
192. The park of which you spoke is not yet planted? No; there is nothing but snakes there at present.
193. How long do you think it would take a park like that to grow in order to become attractive? I should think that after the formation of the plantations two or three years would be enough to make them show well.
194. You think we have not enough parks in the neighbourhood of Sydney without having another at North Head? None of them can equal it.
195. You seem to think that the time is at hand when Sydney will become a suburb of the North Shore, and when people will go there direct without troubling Sydney at all? I do not think I put it in that way, but of course they would each be parts of a large city.
196. *Mr. Watson.*] How far does Middle Harbour extend from the Spit inland? I have myself been up beyond the Spit 4 or 5 miles, I think.
197. Is the land all sold on each side of the harbour? I do not know.
198. Do you not think that its value would be depreciated if a bridge were built there? Certainly not, because the access would be constantly improving.
199. Do you not think the bridge would affect the traffic? I think it would in one way—it would increase it.
200. Up Middle Harbour? Everywhere, all round about.
201. I think you mean that the traffic would be increased between North Shore and Middle Harbour; but I am speaking of the traffic up towards the head of Middle Harbour;—do you think that that would be increased? I think the bridge would increase the traffic to every place in the locality nearly. You would have roads made all through the adjoining land I suppose, and wherever roads are made land increases in value.
202. Would not the traffic towards the head of Middle Harbour by water be impeded? It would to an extent; that is, in so far as vessels whose masts were higher than 30 feet would be precluded from going up except through the swing bridges.
203. Consequently the land would be depreciated because there would not be the same amount of traffic? You must have regard to the kind of craft going up; anything with masts under 30 feet would be able to go up with ease.

- T. Littlejohn, Esq.
30 Nov., 1888.
204. Well, take pleasure yachts for instance? Two or three on Saturday night or on Sunday would be all that would go that way.
205. Do you think the country would be justified in giving half a million's worth of land for a park for the people of Manly? It would not be for Manly; it would be for the people of New South Wales, in fact for the whole world.
206. You already have two parks at Manly have you not? Well, I know of one.
207. Do you think that if this bridge were erected you would often drive to Sydney—except in time of tempest? It is quite possible.
208. You would drop your buggy at North Shore and come over to your business in Sydney by the ferry? Yes, until Sir Henry Parkes' bridge is built.
209. What might the population of Manly be? I think the mayor or aldermen would be better able to tell you that; I have heard 4,000 named as the total population.
210. If the Government decided upon the recommendation of the Committee to build this bridge at the expense of £70,000, it would be for the convenience of 4,000 people? No. And, as I explained at the outset, some of us do not want the bridge, or any such interference with our quiet and comfort. Many people at Manly do not want the bridge. It is from public motives that I speak in its favour.
211. Do you know of any people of your own knowledge who do not want the bridge? Yes; some of my own family.
212. They do not want it? Well, they say that it will interfere with our quietness; but I do not think their judgment in the matter is very good.
213. *Mr. Abbott.*] Is there not just a possibility of a population springing up on the hills surrounding Middle Harbour, along the top from North Shore, and on the other side where there are Crown lands? I think there is a great possibility of it, and I think this bridge would help it.
214. Would not this bridge obstruct direct communication with those places? By water, no; because the swing bridge could be easily moved. I have crossed at Balmain frequently. Certainly a delay of 5 minutes when you are coming into business in the morning is not agreeable, but the bridge-keeper would see the craft coming along on either side at a considerable distance. They would have their signals hoisted, and there need be no delay whatever. If the bridge-keeper were ready for them they would not be more than a minute going through.
215. *Mr. Sutor.*] There is a large amount of private property in Manly? A good deal.
216. Have you any idea as to the value of it altogether? It has been of shifting value lately.
217. Upwards or downwards? Downwards.
218. Still there has been a general increase in value? Yes; I have already given you an instance of the increase in the value of the land there.
219. If this bridge is erected I suppose property will increase still more in value? I do not think very much for a considerable time; I have not been taking that feature into consideration at all.
220. But if the bridge leads to an increase of the population there will surely be an increase in value? Well, we have public accommodation for visitors, and we look for an immense influx of strangers and others to the place as time goes on.
221. Suppose this Committee recommended that the bridge be not erected, do you think the people of Manly would take the matter into their own hands and build the bridge themselves? I do not think so.
222. Do you think it would pay a company to have a bridge there? I dare say it might.

Thomas Buckland, Esq., sworn and examined:—

- T. Buckland, Esq.
30 Nov., 1888.
223. *Chairman.*] You are an old resident of Sydney? Yes.
224. You have lived here for a great number of years? I have been connected with business at the corner of Market-street for fifty-five years.
225. You have heard of the proposal to construct a bridge over Middle Harbour at the Spit? Yes.
226. You take some interest in the proposed work? I do.
227. Are you the owner of any land there? Not one acre.
228. You know the country pretty well? I do.
229. Do you think it would be desirable to construct a bridge over the Spit there? I think that unless there is sufficient headway left for any sailing vessel to pass under whose depth of draft would enable it to pass the Spit, it should not be constructed. I come to that conclusion from what has happened in connection with the Pyrmont Bridge. When that was proposed there would have been, I think, strong opposition to it—sufficient, I think, to prevent it from being built; but, unfortunately, all the water frontage in Cockle Bay was in the hands of persons who were either trustees, or executors, or absentees. When I tried to get up an opposition to the bridge, I was met with that difficulty—I had no one to back me up. The effect of the building of the bridge was that the rental went down one-third. In some cases, when the leases fell out, I think the rent went down a great deal more. I am sorry to say that last Saturday there was a fire in my office; and what with fire and water, I am very much in the position of being between the Devil and the deep sea. My premises have been saturated with water, or I would have endeavoured to produce for you some papers from which you could have obtained some valuable facts. But speaking from memory, the rent of my own wharf went down from £500 to £300, and subsequently to £2 10s. a week. The rent of the Albion Wharf went down from £900 or £960 to £700 and to £600. The next wharf (Sheldon's) was used only for slaughtering and for the sale of meat. I think that nothing was afterwards obtained for Street's Wharf for wharfage.
230. You think the bridge was a mistake then? Well, the rents went down a third or more.
231. Do you think the construction of a bridge across the Spit would lead to a parallel result? Yes. There was a large coasting trade in Darling Harbour. It is important that coasters should get in and out as quickly as possible, and the delay in opening the bridge made a difference in the length of the trips.
232. There are no wharves or any improvement for the purpose of commerce up Middle Harbour now? No.
233. You think there will be in the course of years? My view is that people who have gone up the line to live, at Burwood, Ashfield, or Homebush, will leave those suburbs as they become more thickly crowded, and will go to more healthy sites on sandhills and sandstone. I think that a lot of land at Middle Harbour is likely to be taken up as places of residence for retired people. Gradually, of course, North Shore will extend over in that direction.

234. Are you aware of the height of the proposed bridge? I understand that it is to be 30 feet. Less than 120 feet would not allow many sailing vessels to go through unless they struck their top-gallant masts. T. Buckland, Esq.
235. You are aware that it is proposed to have a swing bridge? Yes; that is the curse of the thing—waiting for the swing. 30 Nov., 1888.
236. You are aware that the population of Manly Beach is largely increasing? Yes.
237. I suppose you recollect the time when there were a very few people at the North Shore? When we put up land there in 1853 at a reserve of 15s. per acre there were no bids; the other day I was taxed at £500 per acre. Fortunately the land was not my own. The old camping place at Manly, where we used to go shooting and fishing, is now a little city. No doubt a bridge would be a great improvement and convenience, but anything interfering with the access to any part of the harbour I should most strongly oppose. It puzzles me to think how any men could agree to such a thing; they must be mad. We are proud of, and boast of our beautiful harbour, and yet we put barriers across it to prevent access. The thing passes my comprehension.
238. I suppose you know that it is a great inconvenience to the people of Manly not to have any means of coming to Sydney by land? Of course a bridge would be an excellent thing so far as that is concerned.
239. Then you think it would be a good plan? Always supposing that you would allow sailing vessels whose draft would allow them to pass the Spit to pass through without any inconvenience.
240. You think that a bridge of the height proposed would be much too low? Much too low.
241. Do you know to what distance above the Spit the water is navigable? I am not aware.
242. I mean for boats? I do not know what depth the channel would give.
243. They are commencing to build houses above the Spit, are they not? A few, not many; but the other part of North Shore is like a city.
244. Do you think that a steam-punt would answer the requirements of the traffic at this point? I cannot say; it is a makeshift at the best. We had a steam-punt at North Shore at one time, but it was a great makeshift.
245. Have you ever travelled through America? No.
246. You have not been home since you first came out here? I have never been out of New South Wales since I came here except to New Zealand and Victoria.
247. *Mr. Abbott.*] If you were told that the annual cost of a bridge with iron approaches would be £4,227, do you think there would be any excuse for setting such a burden as that upon the people for many a day? Not unless there were access for sailing vessels to the upper part of the harbour. If you cut that off you would not only cause great inconvenience, but you would depreciate the value of all the Government property beyond.
248. Do you know the bays up in that part of the harbour pretty well? I do not. I have been round them often enough, but I have never taken particular notice. I know that there must be enormous water-frontages from the sinuosity of the bays.
249. Do you not think that a steam-punt would answer the traffic requirements of Middle Harbour for many a day? It would for some time, but it is a very poor convenience.
250. *Mr. Suttor.*] You think we ought to have a high-level bridge at Middle Harbour? If we had any at all.
251. Do you know what a high-level bridge would cost? I do not.
252. We have evidence that a high-level bridge would not cost less than £220,000? I do not think it could be done for that money.
253. Would you recommend such a bridge as that? Not until we get a much larger population there.

John George Griffin, Esq., Mayor of Manly, sworn and examined:—

254. *Chairman.*] You are the Mayor of Manly? Yes.
255. And have been for some time? During this year.
256. You necessarily take an interest in all matters connected with the welfare of Manly? Certainly.
257. You are aware of the proposal to construct a bridge across the Spit on the road leading from Sydney to Manly? Yes. J. G. Griffin, Esq. 30 Nov., 1888.
258. Have you seen the design of the proposed bridge? I have.
259. You know its altitude? It is to be, I believe, 30 feet above high-water mark.
260. Would that be a desirable height? It would be quite sufficient for present requirements, and for some years to come.
261. There are swing bridges? Yes; two openings of 60 feet, I understand.
262. You think that would be sufficient for the traffic up the harbour? For many years to come.
263. Is it the case that the inhabitants on the north side of Manly Beach and the districts beyond suffer inconvenience through not having means of access to Sydney by land? Yes; they frequently suffer great inconvenience.
264. The present means of traffic is rather primitive? Across the Spit it is absurdly inadequate.
265. It is an ordinary punt? Yes; worked by a pulley and ropes.
266. Have you ever considered the practicability of having a steam-punt there? It is a temporary expedient; it would be better than the present means; but it would not be anything like the accommodation which the district demands and, I think, deserves.
267. Are you aware of the cost of the proposed bridge? From £60,000 to £70,000, I understand.
268. Have you heard of any estimate for a high-level bridge? I fancy from my own knowledge, that it would cost something like a quarter of a million.
269. Which would you consider the most desirable work, having regard to the present condition of the country's finances and the convenience afforded? I should prefer to have the low-level bridge, not only on account of the country's finances but from another point of view. If a high-level bridge were erected, it would not be at this place, but further down towards the mouth of the harbour, where the most suitable approaches could be obtained. There a very large reef exists in the harbour, and that must necessarily be blown up and removed before any vessel of size could get up. If a bridge were put up there it would have to be pulled down before this blasting could go on.
270. Are you aware of the extent of navigable water above the Spit? Not in square miles, but I know it is considerable; I know that the Harbour extends for some miles. 271.

- J. G. Griffin, Esq.
30 Nov., 1888.
271. Is it navigable for ordinary yachts? Yes, and pleasure boats.
272. Do you think it is likely to become a great place of residence? I think so, but it is used now chiefly for pleasure, and no bridge such as this would prevent that. It would be quite easy for any yacht to lower her mast if she wanted to go under. If the bridge were opened, any yacht ten times the size of our biggest yacht could get up, that is if she could get over the reef to which I referred.
273. You think that the bridge would be essentially a convenience for the people of Manly Beach and the north side of the harbour? Not only a convenience, but a mere act of justice, I think.
274. Do you think it would increase the value of the land? Very largely; the Government land would be largely increased in value.
275. I suppose that if the bridge were constructed the vehicular traffic would be increased? Very largely I should say. There would be probably 150,000 persons travelling over it in the course of the year.
276. And through the difficulty of access this means of traffic is not resorted to at all now? No, very little. Although it has largely increased, yet it is comparatively little when you consider the importance of Sydney, and the advantages of Manly.
277. Have you a park at Manly? Only small reserves in and about the town; nothing very great except the frontage to the ocean. We hope to have a park ultimately at the Quarantine Ground.
278. Has any application been made for a park? We hope to have one when the Quarantine is removed.
279. Has the municipality applied to have the land reserved for a park? Not yet.
280. Do they intend to do so? Yes, I believe so.
281. What is the extent of land they intend to apply for? We shall be glad to get 60, 80, or 100 acres.
282. You think it would make an attractive place of resort? Yes. The park land we at present have is small, but it is attractive. Of course, we have spent a great deal of money upon it.
283. *Mr. Abbott.*] What would be the annual cost of this bridge—in the shape of interest, depreciation, maintenance, and repair? The maintenance would depend upon the class of work used for the swing; I suppose two men would be wanted.
284. Assuming that we have hand-power? Yes; their wages would come to £4 a week.
285. Do you think the present requirements of Manly Beach justify the Government in incurring an annual expense of between £3,000 and £4,000 for this bridge? I did not know it would cost as much.
286. You see that the figures in Mr. Bennett's report make the annual charge £3,604? Yes; that is so according to those figures.
287. Do you think there is anything to justify that expenditure at the present time? Certainly. In the first place I think the convenience of the inhabitants of Manly Beach deserves consideration. The population approaches 5,000. Then we have a large floating population—floating in two senses; their convenience should also be considered. Thirdly, I think the whole Colony would be benefited by the expenditure, because Manly is admitted to be the only watering place. At present it cannot be nearly so much used by people in the country as it would if there were proper means of approach. The steamers are frequently very uncomfortable in rough weather, and sometimes are unable to run.
288. Do you think that many of your fixed population would use this road if the bridge were constructed? A great many would use the road, especially ladies; I suppose there would be a tram, or something of that kind.
289. You say that the road would also be used by a floating population, and that that is another reason for building it? Yes.
290. Is it not a matter of history that the floating population go to Manly Beach for the sake of the sea trip? I think that a great many would go down more frequently if they could do so without the fear of getting sea-sick.
291. How many houses are there in your municipal boundary? About 900 I think, but I cannot say exactly.
292. What is the capital value of the property rated in the municipality? I think it is £70,000, but I cannot say from memory.
293. And what do the rates amount to? They come to over £3,600.
294. Would it be any great convenience to business people coming to Sydney to have this bridge built, without a bridge from the North Shore? We hope to have that bridge some day. Perhaps I should mention one other circumstance which I think should weigh with the committee. The road may be desirable from a military point of view; a time may come when it will be necessary to take troops to Manly, and if so, I am sure that a punt of any kind would not be the proper means of getting them over this arm of the Harbour.
295. *Mr. Copland.*] I suppose this bridge would be serviceable for many years if built? Yes.
296. How many years would it last? For 100 years, perhaps; it depends upon the life of the iron.
297. You think this bridge would give sufficient accommodation for many years? For fifty years; I should say.
298. Do you think that if a low-level bridge were erected there would be any chance of that being removed and a high-level bridge being erected in its place? Yes; there would be nothing to interfere with it, because the high-level bridge would not be erected in the same place.
299. You would not object to the two bridges, I suppose? Oh, dear no.
300. Do you not think that the building of a low-level bridge would stand in the way of your getting a high-level bridge? I think we are quite prepared to run the risk.
301. You are quite prepared to take what you can get, and to wait for a high-level bridge? Yes. If you were to poll 20,000 persons who would be benefited by it, I am sure the bulk of them would be in favour of that course. I have heard it stated that the desire for this bridge is to further a tramway which is about to be made; but such is not the case, because we had a promise from the Government that the bridge should be erected before the tramway was considered. I think it is only right that I should say that.
302. Can you tell me what is the freight per ton upon goods from Sydney to Manly by steamer? I think it is 2s. 6d., but I am not sure.
303. I take it for granted that you get your stores from Sydney? Yes, everything.
304. If this bridge were constructed, do you think the goods would be carried by road? I do not think so; the goods would of course go by the cheapest route.
305. And you think that water carriage would be cheaper? It always is; I do not think there can be any question about that.
306. How many miles would it be driving from Manly to Sydney? About 7 miles.
307. That is assuming you cross by the steam ferry at North Shore? Yes.

308. Is there not an objection to crossing by ferry from North Shore to Sydney? That is the only way in which you can cross. J. G. Griffin, Esq.
309. Is it not looked upon as an objectionable method of crossing? Of course a bridge would be better than a ferry. 30 Nov., 1888.
310. Suppose you had a bridge over the Spit, would you still continue to make use of the North Shore ferry? You must do it until a bridge is made from Sydney to the North Shore.
311. Then it would not be looked upon as a great inconvenience while driving part of the way to cross by steam ferry from North Shore to Sydney? It is such a short distance.
312. How far would it be if you had to drive the whole distance? If you were to go round by Lane Cove, I suppose you would have to cover about 20 miles.
313. As a matter of fact, if you were to have this bridge, those who drive would still have to use one steam ferry? Yes; I think that very few would object to crossing by steam ferry from North Shore; the ferry is comparatively large, and the distance is short.
314. Suppose you provided a similar ferry to that at North Shore,—would there be any objection on the part of the inhabitants to using it? Well they would not like it nearly so well as the proposed bridge.
315. They would not like the steam ferry at the Spit but they do not object to it from North Shore? Well, the distance is greater.
316. Do you say that the distance at the Spit is greater than the distance at North Shore? Yes. At any rate it is more exposed. The present means of getting on to the punt and the punt itself are very inferior.
317. Do you really think that the distance is greater at the Spit than at North Shore? I should think it was; I am speaking from memory; I may be wrong.
318. Could you tell us how many people would be likely to use this land route if a bridge were built? I think that perhaps half the people would come this way. The population would increase, especially in the neighbourhood of the bridge.
319. How many people residing at Manly do you suppose are in the habit of coming to Sydney every day? 400 or 500, I suppose.
320. You mean business people? Yes.
321. Do you think that number come to Sydney by the boats every day? Yes.
322. If you had a bridge over the Spit and had to cross by the North Shore steam ferry how long would it take to make the journey by that route? I suppose it would take an hour and a half at the outside from end to end.
323. How long does it take the steamers to make the journey from wharf to wharf? The quickest is about 35 minutes, but I suppose the average would be about 45 or 50 minutes. Of course it would not take an hour and a half, but it might sometimes take an hour.
324. Do you think that a large section of the business people of Manly would spend an hour and a half in getting to Sydney by one route when they could reach it in half an hour by another route? My answer to that is that I anticipate a tramway being put down in the future; this bridge is designed to carry a tramway.
325. How long do you think the journey will take by tram? About the same time as by steamer; probably less.
326. Suppose a vessel happened to be passing through the swing bridge when a tram came along,—would not a great deal of delay necessarily take place? I suppose the Government in their wisdom would make regulations to prevent the bridge being open when a tram was likely to cross.
327. The shipping would have to give way to the trams? Yes. They could come up at certain specified hours. Of course they must not be allowed to impede the general traffic. The greater number of vessels would be pleasure boats.
328. How many trams would it be necessary to run backwards and forwards in a day? I should say about three or four morning and evening; say six or eight a day.
329. How long would it take these trams to do the journey? I cannot tell you without knowing something of the gradients, and so on. I do not suppose it would take more than the ordinary tram rate of 7 miles.
330. Would it take an hour? I do not think it would take so long as that.
331. Do you know the general rate of speed at which trams run in Sydney? I suppose from 10 to 20 miles an hour.
332. Are you not aware that the trams travel from 7 to 8 miles an hour? As a matter of fact I am not.
333. Notwithstanding that you are an engineer? I have not had occasion to find out at what rate the Government run their trams. I am sure that upon the line I am suggesting the trams could travel more quickly than in the Sydney streets. In the first place, the stopping places would not be so frequent, and there would be greater lengths of line upon which the trams could travel more quickly without doing any harm.
334. You say it would take an hour to go from Sydney to North Shore, but you would still have to cross by the ferry? Yes.
335. Adding the time for which you might have to wait for a ferry, and the time occupied in crossing, it would probably take an hour and a quarter that way;—I suppose it would take an hour to get into the city of Sydney by either route? Yes.
336. It has been given in evidence that the time made by the steamers is generally half-an-hour and 5 minutes? That is from wharf to wharf; it takes me about 50 minutes to get to my office.
337. Mr. Kethel.] It is a matter of fact I believe, that of late the traffic over the Spit Road at the punt has much increased? Yes.
338. To what extent has the population of Manly increased within the last four years? Very largely. The best way to ascertain that would be to look at the rates. The rates four years ago were under £2,000, now they approach £4,000.
339. Four or five years ago there was scarcely any traffic at all over the Spit Road, I understand? So much so that the Government had to pay someone to keep the punt; now they receive a good rent from it.
340. How do you account for the difference in the proportion of the traffic over and above the increase in the population;—the population of Manly, for instance, has doubled in four or five years, but the traffic over the Spit has quadrupled, and more than that,—it has I suppose increased tenfold? I think the increased traffic to which you refer is largely due to people coming from the North Shore to Manly—visitors and others.
- 341.

- J. G. Griffin, Esq.,
30 Nov., 1888.
341. What is the nature of the traffic over the Spit; does it consist chiefly of private vehicles or of freight-carrying? There is very little freight; it consists mostly of private vehicles.
342. Is it not a fact that when the punt capsized a few months ago there were laden drays upon it? I think not; loaded drays go down only occasionally. For instance, a person sending furniture would have to load and unload three or four times if he sent it by steamer; whereas, if he sends it over to North Shore by dray it goes over the punt straight to his house. That occasionally happens.
343. The bulk of the goods go down by steamer? Yes; and I suppose they always will.
344. Because of the cheapness of the carriage? Yes.
345. Would this work affect the people of North Shore in any way? I think that all sensible people would be in favour of it.
346. Are there any business relations between the Manly people and the North Shore people? The Manly people transact their business chiefly with Sydney.
347. *Mr. Garrard.*] Do you know Middle Harbour? Yes.
348. Is it likely that a great amount of commerce will be carried on on the shores of Middle Harbour in the future? Not for many years; no big vessel will be able to get up there until the reef has been removed.
349. The land all round is rather abrupt? Yes.
350. I suppose the land will be used chiefly for residence sites? Yes; for many years to come.
351. Do you know if the Crown has much land on the northern side of Middle Harbour? A good deal.
352. Shore frontages I mean more particularly? That I do not know.
353. The approaches to the Spit have been much improved of late. Yes.
354. The lower part is still very steep; from the water's edge about 100 yards up? Yes; but the approaches as a whole are very much improved.
355. I suppose the road is steeper there than on any other part of it? On the northern side it is; yes.
356. Do you think that if this bridge were erected, there being no bridge from North Shore to Sydney, the people of Manly would get their supplies from St. Leonards instead of from Sydney? I don't know but they might.
357. You do not know the extent of the reef at the proposed site for a high-level bridge? I know it is very extensive.
358. I believe there are about 9 feet of water on it? Yes.
359. That would preclude any large vessel from going up? Yes.
360. How long would it take to open the swing bridge? That depends upon the machinery; I suppose from 5 to 10 minutes.
361. That would be by hand-power? Yes.
362. It would not take so long by steam? No.
363. You do not think the proposed tramway company would erect a bridge if the Government did not do so? I do not.
364. *Mr. Suttor.*] Are you aware that there is a Bill before Parliament authorizing certain people to make a tram through Manly? Yes.
365. Are you aware that the Bill proposes that a steam-punt should be used and not a bridge? I do not know; but if it is so, it ought not to be countenanced.
366. You said just now that the bridge might be used for military purposes? Yes.
367. Under what circumstances? I understand that the present Quarantine Ground is to be fortified, and the bridge would be of service in taking troops to and from those fortifications; also from North Head and Manly to George's and Middle Head.
368. If a tram company can use a steam-punt, would it not be sufficient for military purposes? I do not think it would be at all a proper thing to allow a tramway company to use a punt; I never heard of a tramway company using them, except in the case of the enormous ferries in use at San Francisco.
369. Is Manly a place which an enemy could attack very easily? Yes.
370. In that case you would have to blow up the bridge? It would not be very difficult to do that.
371. *Mr. Abbott.*] Are you aware whether any of the Manly Beach people are opposed to the construction of this bridge? I have not heard of a single one.
372. Do you know Mr. Littlejohn? Yes.
373. He says that there are people who object to it? I think that some of his children oppose it. No sensible person, whether he has or has not property at Manly, to whom I have spoken, but has been in favour of it.
374. Would private property in Manly be improved in value by the construction of that bridge? Not particularly. An improved means of communication would, of course, improve the place; but I do not know that it would put property up very much, if at all, in the town itself.
375. The bridge, you think, would be useless so far as the value of property is concerned? It would improve the Government property in the neighbourhood; that is to say, it would sell very much better with a bridge there.
376. *Mr. Copeland.*] I suppose there has been a great deal of speculation in land at Manly recently? Not recently; two years ago there was; there have been some Government sales lately, that is all.
377. I take it for granted that you yourself are considerably interested in land at Manly? Yes.
378. So that, while this bridge will benefit the Crown lands, it would also benefit your own? Not to a great extent. I do not think there will be any improvement in the town save that which generally takes place with improved means of communication, but the Government land in the district would certainly be improved in value.
379. Would the bridge not create a little boom? I do not think so; I should hope not.

Charles H. Hayes, Esq., Alderman of Manly, sworn and examined:

- C. H. Hayes, Esq.,
30 Nov., 1888.
380. *Chairman.*] You reside at Manly Beach, I think? Yes.
381. You have lived there some time? Sixteen years.
382. You have been Mayor of Manly? Yes, for three years.
383. Are you a member of the Corporation now? Yes; an alderman.
384. Manly, I suppose, has made considerable strides lately? Yes; great progress.
385. Are you aware of the site of the proposed bridge over Middle Harbour? Yes.
386. Do you think it a desirable site? I think so.

C. H. Hayes,
Esq.
30 Nov., 1888.

387. You think the bridge is a necessary improvement? I do.
388. Do you know the nature of the design at all? Yes; I have seen a plan.
389. Do you think the altitude is sufficiently great? I am told the altitude is 30 feet clear of high water-mark, and I think that will take the ordinary traffic without opening the swing.
390. It is proposed to have two openings? Yes; I see there are two openings of 60 feet each.
391. You think that would be sufficient to permit of vessels going backwards and forwards without hindrance or impediment? I think so.
392. Is it the case that considerable inconvenience has been felt through not having this means of communication overland? Yes; great inconvenience.
393. Is it not the case that property has been lost from time to time in consequence of the present arrangement? Yes; accidents have happened at the Spit.
394. Do you know much of the harbour above the proposed bridge? Yes; I know Middle Harbour pretty well.
395. It is a great place of resort? Yes, for yachtsmen.
396. I take it that it is not used for residential purposes to any extent? No, nor for commercial purposes.
397. Have you formed an opinion as to the effect of the bridge, from a commercial point of view, in time to come? I do not think there will be any great increase in the traffic up the harbour, from a commercial point of view.
398. Will the construction of the bridge improve or lessen the value of property above it? I do not think that with the openings provided the bridge would interfere in any way with the value of the frontages to the harbour.
399. Will the bridge add to the value of the property at Manly? Considerably, no doubt; also to that of large areas of Government land.
400. Are you a property owner? To a very small extent.
401. Your property would be increased in value, I take it? I think it would.
402. And the property of the ratepayers generally? I think the whole municipality would be benefited.
403. The whole work is regarded by the municipality as a very proper one? Yes.
404. And a spirit of philanthropy leads the inhabitants to think that it would add largely to the value of the Government land? Yes.
405. Do you know the area of Government land? Many thousand acres; I could not give you the particulars.
406. What Government subdivision would be nearest to the proposed bridge? Dobroyd subdivision; it would be about a mile and a half away.
407. Is that on the northern side of Middle Harbour? Yes.
408. Then there is Government land still further behind it? Yes; there is the Harbord subdivision about a mile or so out of the municipal boundary. Only a very small portion of it is sold. Then there is a great quantity of land between Narrabeen and Pittwater, to which this bridge would give access.
409. Do you think a high-level bridge is feasible? Yes; I think so. You must have regard to the expenditure incurred in making approaches to the waters of Middle Harbour by the labour of the so-called unemployed. A few years ago they made a splendid road, making approaches to the site of the proposed low-level bridge. At one time I thought that a high-level bridge would be necessary. I did not think we should be able to get a gradient to take vehicles safely down to the waters of the harbour; but that difficulty having been overcome I think a low-level bridge with swings would answer all purposes.
410. *Mr. Abbott.*] During the sixteen years you have been at Manly how often have you had to travel overland to Sydney by reason of stress of weather? I do not think more than half a dozen times.
411. Is that since you have had the present steamboat service? No.
412. That is the best you have ever had? Yes.
413. As a matter of fact the residents of Manly use the overland route very seldom, do they not? Not the residents.
414. I suppose as a matter of fact the residents of Manly look upon the road as rather an attractive drive than anything else? Well, a number of people have been prevented from living down at Manly in the absence of this road communication, feeling that they were cut off from the place after 11 o'clock at night.
415. There is a larger area of Crown lands in the upper part of Middle Harbour than down at Manly Beach? The largest portion is away beyond Narrabeen.
416. Do you think the necessity for this bridge would justify an annual charge of between £3,000 and £4,000? I think so.
417. Why? I think it would be a profitable investment, looking at the large area of Crown lands yet unalienated.
418. Have the Government had any difficulty in selling the land which they have heretofore offered for sale? There has been no difficulty that I know of in selling land in any part of the country. The policy of successive Governments, as you know, has been first to sell the land and then to make railways through it.
419. Has there been no difficulty in the Government alienating the land which they have offered for sale down about Manly and Narrabeen? There was some difficulty at Dobroyd, but the sale of that subdivision would have paid the cost of this bridge if the sale had been conducted upon and regulated by sound commercial principles.
420. Do you know whether the land was offered at a time when the Government had no power to grant deferred payments? That is a question I could not answer.
421. Do you know when it took place? About two years ago.
422. When you refer to commercial principles do you refer to the principle of giving terms? What I mean is that the Government should deal with the land as a private estate would be dealt with, and that they should get the benefit of the improvements in their sale instead of selling the land and making the improvements afterwards.

THURSDAY, 6 DECEMBER, 1888.

Present:—

THE HONORABLE JOHN LACKEY (CHAIRMAN).

THE HON. GEORGE CAMPBELL,	JACOB GARRARD, Esq.,
THE HON. WILLIAM HENRY SUTOR,	ALEXANDER KETHEL, Esq.,
THE HON. JAMES WATSON,	SYDNEY SMITH, Esq.,
THE HON. FREDERICK THOMAS HUMPHERY,	THOMAS MICHAEL SLATTERY, Esq.,
JOSEPH PALMER ABBOTT, Esq.,	JOHN RENDELL STREET, Esq.,
HENRY COPELAND, Esq.,	DANIEL O'CONNOR, Esq.

The Committee further considered the proposed bridge at The Spit, Middle Harbour.

Alexander Dean, Esq., J.P., sworn and examined:—

- A. Dean, Esq., J.P.
6 Dec., 1888.
423. *Chairman.*] You are an old colonist, Mr. Dean? Yes.
424. You are now living at Manly? Yes.
425. You travel backwards and forwards pretty frequently? Daily.
426. And you have a tolerably good knowledge of the traffic between Manly and Sydney? Yes.
427. Do you know the site of the proposed bridge over the Spit at Middle Harbour? I do.
428. Do you think it is a good situation for a bridge? I do; I believe nature has provided a situation for it.
429. Do the residents of Manly suffer inconvenience from want of land communication? They do.
430. Manly is a favourite resort? It has been for many years.
431. Do you think it would increase if additional accommodation were given by the construction of a bridge? Yes, not only Manly Beach, but the whole of the western portion—the tableland near the Spit.
432. There is a large extent of vacant land behind Manly—right out to Broken Bay? Yes.
433. A great deal of that is Government land? Yes.
434. And I suppose its value would be considerably enhanced? Very much so.
435. Are you a maritime man;—do you take any interest in boating? I did when I was a boy; but of late years I do not.
436. You do not keep a yacht? No.
437. Do you think the construction of the bridge would be an impediment to the navigation of the harbour above the Spit? No; I do not. It would be very simply remedied. I have been in many countries, and have seen bridges over many rivers and lakes; and I know that if a signal were given by a yacht as she rounded the point at Middle Head, the bridge could be opened before she came up.
438. The proposed bridge is a swing bridge? Yes; and it would be very simply opened; I do not think there would be any difficulty at all to the yachting. Of course I would be very sorry to stop the yachting on the harbour, because it is one of the finest harbours in the world for the purpose.
439. It is a pretty resort above the Spit, is it not? It is.
440. It is likely to become a great resort for submarine residences? Yes; both on the south side of Middle Harbour and on the north side. It will become a great outlet for the retired merchants of Sydney. It is the healthiest part of the city. We are bounded to the south by Botany, and to the west by the railways, Parramatta, Balmain, and all those places. Here there is a great tract of country that can be utilised for the relief of the city an easy distance away.
441. Communication now is carried on in a very primitive way? Yes; a punt worked by a wheel.
442. Do they use Chinese labour? I did not notice that.
443. *Mr. Copeland.*] You say the people of Manly suffer great inconvenience through the want of this bridge? There are many females down there who are very timid, and in very severe weather we have as rough seas inside the Heads as I ever saw in my life. Of course they do not come very often in the year, but on several instances I have seen timid ladies frightened to take their children back. If there were a bridge across the Spit, they would hire a conveyance and take their children across, but they are afraid of the punt.
444. Do you think ladies and children would be very desirous of being out in bad weather like that? Sometimes they leave Sydney without knowing what sort of weather it is at Manly, and then they are frightened to go back. I myself once took an old lady, 76 years of age, with two boys, right round the Spit, and walked to the North Shore, because she was afraid to go by boat.
445. How often do you think the residents of Manly would suffer the inconvenience of being saddled with an old lady 76 years of age, with two children? I am only citing an instance that came under my own notice, and I know other instances where ladies have been timid about crossing the Heads during rough weather.
446. Do you think these inconveniences would be sufficient to warrant us in proposing a continuous tax on the country for all time to the amount of about £4,000 a year, which is the difference between the cost of maintaining the bridge and the cost of maintaining a steam-punt? Manly Beach of course would reap the benefit by a bridge, but the bridge would open up a large tract of Government land, which would pay for the outlay on the bridge in a very short time.
447. Do you think the inconvenience would not be removed if a steam-punt were put there, giving the same accommodation as at present exists between Sydney and North Shore? No punt could give the convenience a bridge would.
448. Is there any complaint about the accommodation provided between Sydney and North Shore? I am not aware of any.
449. Then, if the Government provided you with similar accommodation across the Spit, what is now provided by a private company for the North Shore, would not that remove all difficulties? No; the time would be the great thing. The punt would be either on one side or the other; whereas the steam ferries come in almost every minute.
450. *Mr. Abbott.*] Every minute at the North Shore? Well, every 10 minutes.
451. *Mr. Copeland.*] Do you know, as a matter of fact, how often the steam ferry runs to North Shore? I do not know.
452. Is it as far across Middle Harbour as from Sydney to North Shore? No.

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453. Then in all probability the journey could be made in less time? Of course.
454. The people would be put to no greater inconvenience by having to use a steam-punt than the people at North Shore at present? There would be less of course, because the distance is less; but I do not think of the bridge so much for the Manly Beach people, who are well supplied now with the steamers. It would open up an immense tract of country, and benefit the Government.
455. Would not the steam-punt open up that country as well? No.
456. Why? Punts are never considered so much as a bridge. I have seen punts all over the world, and they do not think anything at all about them.
457. We are not going into the question what they think about them. Do they not give the convenience? Of course, to a certain extent, but the bridge would give more.
458. The only question would be whether you drove across the bridge, or whether the punt carried your buggy across. Once on the other side you have the same advantage of driving as if the bridge were constructed? But if the punt were on the other side you would have to wait so long.
459. Might you not have to wait for a long time if the bridge were open? The engineering appliances now for opening bridges are so very much improved that it could be done in 3 or 4 minutes.
460. Then there would be the time the vessel took going through, and 3 or 4 minutes to close it again, and, altogether, I think you would find it would take as long as it would take to cross on the steam-punt? Perhaps so.
461. *Mr. Watson.*] As the cost of this bridge is about £62,000, and the interest on the money, together with the cost of keeping the bridge in repair, would involve an expenditure of £4,000 a-year, do you think the country would be justified in going to such an expense for the emergencies you allude to? I do; because the country would benefit by opening up what is now useless ground, and making it of very great value.
462. *Mr. Street.*] We have it in evidence from the skilled engineers that the punt could run from either side every 10 minutes; do you think that is sufficient inconvenience for the people of Manly to necessitate such a large expenditure for the bridge? I do think it. The money would be well spent, because there is a feeling of uncertainty about a punt, and there is a feeling of comfort and surety about a bridge.
463. *Mr. O'Connor.*] Would the construction of the bridge be convenient to anyone besides those who reside at Manly Beach? It would be convenient to all. It would open up the great Military Road, and be a splendid drive for all the inhabitants of North Shore, and it would open up an immense tract of country to the north of Middle Harbour.
464. You have travelled a good deal over the world? Yes.
465. Have you ever seen, in a civilized country, a place with so many attractions so difficult of access as Manly Beach? I have never seen so many attractions as there are in New South Wales with less ways and means of getting at them. All through Switzerland there are steamers plying every hour of the day over the lakes.
466. There is a great tract of land belonging to the Government which would be opened up by the bridge? Yes.
467. There is a lot of unoccupied land which, if that bridge were constructed, would become the scene of busy life? Yes; the whole of that tract would be covered with gentlemen's residences. It is the finest scenery in the world, from North Shore along the Military Road across the Spit and along the tableland to Manly Beach; there is not a scene like it in the world. When I came back from home, in 1872, Professor Smith and I went down to George's Head, along the Military Road, and he said to me "You have been all over the world—did you ever see a finer sight than from the top of George's Head?" I said "Never," and I say so still.
468. *Mr. Kethel.*] What is the population of Manly and the district within a radius of 3 miles? I could not tell you; I think 3,000 or 4,000.
469. How many of that number would use the road to Sydney, provided the bridge were erected next year? It would be used more by the people of Sydney than by the people of Manly; it would be used as an afternoon drive to Manly. It would only be used by the Manly Beach people in cases of emergency, but by the residents of Sydney almost daily for drives. We have not now a drive about Sydney, except out to South Head, and this road would be used for drives by all the inhabitants of Sydney.
470. Then I understand that it is not for the convenience of the residents of Manly, but only to give visitors pleasant drives that you advocate the construction of this bridge? Yes, that is one of the causes. It would be of great convenience to the inhabitants of Manly Beach; it would be a great convenience and outlet for the people of Sydney; and it would be a great means of opening up an immense tract of country to the north of Middle Harbour.
471. A large proportion of the land you allude to has been alienated from the Crown, and the bridge would simply enhance the value of the property of private persons? I cannot tell how much of the ground is private property.
472. It has been stated that the expense of maintenance, added to the interest, would be something like £4,000 a year. If the inhabitants of Manly number 4,000, that would be a tax on the revenue of £1 per annum per head for the whole population that would be benefited. Is there any way that you can suggest, by which the Treasury would be recouped for that expenditure? Of course population would grow, and the bridge would almost pay for itself by tolls.
473. You are aware that the traffic from Sydney to North Shore is conducted entirely by steam ferry;—does it not appear to you peculiar to ask for a bridge to accommodate a small section of that traffic, while the main traffic is taken by steam ferry across Sydney Harbour? There is that feeling, but then the traffic from Sydney to North Shore is divided. Of course the main traffic is conveyed by steamers, but there are many other outlets by which people can get across to North Shore; they can get across by the bridge at Lane Cove.
474. How many miles is it from the Sydney Post Office to the St. Leonards Post Office by the bridge? It would be a long way.
475. Do you believe, as a citizen of many years standing, a contractor, and a public man of great experience, that you are justified in recommending to the Committee the construction of this bridge? I do.
476. And you deliberately say the public benefits to be derived by the inhabitants not only of Manly, but of Sydney and St. Leonards, would justify the expenditure? Yes; I am convinced I am right. It would be merely the foundation of a great advancement of that northern portion, which would be a good return for the outlay.

- A. Dean, Esq., J.P.
6 Dec., 1888.
477. *Mr. Suttor.*] You say the Military Road would form a very favourite drive? It would.
478. Are you aware that a company is being got up now to make a tramline along that road? Yes; I have heard of it.
479. Do you think people would use that as a drive if there were a tram running along? Of course that would affect it to a considerable extent.
480. Do you know that there is a very narrow and steep grade down to the bridge, very dangerous for people to drive along and meet a tramway? Yes; there is a steep grade.
481. Are you aware that the people who propose to carry out the tramway intend to use a steam-punt themselves? I am not aware of that.
482. Do you know whether the population of Manly is increasing at all? Not much, I think. There is a dullness in all suburbs now.
483. The present steamer accommodation is very much better than it was some time ago? Yes; very much better.
484. And at present, I suppose, there is not much inconvenience arising in connection with the steam accommodation? The steam accommodation, as I said before, is very good, but, at the same time the northern portion of Middle Harbour would be greatly enhanced in every way by ladies and gentlemen driving themselves.
485. What is the time occupied by the steamers coming from Manly to Sydney? Thirty-five to 40 minutes.
486. How long would it take to drive along the road by the bridge? I never drove it; I could not tell you.
487. Do you know the distance? I think about 9 miles.
488. It could not be done so quickly by the road as by the steamer? No; but it would save a great amount of timidity.
489. But I suppose these timid people like to live at Manly all the same? Yes; but I know one lady who has left Manly for a time on account of the uncertainty of the weather, as she always gets sick when crossing the Heads.
490. You have never had any fatal accidents with the steamers coming from Manly? No.

John Williams Deering, Esq., Metropolitan and Coast District Surveyor, sworn and examined:—

- J. W. Deering, Esq.
6 Dec., 1888.
491. *Chairman.*] You have held your present position for some time? Four years.
492. You have some knowledge of the land belonging to the Government in the district where it is proposed to erect a bridge? Yes.
493. You know the country well? Yes; I surveyed the first road over the Spit thirty years ago.
494. How long is it since you have been there? Six months.
495. Surveying some Government land? No; inspecting it.
496. Do you know the extent of Government land there now? Yes. At Harbord, at Manly, near the water reserve, at Dobroyd, at Narrabeen, and at Manly Cove, we have about 4,118 acres, which will be directly affected by the erection of this bridge. Of course, we have a large area, but I do not think the other land would be affected by this bridge.
497. That would be farther on? Yes, farther to the west, at the back of Gordon.
498. How many miles would that be? I daresay 8 or 10 miles.
499. Is population settling down very quickly in the neighbourhood of Manly, or at those other places to which you have alluded? No. Speculators are buying the land.
500. Do you think it would settle down quickly if there were a bridge? Yes; I think it would aid it very considerably.
501. Do you think it would be a great convenience to those at present residing in those districts and at Manly? I do. I think you wanted the value of this Crown land.
502. Yes? The approximate value of those lands directly affected by the bridge is about £73,980.
503. *Mr. Garrard.*] That is their present value? Yes. If the bridge is erected I think the increased value of those lands might be reasonably estimated at 25 per cent., which on £73,980 is £18,500. I have given the question a great deal of consideration, and have also taken the opinions of other people who knew what the lands were.
504. *Mr. O'Connor.*] Those lands are in the immediate vicinity of the bridge? They are in the area the bridge would influence.
505. *Chairman.*] You are well acquainted with the harbour above the site of the bridge;—is the punt there worked under your Department? No; under the Roads, I think. [*Produces Admiralty chart.*] There is a sand-bank below the Spit with about 9 feet of water at low tide. If a vessel draws more than 9 feet of water she could not cross at low tide. Of course if they make a tramway over the bridge it will add more than 25 per cent. to the value of the land.
506. We have nothing to do with the tramway, and the tramway has nothing to do with the bridge. Do you think that part of the harbour would be affected for yachting or navigation by the construction of that bridge? Not much, if they had two openings.
507. You think two openings would obviate all difficulties? I do, because there is no great depth of water. Before you reach the site of the bridge the water shallows; it is a broad sand-bank that at present impedes the navigation for deep-drawing vessels.
508. *Mr. Abbott.*] Is it not a reef? No, I do not think it is a reef; it is sand; there may be rock amongst it.
509. We were told that it was a reef? It may be a reef underneath.
510. *Chairman.*] Do you think, under the whole of the circumstances, the convenience provided by this bridge would be sufficient to justify the Government in expending £62,000 in the construction of it? Yes; I do.
511. *Mr. Abbott.*] Have you a map of the Crown lands that would be affected by the bridge? Yes. [*Vide Appendix.*]
512. These lands in Gordon would be more easily approached by roads through St. Leonards, would they not? Yes; I have not included them.
513. Have you sold any of this Narrabeen land? Yes, about 1,500 acres, at an average of about £15 per acre. We have 800 acres yet to dispose of in the same estate.

514. In round numbers, the increased value given to this land by the construction of the bridge would bring it up to about £91,000? Yes, and my estimate is a low one; I intended it to be low.
515. At the present we could get £74,000 for those lands without the bridge? Beyond a doubt.
516. Then you add £18,000 as the increased value? Yes.
517. We have been told that the annual charge for this bridge will be £4,000 a year; do you think the increased value it would give to those lands would be a justification to place that charge on the country for all time? Yes; but not for the Crown lands alone.
518. £18,000 at 4 per cent. would be £720 a year? Quite so.
519. So that there would be £3,000 odd still a charge against the country for which there would be no return to the country? Quite so; that is putting it on mercantile grounds only.
520. Have you ever travelled to and fro between North Shore and Manly Beach as it is now? Yes.
521. Have you seen any great traffic there at any time? No; I cannot say that I have. If there were a bridge I think there would be traffic.
522. Where from? Manly Beach.
523. How many people living at Manly Beach do you estimate would have the means of driving to and from North Shore? I could not say. If it is to be taken as a paying transaction, I should say the bridge will not pay.
524. In the interests of the public is there necessity for it at the present time? There is no necessity for it; certainly not.
525. It would be a nice outlet to people who desire to go to Manly Beach, but who object to the sea? It would be more than that; I look upon it as a highway along that east coast.
526. What is the use of a highway if there are no people to use it? You cannot have the people until you make the highway; make the highway and the people will come.
527. Do you not think that a steam-punt would answer all the purposes for many a day to come? I think it would, but I think the bridge would be better.
528. Do you know anything of the service between here and North Shore? Yes.
529. That is a very heavy traffic, especially in the morning and evening? Yes.
530. Have you ever seen any inconvenience arising there? No, none at all; but I cannot dissociate from my mind that there is to be a tramway across the bridge. It has got so ingrafted in my mind that I have a difficulty in getting rid of it.
531. *Mr. Copeland.*] You stated just now that the Government sold 800 acres odd at Narrabeen, at an average of £15 per acre;—have you any reason to suppose that this land, as coloured yellow, will bring a greater average than the land at Narrabeen? That is the land I meant—Narrabeen Estate.
532. Have you included the Manly Cove in your estimate? Yes; I put that down at £8.
533. Now suppose we were to estimate the whole of this 4,118 acres to give a net return of £15 per acre, free of any further expense for clearing, forming, or metalling roads, auctioneers' commission, &c.;—would that not be a fair estimate? Yes; that would be about a fair thing.
534. You will perceive that it will just take the whole of this 4,118 acres of suburban land to provide the money to build this bridge? Quite so.
535. You say you are under the impression that the value of this land would be increased 25 per cent. if the bridge were built? Yes.
536. Have you considered how much the value would be increased if a steam-punt were provided instead of a bridge? Nothing.
537. All the improvement would take place only if the bridge were built? Yes; I think there would be no improvement unless the bridge were built.
538. I suppose you are pretty well acquainted with North Shore? Yes.
539. Have you any idea what improvement has taken place in the value of land there during the last ten or fifteen years? An enormous increase.
540. I suppose some hundreds per cent. in some cases? Yes; land which was sold at per acre is now only sold at per foot.
541. Could we not, reasoning by analogy, expect that an increase would take place in the value of these Crown lands, if we provide a similar steam-punt for the Spit? Scarcely; I do not think the analogy is complete, because at the Spit that would be the only means of traffic, whereas here they have a passenger traffic; there would be no passenger steamers at the Spit.
542. But on the other hand is not the distance shorter across the Spit than from Sydney across to North Shore? Yes.
543. Therefore, the shortness of the distance would make up for the slightly slower speed? Yes, to a small extent.
544. I suppose the people at North Shore receive as good accommodation as other people by the use of this steam ferry? Yes; I have seen many steam ferries in other countries, and I think these are quite equal to any of them.
545. If the Government were to provide an equally good steam ferry for the people at Manly, they would have no real cause of complaint? No; I do not think they would have any cause of complaint, but it would not be equal to a bridge.
546. What particular reasons have you for placing such a great value on the bridge? I cannot but feel that a tramway will go over it.
547. If the Government do not build a bridge, the tramway people may build a bridge for themselves? I do not think so; they might pay half the cost of the bridge; I believe they would.
548. Leaving out the tramway, what other special advantages would there be? There would be no transshipment.
549. Is there any transshipment when you send goods by steamer from Sydney to Manly? I mean there is a transshipment with the horse and vehicle in driving; you have to drive on to the punt, which is awkward.
550. You would have to drive on the bridge? Yes; but it is a different thing. When I said I thought the Government were justified in building the bridge, I did not mean as a commercial undertaking only.
551. *Mr. Abbott.*] There is reform now? I have seen that. I only spoke as a public officer who has seen these wants for thirty years or more.

J. W. Deering,
Esq.
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- J. W. Deering, Esq.,
6 Dec., 1888.
552. *Mr. Copeland.*] Do you think the low-level bridge can be constructed without impeding the navigation? No, it is bound to impede it to a certain extent; every low-level bridge does that; but no large vessels will ever go up above the Spit.
553. Suppose they were to strike a large supply of natural gas or kerosene shale, or anything of that kind;—can you foretell what large cities may spring into existence on the upper part of Middle Harbour? There would not be vessels of large draught at any time go above the Spit.
554. Suppose they were to strike kerosene shale? That would probably come down in punts; I do not think there will ever be a large traffic up there. Steamers could have jointed funnels, and strike them.
555. *Mr. O'Connor.*] You said you thought the people at North Shore were quite satisfied with their means of transit? Yes; I think they should be.
556. I heard you say that land had increased wonderfully in value at North Shore? Yes; beyond a doubt.
557. Do you think it would further increase if there was a bridge between Sydney and North Shore? Beyond a doubt; it would be no longer North Shore; it would then be Sydney.
558. Would the people not be much more satisfied and much better served if they had a bridge? Beyond a doubt.
559. Since you have been in the public service, do you think it has been a cardinal principle in the construction of bridges to know first whether they will pay or not? No; I do not know that that is taken into consideration at all in the case of a public bridge.
560. Do you not think it would be a rather narrow policy merely to ask whether this bridge would benefit the people in the main street of Manly? Yes; I do.
561. You consider if the bridge were constructed, it would not be for the people of Manly, but for the people of the Colony? Yes; that is what I meant when I told the Chairman that I thought the Government would be justified in building it.
562. *Mr. Garrard.*] Would you be able to furnish the Committee with a tracing of that plan? Yes.
563. A large amount of Crown land has been sold recently in those districts? Yes.
564. Were the purchasers led to expect improved means of communication? Not at all; not by the Crown auctioneers.
565. You have been present at each of these sales? I was present at the chief sales, and nothing was said about the bridge; we carefully avoided it.
566. *Mr. Suttor.*] Within what distance from the bridge are most of these lands? They vary from 2 miles to 6 and 7 miles.
567. Do you think they would increase in value if the bridge were not erected? No; they have been at a standstill for some time; there would only be a very moderate increase.
568. You think a large population would settle down if these lands were opened up by the bridge? Yes.
569. What would be the inducement? To make homes. There is very good land in that locality that would make very comfortable and cheerful homes for the people.
570. Land that could be cultivated? Yes; some of the richest in the Colony—black sand soil.
571. *Mr. Copeland.*] Where is that soil? There is some on the northern part of Harbord; down in the low places there is beautiful soil.
572. *Mr. Suttor.*] Are there many people living out there now? Not very many; perhaps 200.

John Joseph Chounding, Esq., Traffic Manager, Port Jackson Steamship Co., sworn and examined:—

- J. J. Chounding, Esq.,
6 Dec., 1888.
573. *Chairman.*] You are the traffic manager of the Port Jackson Steamship Co.? Yes.
574. Where do your boats run to? To and from Manly, and other places where we can get a charter for them.
575. Have you many boats running? We have three boats constantly running to Manly—the “Brighton,” the “Fairlight,” and the “Narrabeen.”
576. Have you much goods traffic? Yes; a fair share.
577. What is your charge per ton? Four shillings per ton.
578. You do not make distinctions between one class of goods and another? No; unless it is a small lot of goods, such as parcels, when we charge 1s. or 6d. each. Anything over a ton we charge at the rate of 4s. per ton.
579. Are there great quantities of goods going backwards and forwards? We have not had so much this year; nearly all the building has stopped for the time.
580. You take building material? Yes.
581. And necessaries of life—such as groceries, &c.? Yes.
582. Most people get their supplies from Sydney? Most of them.
583. Are there any industries down there that send goods or produce to Sydney? No; except that the Chinamen have one or two gardens and bring a little fruit.
584. Have you heard any complaints of the cost of conveying goods between Sydney and Manly? I have had no complaints made to me.
585. Do you know the site of the proposed bridge across the harbour at the Spit? Yes; I have been there pretty often.
586. Are you given to yachting at all? No; but I take a great interest in it.
587. Do you think that commerce or the pleasure of the people would be interfered with materially by the construction of a low-level bridge at the Spit? It would interfere with the yachting.
588. It is proposed to have two swings? Yes; but I fancy there would be a little delay in boats getting through. I know we have a little delay in getting through the Pyrmont Bridge, and that is worked on a very large scale.
589. Do you think the delay would be greater than is caused by going across by the present means of transit? You know our boats are increasing in number every week. I have seen nine or ten yachts at a stretch going up Middle Harbour, and they could not all get through at once.
590. Do you think the erection of the bridge would be a matter of great convenience to the people living on the other side of the harbour? I think it would be.
591. You think it would be largely used for traffic purposes? Yes; I fancy it would increase our own trade; people would go down by the road and come back by steamer if there were conveyances running to carry them.
592. You think it would largely increase the population? Yes.

593. Are you aware that the Government have a large quantity of land over there? No; I did not know.
 594. Supposing there were four or five thousand acres of Government land there, do you think that would warrant the Government in erecting a bridge in connecting one side with the other? I would not like to say.

J. J.
 Chounding,
 Esq.
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595. *Mr. Copeland.*] What is the time usually occupied by your steamers in making the journey from Sydney to Manly? Forty minutes we allow, but we can do it in 35 when clean.

596. If the bridge were constructed, do you think the journey could be done quicker than that by land? No; I do not think so.

597. You do not think there would be any saving of time in travelling overland instead of by steamer? No; I have ridden around very often. I have started on a pretty good horse when the boat started, and she has always beaten me. Of course there was the delay at the Spit.

598. It has been stated here that a considerable amount of furniture is carried to and fro. Supposing the bridge were constructed, do you think people would be likely to carry their furniture overland instead of by your steamers? That I cannot say. I know that some of the gentlemen living down there prefer to take it overland, because it does not get knocked about; it is put on the cart and not taken off till it arrives at the house it is going to. If it is taken from the cart into the steamer, then from the steamer to the wharf, and then put on the cart again, it is shifted four times. I believe I myself would take it right round.

599. Does it often happen that your steamers are not able to make the journey through stress of weather? No.

600. Has it happened since you got these large vessels? No; our boats could go through any weather. We have never had to take a boat off on account of the bad weather since we have had the class of steamers that are now running.

601. As a matter of fact you run as regularly as the railway? Just so.

602. And with the same amount of safety? Yes.

603. *Mr. Humphery.*] Do you issue season tickets? Yes.

604. How much do you charge for them? £8 a year.

605. What would that be for a single trip? About 4d., I think, if you go once each way every day; but then if you have a family of eight it would only be about £1 a year for the youngest in the family—the larger the family the smaller the rate.

606. The head of the family would pay £8? Yes; then the next £6, then £5, £4, and down to £1 1s. 10d.

607. Do you think it probable that a tramway would carry passengers at a less fare than that? I do not know.

608. What would be the distance by tram? I could not tell. We reckon it 7 miles by water.

609. *Mr. Watson.*] Are your present rates remunerative to the company,—do you pay a fair dividend? No.

610. How long is it since you paid a dividend? We paid a dividend last year of 6 per cent. per annum, but then we had not paid one for eighteen months before.

611. As a matter of fact, the fares do not pay the company? I would like to see it a great deal better.

612. *Mr. Garrard.*] What height would the bridge require to be for your steamers to go under? About 50 feet. Our steamers are about 42 or 43 feet, I think.

613. Your boats never go up Middle Harbour? Yes; I have been up there several times in the "Fairlight," on moonlight nights, with the Austrian band and the Liedertafel.

614. The ordinary traffic is conducted by smaller steamers than any of yours? Yes.

615. And if the bridge had a headway of 30 feet, it would accommodate the ordinary traffic without opening the swing? I do not think it would, because our passenger boats very often go there. The "Narrabeen" was up Middle Harbour the other day with a picnic, and she is 36 feet.

616. But the usual traffic is carried on with smaller boats? Yes.

617. If there were swings worked with modern appliances it would be no very great hindrance to traffic? No; I do not think so.

618. Do you think there is likely to be a large amount of activity on the shores of Middle Harbour at any time, or do you think it will be confined to residential sites? That I could not say.

619. Is it true that the shores of Middle Harbour come down rather precipitously to the water; that there is not much level land between the water and the hills? I think it is.

620. Are you aware of the depth of water in the shallowest part of Middle Harbour? No; we always keep in mid-channel.

621. Your boats have very shallow draught? No, 7 or 8 feet; but our instructions to our masters always are to keep to mid-channel.

622. You have had no difficulties in going up with your boats? No.

623. *Mr. Suttor.*] Is there much passenger traffic between Manly and Sydney? Yes.

624. What is the average number of passengers every day? On an ordinary day we carry about 700 to 800; on Sundays and holidays of course we carry more. We have carried as many as several thousand.

625. Have you much goods traffic? We have no difficulty with goods. Years ago we had a lot of trouble, but since we have had the large boats we can take it away quicker than they can bring it down.

626. *Mr. Garrard.*] You spoke of the small dividend paid; how has your increased plant been paid for—by increased capital or out of earnings? Out of earnings.

627. There was no increase of capital to buy the "Narrabeen," for instance? No.

628. Although you have not been paying a large dividend, you have been increasing your stock? Yes.

629. *Mr. Watson.*] Is it not a fact that you have issued debentures to pay for some of these steamers? That was at the commencement of the company, some three or four years ago.

John Alexander M'Donald, Esq., Assistant Engineer, Department of Roads and Bridges, sworn and further examined:—

630. *Chairman.*] Your name is? John Alexander M'Donald.

631. And you are engaged in the Department of Roads and Bridges? Yes.

632. Have you had to do with the design of the proposed bridge across Middle Harbour, at the Spit? Yes, I got out the design.

J. A.
 M'Donald,
 Esq.

633. 6 Dec., 1888.

J. A.
M'Donald,
Esq.
6 Dec., 1888.

633. Is it the case that plans have been prepared for a steam-punt? Yes, and tenders have been invited. The Commissioner for Roads has recommended a tender, and the papers are with the Works Department to deal with. The money is not yet available. An amount of £2,000 is to be put on the Estimates for 1889, and I believe the Minister has refused to sanction the expenditure until the money is available. £2,000 is the amount proposed to be voted; but the tender was below that.
634. What was the amount of the tender? It was about £1,700.
635. Then all the plans of the steam-punt are completed? Yes; the plans can be produced at any time.
636. Is it contemplated to provide by means of the steam-punt carriage of a tramway? No.
637. Only for ordinary traffic? For ordinary traffic. The punt will be similar to the one now working at Hexham, on the Hunter River.
638. Worked by steam? By steam on the punt, and a wire rope.
639. *Mr. Copeland.*] The intention of the Department is that in the event of a bridge being proposed by the Government, you will be able to take this steam ferry away to some other place? Yes. A bridge of the size that has been proposed will take at least about two years to build, and it is proposed to put a steam ferry there until the bridge is completed.
640. And then remove the ferry to some other place? Yes.
641. *Mr. Garrard.*] Can you produce the plans of the steam punt? I can produce them in two or three minutes.
642. *Chairman.*] Let us have them at our next meeting? Yes.
643. *Mr. Street.*] Can you tell us what time will be occupied in the transit across the Spit by this steam-punt? Including starting and stopping it would not exceed 5 minutes.
644. A little over 10 minutes a double trip? Yes. Of course there is the loading or bringing the waggons or carts on; that takes a little time. Generally it would be about 15 minutes from either side.
645. *Mr. Garrard.*] Would it be possible to ease down the rather severe grade which at present exists leading down to the punt on both sides—there is a severe grade about 40 feet above high-water mark? Yes; that has been left with a view to putting the bridge in. If a steam-punt were decided upon the grade could be eased down.

FRIDAY, 7 DECEMBER, 1888.

Present:—

The Honorable JOHN LACKEY (CHAIRMAN).

The Hon. GEORGE CAMPBELL.

The Hon. WILLIAM HENRY SUTTOR.

The Hon. JAMES WATSON.

The Hon. FREDERICK THOMAS HUMPHERY.

JOSEPH PALMER ABBOTT, Esq.

HENRY COPELAND, Esq.

JACOB GARRARD, Esq.

ALEXANDER KETHEL, Esq.

SYDNEY SMITH, Esq.

THOMAS MICHAEL SLATTERY, Esq.

JOHN RENDELL STREET, Esq.

DANIEL O'CONNOR, Esq.

The Committee further considered the proposed bridge at The Spit, Middle Harbour.

John Alexander M'Donald, Esq., Assistant Engineer, Department of Roads and Bridges, sworn and further examined:—

J. A.
M'Donald,
Esq.
7 Dec., 1888.

646. *Chairman.*] Have you prepared the plans now produced with reference to the proposed steam-punt over the Spit at Middle Harbour? Yes. There is one point upon which I should like to correct the evidence that I gave yesterday with regard to the lowest tender for the work. The amount was £1,487 9s.
647. Were there many tenders? There were three. There is another point which has been raised by the Committee; that is, as to how many vehicles the punt will carry on one trip. It will carry eight ordinary sized buggies at one trip.
648. How long would the trip occupy? About 5 minutes, but the trips would be at intervals of about 15 minutes.
649. The vehicles I suppose would be simply driven on to the punt? Yes.
650. And I suppose as many people could be conveyed as the buggies would hold? Yes; there would be room for passengers, in addition, on the side walks.
651. On the whole you think that the punt would be sufficient to meet the requirements of the traffic for a time? Certainly; and when the traffic increased beyond what the punt would carry, the simplest plan would be to provide a duplicate punt to run at intermediate intervals.
652. Suppose a private company were empowered to construct a punt for tramway purposes, would that interfere with the Government punt? The company would have to run their tramways at the crossing entirely on Government reserves.
653. But I mean as far as the working of the punt is concerned? The road is rather narrow there, and it would be very difficult to get an approach independent of the Government approach.
654. Do you think it would be possible to make the Government punt available for carrying a tramway? I think it would be advisable to have an additional punt for the tramway.
655. What would be the extreme length of the punt available for vehicles? Fifty-five feet 3 inches by 11 feet is the available space for vehicles and horses.
656. *Mr. Abbott.*] And how many buggies would the punt hold? Eight in two lines.
657. *Chairman.*] Suppose a set of rails were put on the punt, would it carry an ordinary tram? Yes; but the tram would have to be carried in the centre, and there would be no room for the ordinary traffic.
658. That would be when the tram was crossing, but it would not cross very frequently—not more, perhaps, than two or three times a day. If that were the case would the tram interfere largely with the general traffic? Not largely, but it would be very difficult to get tramway grades from the ferry.
659. That is another matter; I am simply asking about the conveyance of the traffic from one side to the other? It would not be difficult to provide for that.
660. *Mr. Kethel.*] What dead-weight will the punt carry without endangering its stability? About 20 tons.
661. *Chairman.*] Not more? It would carry more in calm weather.

J. A.
M'Donald,
Esq.

7 Dec., 1888.

662. It would carry an engine, I suppose, in addition; I mean its own engine? Yes.
663. Then the 20 tons you speak of would be in addition to its own working gear? Yes.
664. *Mr. Kethel.*] What is the depth of the punt from the deck to the bottom? Four feet.
665. *Mr. Garrard.*] What width is allowed for a buggy in order to have two rows on the punt? About 5 feet 3 inches.
666. *Chairman.*] What is the width of the punt? Eleven feet between the kerbs, but the hubs of the wheels would go over the kerb.
667. *Mr. Garrard.*] There would be no fear of a run-away when there were eight buggies on the punt? No; if there were eight buggies they would be pretty tightly packed.
668. And the foot passengers would be on the wings as it were? Yes.
669. *Chairman.*] Is there any platform besides the ordinary floor? Yes; there is a separate platform for passengers.
670. *Mr. Garrard.*] Is the punt to be of the same dimensions as the one at Tom Ugly's Point, George's River? It will be larger, and the machinery will be differently arranged. It is one of the latest design.
671. How many men would it take to work the punt? Two—an engineer and fireman.
672. *Chairman.*] Are there any other figures you wish to put in as an appendix to your evidence? The total amount of the estimated annual working expenses of the steam-punt has been given in evidence; I now supply the details. [*Vide Appendix A1.*] The total amount is £800. The returns in 1889 are estimated to be £400, leaving a debit balance of £400.
673. Is the estimate based upon any calculation or record? On the working of other steam-punts.
674. How have you got at the number of passengers—from the returns of the present traffic? It is simply estimated.
675. Have you had any guide from the present traffic—the present punt is in your Department? Yes, it is leased, and the lessee pays £276 for this year. If the facilities are increased by having a steam-punt it is probable that the returns will be increased, and the lessee must make something out of the working of the present punt, so that I think it is fair to estimate £400 as the return. Other information which may be given in the appendix is with respect to the details of expenditure in connection with a bridge [*Vide Appendix A.*]; £3,604 is the amount given as the annual charge against the proposed bridge, and the details show how it is made out.
676. That is the estimate of the amount likely to be incurred in maintaining the bridge? Yes, including interest and depreciation, working expenses, painting, &c.
677. You put that statement in? Yes.
678. *Mr. Humphery.*] Is the £3,604 the debit balance after giving credit for the probable receipts from the bridge? No, that would be the gross debit charge. All the bridges are free. Of course if there were any returns from the tramway or anything else it would be credited.
679. *Mr. Suttor.*] Do you think it would be advisable to make a larger punt if it was required? The punts are made of thin plates, and they have to be docked every nine months for painting and cleaning, so that it would be better in the interests of the public to have two punts at the one ferry instead of providing a larger one.

PARLIAMENTARY STANDING COMMITTEE ON PUBLIC WORKS.

Bridge at The Spit, Middle Harbour.

APPENDIX.

A

[To Evidence of J. A. McDonald, Esq.]

PROPOSED BRIDGE OVER MIDDLE HARBOUR. [87/16,939]

Preliminary Estimate of Cost.

	£	£
Swing Pier—Outside cylinder, 25 ft. x 83 ft. = 143 tons at £15	2,145	
Inside cylinder, 8 ft. x 88 ft. = 55 tons at £15	825	
Machinery, hydraulic and steam, 70 tons at £32	2,240	
Concrete, 25 ft. diameter x 15 ft. = 280 cubic yards at £2 10s.	700	
Do. (25 ft. diameter — 8 ft.) x 73 ft. = 1,123 cubic yards at £2 10s.	2,807	
Total cost of swing pier		8,717
North Pier—Cylinders (2), 12 ft. diameter x 88 ft. = 143 tons at £15	2,145	
Concrete (2), 12 ft. diameter x 88 ft. = 737 cubic yards at £2 10s.	1,842	
Total cost of north pier		3,987
South Pier—		3,987
Intermediate North Pier—Cylinders (2), 6 ft. diameter x 88 ft. x $\frac{1}{2}$ ton per foot = 88 tons at £15	1,320	
Concrete (2), 27 square feet area x 88 ft. = 176 cubic yards at £2 10s.	440	
Total cost of intermediate north pier		1,760
Intermediate South Pier—		1,760
Cross girders in main and swing spans, 66 at 3 tons each = 198 tons at £22	4,356	
Longitudinal girders, 9 girders, each 650 ft. x 50 lb. = 130 tons at £22	2,860	
Buckled plates (650 ft. x 32 ft. x 165 ft.) \div 16 = 100 tons at £22	2,200	
Bulb T iron, 163 ft. x 32 x 16 lb. = 40 tons at £22	880	
Road metal, 20,800 sq. ft. at 100 lb. = 600 cubic yards at £1 10s.	900	
Total cost of deck		11,196
Main girders, 4 spans, each 126 ft. x $1\frac{1}{2}$ tons per foot = 625 tons at £22	13,750	
Swing spans, 150 at $\frac{1}{2}$ ton per foot = 113 tons at £22	2,475	
Abutments (2), sandstone masonry, each £1,350	2,700	
Approaches, Embankment on Spit, 40 ft. on top, slope 1 to 1, 27 chains, 28 ft. high = 125,658 cub. yds. at 2s.	12,565	
Total cost of bridge		£62,897
(Headway, 28 ft.; roadway, 32 ft.)		

Extra Cost of Widening proposed Bridge 10 ft.

Cross girders, 327 tons at £22	£7,200
Longl. girders, 167 " at £22	3,677
Buckled plates, 128 " at £22	2,838
Bulb T irons, 51 " at £22	1,122
Road metal, 771 cubic yards at £1 10s.	1,157
Total cost of deck	£15,994
Main girders and swing girders, 976 tons at £22	£21,472
Swing pier	11,208
North and south piers	10,254
Intermediate piers	4,526
Abutment	3,471
Approach in timber	17,357
	£84,282
Less Estimate 87/16939	62,897
Additional amount for 10 ft. extra width ..	£21,385

Extra Cost for Alterations in Original Design.

Estimated cost as per paper 87/16939	£62,897
Additional cost for timber in place of earthwork approaches	935
Additional if raised 2 ft.	800
Total	£64,632
NOTE.—The above does not include footways at £1,430 each side, or a total of	2,860
	£67,492

COMPUTATION of Annual Charges on proposed Design, with interest at 4 per cent. :—
Taking estimated cost as follows :—Main bridge, £50,332 ; timber approach, £13,500.

	Annual cost.	
	£	£
Interest and depreciation on £50,332 at 4 per cent. compound interest, and life taken at 150 years, equivalent to 4.01 per cent. per annum	2,018	
Painting every three years at 25s. per foot	285	
Wear and tear on machinery, 2 per cent. on £2,240	45	
Oil, stores, &c.	25	
Wages—one engineer and one labourer	288	
Total main bridge		2,661
Interest and depreciation on £10,000 at 4 per cent. compound interest, and life taken at 30 years, equivalent to 5.78 per cent.	578	
Interest and depreciation on £3,500 at 4 per cent. compound interest, and life taken at 15 years, equivalent to 9 per cent.	315	
Painting, &c.	50	
Total approach		943
Total		£3,604

COMPUTATION of Annual Charges if Iron Approaches be adopted in place of Timber on proposed Design :—
With main bridge, £50,332 ; and iron approach, £45,000 ; interest at 4 per cent.

	Annual cost.	
	£	£
Main bridge, as before, at 4.01 per cent., &c.	2,661	
Interest and depreciation on £45,000 at 4 per cent. compound interest, and life taken at 150 years, equivalent to 4.01 per cent.	1,800	
Painting, &c.	228	
Total		4,689

Note.—The above calculations of interest and depreciation are based on the principle of annuities, and are worked out from the formula.

$$P = \frac{1 - (1+r)^{-n}}{r} A$$

which gives the amount of equal annual payments required to pay off both principal and interest in n years. This annual amount is then worked out as a percentage on the prime cost.

With the iron and steel structure, the life has been assumed to be 150 years. With the timber structure the life of the deck has been assumed to be 15 years, and the life of the rest of the timber work has been assumed to be 30 years.

SUMMARY, with loan at 4 per cent. interest ; showing difference in annual charge between iron and timber approaches.

The annual charge with iron and steel main bridge and iron approaches, headway 28 feet, and roadway through-out 32 feet, would be	£4,689
Equivalent to 4.92 per cent. on £95,332.	
The annual charge with iron and steel main bridge and timber approaches, headway 28 feet, and roadway through-out 32 feet, would be	3,604
Equivalent to 5.57 per cent. on £63,832.	
Balance in favour of timber approaches	1,085

JOHN A. McDONALD, M.I.C.E., M.I.M.E.
Assistant Engineer of Roads.

A1.

STEAM PUNT, MIDDLE HARBOUR.

Estimated annual working expenses ; taking life of punt at 21 years, and working with one shift only of men :—		£
Annual cost for repairs, stores, painting, &c. (wear and tear)		320
Depreciation (say) 7 per cent. on £2,000 (life 21 years)		140
Coal account		52
Labour		288
Total annual cost		£800
Estimated returns in 1889		400
Debit balance		£400
Taking life of punt at 10 years, and working with two shifts of men.		
Annual cost for repairs, stores, painting, &c. (wear and tear)		320
Depreciation (say) 11 per cent. on £2,000 (life 10 years)		220
Coal account		75
Labour		576
Total annual cost		£1,191
Estimated returns in 1889		400
Debit balance		£791

JOHN A. McDONALD,
Assistant Engineer.

B.

[To Evidence of J. W. Deering, Esq.]

ESTIMATED Value of Crown Lands affected by proposed construction of Bridge at the Spit, Middle Harbour.

On Plan.		Acres.	Per acre.	Total Value.
1	Harbord	270	£40	£10,800
2	Manly, near the Water Reserve	590	£50	29,500
3	Dobroyd (55 lots)	28	£80	2,240
4	Narrabeen	800	= 10/- p. ft. £15	12,000
5	Manly Cove.....	2,430	av. £3	19,440
			av.	
	Total.....	4,118		£73,980

If the Bridge is erected, I think that the increased value of the above lands may reasonably be estimated at 25 per cent., which on £73,980 is equal to £18,500.

6th Dec., 1888.—No. 3,372.

JOHN W. DEERING,
Metrop. and Coast Dist. Sur.

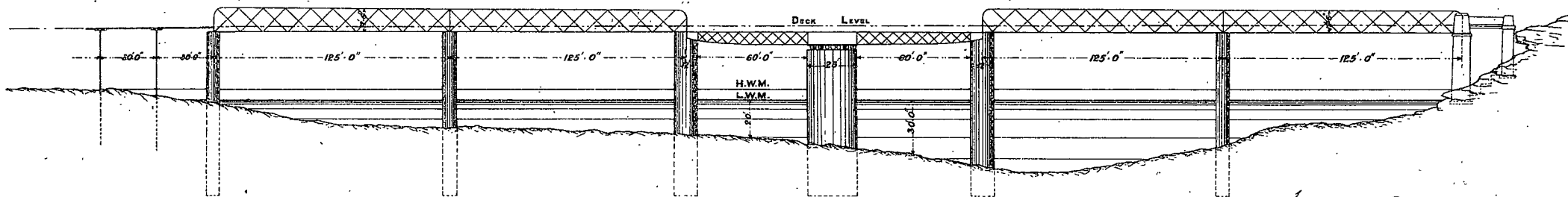
[4 plans and sketch.]

PROPOSED BRIDGE AT SPIT MIDDLE HARBOR

MAIN BRIDGE ONLY

NATURAL SCALE 40 FT. = 1 INCH

PHOTO-LITHOGRAPHED AT THE GOVT. PRINTING OFFICE,
SYDNEY, NEW SOUTH WALES.



Wm. Redwood M.I.C.E., M.I.M.E.
Assistant Engineer

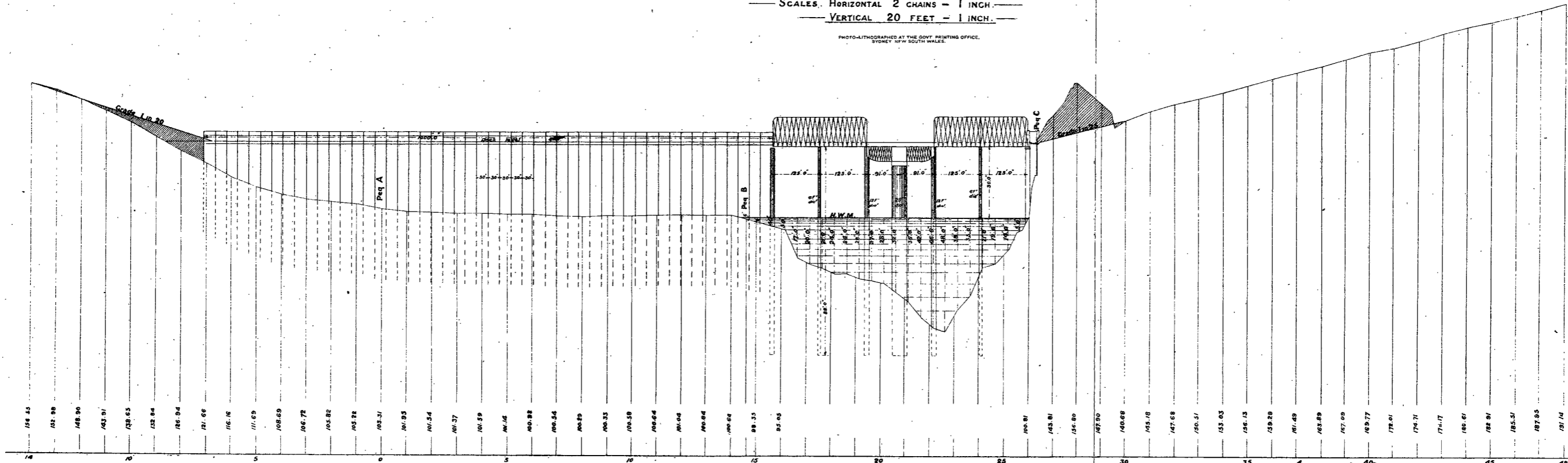
SITE FOR PROPOSED BRIDGE AT MIDDLE HARBOR

SECTION ON LINE A.B.C.

SCALES. HORIZONTAL 2 CHAINS - 1 INCH.

VERTICAL 20 FEET - 1 INCH.

PHOTO-LITHOGRAPHED AT THE GOVT. PRINTING OFFICE,
SYDNEY, N.S.W. SOUTH WALES.



John McQuinn M.I.C.E., M.I.M.E.
Assistant Engineer in Charge

(Sid. 196)

PLAN OF MIDDLE HARBOR

SHOWING SITES FOR PROPOSED BRIDGE

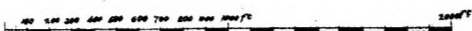
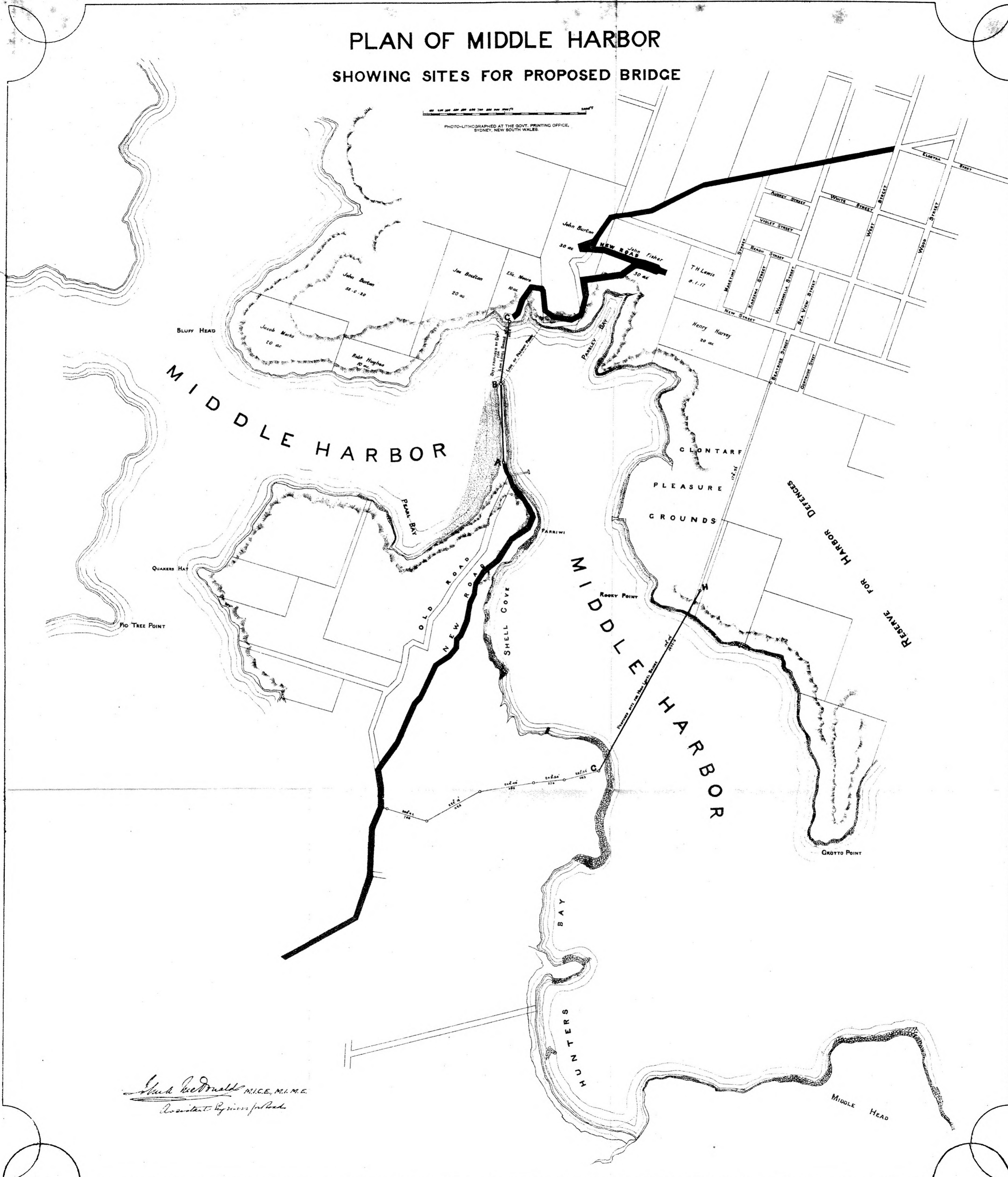
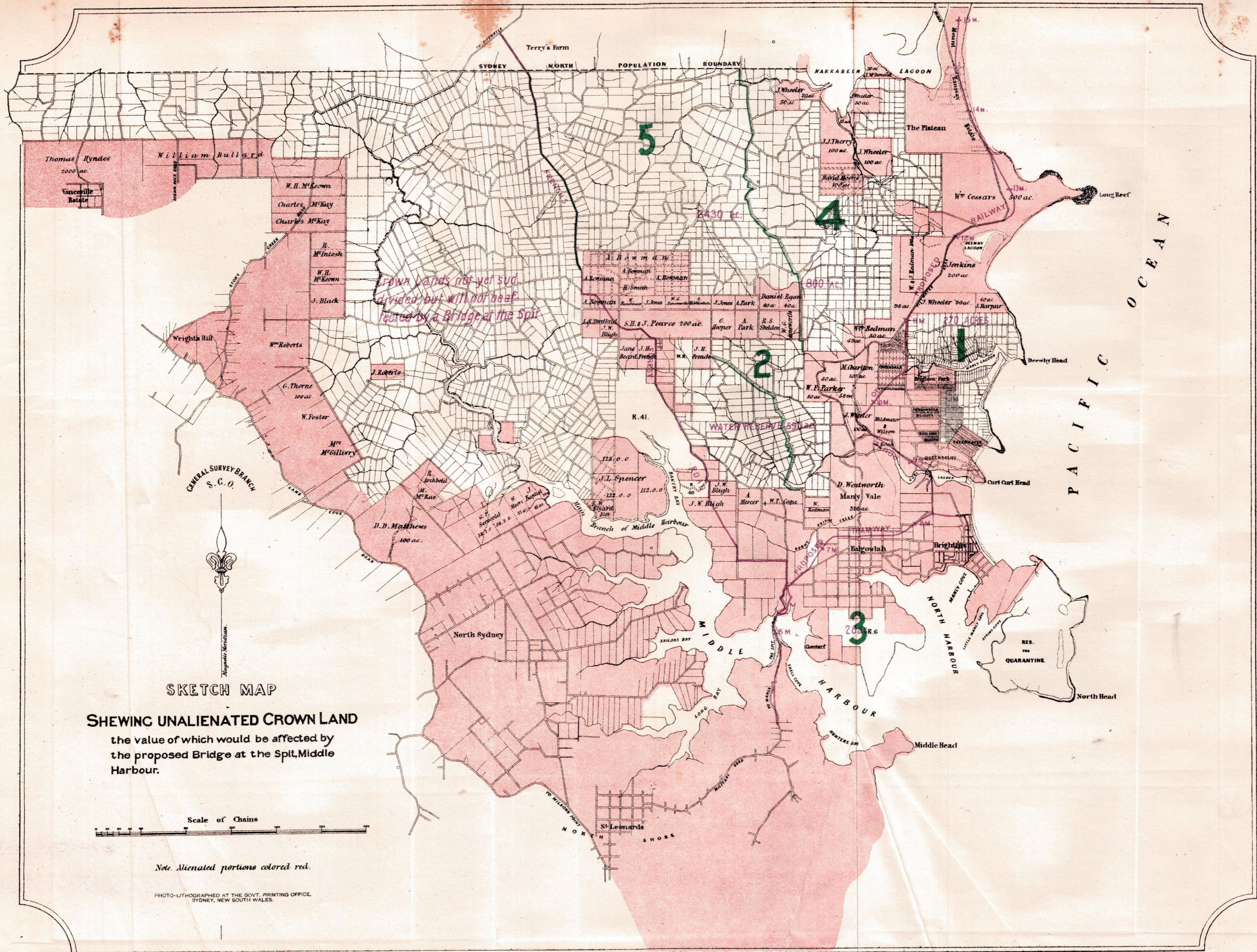


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John Beddall M.I.C.E., M.I.M.E.
 CONSULTING ENGINEER



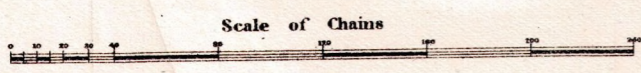
GENERAL SURVEY BRANCH
S. C. O.



SKETCH MAP

SHOWING UNALIENATED CROWN LAND

the value of which would be affected by
the proposed Bridge at the Spit, Middle
Harbour.



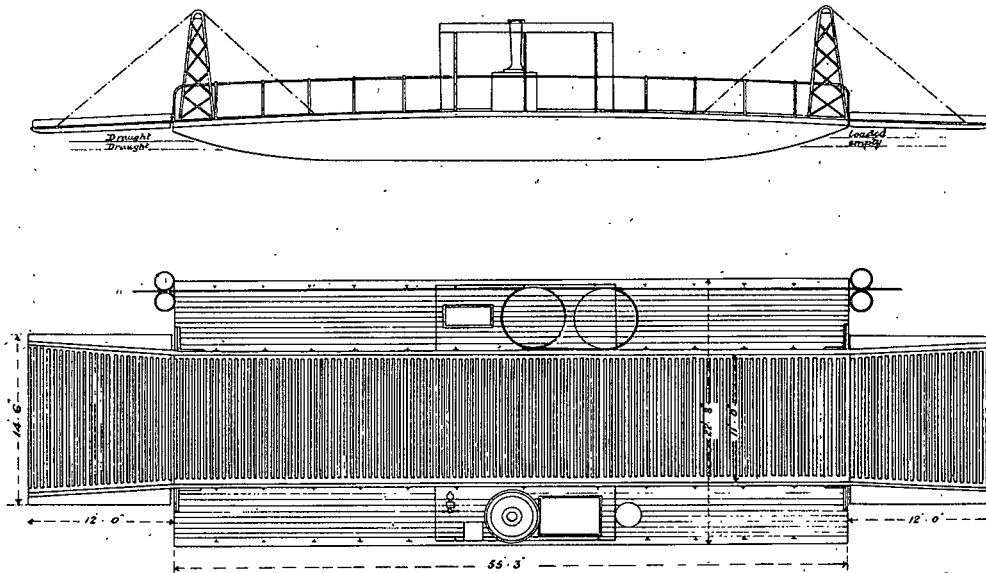
Note. Alienated portions colored red.

PHOTO-LITHOGRAPHED AT THE GOVT. PRINTING OFFICE,
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MIDDLE HARBOR FERRY

PROPOSED STEAM PUNT.

$\frac{1}{8}$ SCALE



John McDonald M.C.E., M.I.M.E.
Consulting Engineer

1888.

NEW SOUTH WALES.

RAILWAYS AND TRAMWAYS

OF

NEW SOUTH WALES.

REPORT

BY

THE COMMISSIONER FOR RAILWAYS

FOR

THE YEAR ENDING 30TH JUNE, 1888.

Presented to Parliament by Command.



SYDNEY: CHARLES POTTER, GOVERNMENT PRINTER.

1888.

[1s. 9d.]

20-a

[1,283 copies—Approximate cost of printing (labour and material), £56 19s. 0d.]

THE UNIVERSITY OF CHICAGO

PHYSICS DEPARTMENT

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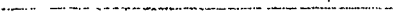
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1888.

NEW SOUTH WALES.

RAILWAYS OF NEW SOUTH WALES.

(REPORT FOR 1887-8.)

*The Commissioner for Railways to The Honorable the
Secretary for Public Works.*

Department of Public Works,
Railway Branch,

Sydney, 20th October, 1888.

Sir,

Although it is only a few weeks since I presented you with a Report upon the Railway Transactions of this Colony for the year 1887, I consider it incumbent upon me to bring up to the latest possible date an account of the Railway Transactions under the management which is giving place to the new administration; and as the Act which brings the new administration into operation requires that the financial year of the Railways shall close on the 30th June of each year, instead of on the 31st December, as heretofore, I have now the honor to submit to the Government a Report upon the Railways for the year ending 30th June, 1888.

1.—RAILWAY CAPITAL EXPENDED.

On the 30th June, 1888, there had been expended on lines open for traffic £27,663,431,* and on lines in course of construction £1,815,483, in all £29,478,914,—of which amount the sum of £567,690 was expended during the half-year ending 30th June, 1888, as under:—

Construction	£497,016
Rolling stock, machinery, &c.	65,766
Trial surveys	4,908
	<hr/>
	£567,690

The sources from which the money expended on Railway Lines open for traffic have been obtained, are:—

From Loans	£26,826,469
„ Revenue	836,962
	<hr/>
	£27,663,431

2.—

* Excludes the cost—£4,878—of old Pitt-street Tramway, taken up in 1867, and £5,613, cost of rolling stock used on Camden and Sans Souci Lines.

2.—LINES OPEN AND IN PROGRESS.

Of the sum of £567,690 for construction the sum of £195,269 was expended on lines open for traffic, and the balance £372,421 invested in lines in course of construction.

Additions to Capital Account—Lines open for traffic.

At the close of the year 1887 the capital invested in lines open was £26,532,122.* During the first six months of 1888 a further sum of £1,131,309 was added, making the total invested £27,663,431.

The amount of £1,131,309 was made up as follows, viz. :—

Amount transferred from Construction Account	£936,040
Expenditure during six months of 1888 ...	91,083
Additions and improvements to works and stations, &c.	38,420
Additional rolling stock, machinery, and workshops, &c.	65,766

3.—RAILWAYS OPEN.

The lines in operation on the 31st December, 1887, the date up to which my last Report treated, comprised 2,036 miles, divided as follows:—

Southern System... ..	860½ miles.
Western System	614 miles.
Northern System	561½ miles.
Total	2,036 miles.

Since that time the following extensions have been opened, making a total of 2,102 miles in operation on the 30th June, 1888 :—

16 January, 1888—Mullet Creek to Gosford	10 miles.
16 January, 1888—Tenterfield to Wallangarra	11 miles.
13 February, 1888—Cowra to Blayney	45 miles.
	66 miles.

On the 30th June last there were only 66 miles of line in course of construction, viz. :—

Extension.	Section.	
Illawarra Line	Second Section (part)	10 miles.
” ”	Third Section (part)	2 miles.
North Coast Line	Hawkesbury and Mullet Creek Section	4 miles.
Goulburn to Cooma	Michelago to Cooma	39 miles.
North Shore Line	North Shore to Pearce's Corner	11 miles.
		66 miles.

On the 3rd of this month the 12 miles of line requiring to complete the railway between Sydney and Kiama, known as the Illawarra Line, were opened for traffic; leaving only, at this date, 54 miles in course of construction.

It

* Excludes the cost—£4,878—of old Pitt-street Tramway, taken up in 1867, and £5,613, cost of rolling stock used on Camden and Sans Souci Lines.

It may be mentioned that the mileage under construction is less now than it has been at any time during my administration. At the close of—

	1878	there were	208	miles under construction.
	1879	„	286	„
	1880	„	347	„
	1881	„	573	„
	1882	„	504	„
	1883	„	597	„
	1884	„	391	„
	1885	„	407	„
	1886	„	278½	„
	1887	„	132	„
	On the 30th June, 1888	„	66	„
	And at this present time there are		54	„

The extensions opened during the year ending 30th June, 1888, were numerous, making a total of 197 miles; and, as most of the mileage was open for the greater part of the year, the average amount of new capital brought into operation was much greater than has been the case in preceding years, as will be seen from the following table:—

Year.	Capital Expenditure.	Average for year.
	£	£
1883	349,494	259,421
1884	2,162,164	766,160
1885	1,011,948	436,822
1886	1,708,716	632,139
1887	1,899,182	695,108
1887-8	2,379,134	1,457,828

The gross earnings for the year were fairly good, and the net earnings showed an increase of £12,281 over those for the year ending 31 December, 1887; but, owing to the much larger average capital brought into operation, the return per cent. to capital was slightly reduced. I have in previous reports referred to the fact that we cannot, for the first few years, expect newly-opened lines to be immediately remunerative—indeed, in our comparatively young and sparsely-populated Colony, the mission of the lines has been more to open the country for settlement and development. Without railway communication, industrial settlement inland, to any large extent, would be impossible, and the State property would be, in many cases, of merely nominal value.

The rapid rate at which we have been extending our lines is shown by the fact that within the ten years that the Railways have been under my control the capital expenditure has increased from £8,883,177 to £27,673,922; and I may add that our earnings for the single year under review are greater than the total earnings for the first fifteen years the lines were open.

In

In the following table will be found a statement of the railway expenditure for each year from 1878 to 1888, the number of miles in operation at the close of each year, the number of people in the Colony to the mile of line, and the return which the net revenue has given to the capital invested:—

Year.	Number of Miles under Maintenance.	Population to the Mile of Line.	Number of Train Miles run.	Capital Invested.	Net Profit.
1878	688	977	2,655,176	£ 9,784,645	3,741
1879	734	967	2,932,463	10,406,495	3,341
1880	849	874	3,239,472	11,778,819	4,358
1881	995	783	3,923,929	13,301,597	5,307
1882	1,268	639	4,851,127	15,843,616	5,135
1883	1,320	649	5,937,261	16,905,014	4,484
1884	1,618	559	6,403,041	20,080,138	4,201
1885	1,782	553	6,638,399	21,831,276	3,370
1886	1,889½	530	6,479,265	24,071,454	2,901
1887	2,036	513	6,472,017	26,532,122	2,960
				Average ...	3,979

4.—LAND TAKEN FOR RAILWAYS.

Satisfactory progress has been made with the settlement of claims for compensation for land taken for railway purposes. The incoming Commissioners will, however, be saved a large portion of the work of dealing with land-compensation cases, as this service is provided for under the Public Works Act; but I may express my satisfaction that in that Act provision has been made for determining the amount to be paid for compensation for lands actually taken by the increased value given to the remainder by the construction of the railway. So far back as 1882, in referring to this question, I said,—

For some time past consideration has been given to the question whether the community is not entitled, in a more direct way than has hitherto prevailed, to a portion of the wealth created by the construction of railways with public money. I brought this principle under the consideration of Mr. Secretary Lackey in connection with the extension of the Tram Lines, and it was so far adopted that the construction of the Tram Line to Cook's River was made conditional upon the owners of the land through which it would pass giving free the land required for the purpose. This proposal was very generally responded to, and no doubt the whole of the persons who held property would have given the portion required free had not other considerations determined the Government to abandon the construction of the line. I have called the attention of successive Ministers of Works for the last two years to the desirability of providing for the increased traffic on the Southern Line and creating and developing additional suburban traffic, by the construction of a line from about Liverpool to meet the Illawarra Line in the neighbourhood of Newtown. Such a line would open up a large area of country capable of cultivation, and would give an additional outlet for the overcrowded population of the city. In order that the community might share in the benefits derivable from the expenditure of the money in the construction of this line, it was proposed to resume a large area of land, about 1 mile in width, throughout the whole route; and after providing for roads and the creation of suitable townships, to re-sell the land not required for railway purposes, the profits made upon the re-sale to go as a set-off against the cost of the railway. You thought favourably of the proposal, and took some initiatory steps to give effect to it; but it soon appeared, from the fact that public petitions were being largely signed advocating this route, that either the intentions of the Government in this regard had become known, or the necessity for such a line had manifested itself to others. The object in view being thus in a measure frustrated, the alternative course was adopted of intimating to those interested, who waited by deputation upon you, that you would only consent to recommend the construction

of

of the line to Parliament upon the understanding that the land required for its construction was given free. The policy proposed to be pursued in this respect is not, I find, without example. The question has recently been taken up in New Zealand, and the Minister for Public Works, the Hon. Walter Woods Johnston, in a statement delivered to Parliament on the 3rd July last, in speaking of the treatment of land specially benefited, said:—

“I now come to the consideration of the manner in which lands specially benefited by the construction of railways should be dealt with. With reference to the advantages which have accrued in the past, the Government does not intend now to make any proposals, for it is not practicable to suddenly seize for the State a share of these advantages without inflicting numberless wrongs. But with regard to the future the case is different, and we are free to consider, unembarrassed by any apprehension of committing injustice, what share the community may be entitled to of the wealth created by the construction of railways with public money. In seeking the simplest and fairest course to adopt, the first suggestion which will have probably occurred to the minds of honorable members is that the State should repurchase all the land for a certain distance on either side of the proposed line at a certain increase upon the property-tax valuation. Valuations for taxation are usually low; on the other hand, compensation for expulsion should be liberal—perhaps compensation to the dispossessed landholders of 25 per cent. more than the valuation for property-tax would not be inequitable; and when railways are extended through country suitable for settlement there can be no doubt that the re-sale in moderate-sized farms of the land so taken would produce a profit sufficient to make a considerable contribution towards the cost of the railway, and, moreover, would bring into existence a traffic large enough to cause the railway to be a source of considerable revenue. Great collateral advantages would accrue to the Colony from the increase in our total production, and from the revenue contributed by an additional population.”

5.—EXISTING LINES.

Maintenance of Ways and Works.

The road and works generally have been kept in good order, the fine weather throughout the year facilitating the maintenance of existing lines. The failure of the sleepers in many places has led to extensive renewals under this head, the original supplies being replaced as far as possible by approved ironbark sleepers.

Rolling-stock.

The rolling-stock has been fairly well maintained, but the necessity for additional stock in certain classes becomes every day more apparent. The supplies now under order will meet the requirements to a large extent. I have for the last three years pointed out that more locomotives were required. So much time has been lost in obtaining satisfactory contracts that the locomotives now under manufacture by colonial makers will not be supplied in time to meet pressing wants. Tenders have consequently been invited in England and America for the supply of ten locomotives for immediate use.

My efforts for the last three years to increase the number of the live-stock waggons have been frustrated, owing to the difficulty of determining the description of waggon to be adopted, there being several rival designs to choose from. At this present moment the Department is almost at a deadlock, the demand for live-stock waggons being largely in excess of our ability to supply. I foresaw this, and repeatedly drew attention to the consequences of delay, but the decision was practically stayed by the appointment of a Parliamentary Committee to enquire into the rival merits of the trucks, notwithstanding that two Boards of experts had already reported upon the matter. The new administration, freed as it is from political intervention, will now, I presume, take measures to meet the demand.

6.—REVENUE AND EXPENDITURE.

The gross earnings for the year ending 30th June, 1888, were £2,290,010; the working expenses, £1,527,195; and the net earnings, £762,815.

In

Particulars of
coaching
traffic.

In the following tables are given the particulars of the Revenue and Expenditure for year ending 30th June, 1888, compared with year ending 31st December, 1887:—

COACHING TRAFFIC.

			Year ending 31st December, 1887.			Year ending 30th June, 1888.		
			S. & W.	North.	Total.	S. & W.	North.	Total.
Number of passengers	First-class ...	No.	2,529,494	162,707	2,692,201	2,828,579	168,366	2,996,945
	Second-class ...	"	5,467,210	691,440	6,158,650	5,895,817	680,023	6,575,840
	Season tickets— No. of journeys	"	^a 5,389,260	^b 211,192	^c 5,600,452	^d 5,375,170	^e 226,160	^f 5,601,330
	Gross ...	"	13,385,964	1,065,339	14,451,303	14,099,566	1,074,549	15,174,115
Receipts from Coaching traffic.	First-class ...	£	265,919	42,471	308,390	297,558	49,623	347,181
	Second-class ...	"	281,014	66,355	347,369	302,032	72,136	374,168
	Season tickets...	"	^g 53,066	^h 3,545	ⁱ 56,611	^j 55,154	^k 4,536	^l 59,690
	Total ...	"	599,999	112,371	712,370	654,744	126,295	781,039
	Horses and carriages, parcels, &c.	"	57,582	16,786	74,368	61,769	17,151	78,920
	Mails ...	"	26,315	18,666	44,981	24,665	20,969	45,634
	Miscellaneous...	"	13,010	5,770	18,780	16,086	5,623	21,709
Gross ...	"	696,906	153,593	850,499	757,264	170,038	927,302	
Average fare per head.	First-class ...	s. d.	2 1 $\frac{1}{4}$	5 2 $\frac{1}{2}$	2 3 $\frac{1}{2}$	2 1 $\frac{1}{4}$	5 10 $\frac{1}{2}$	2 4
	Second-class ...	"	1 0 $\frac{1}{4}$	1 11	1 1 $\frac{1}{2}$	1 0 $\frac{1}{4}$	2 1 $\frac{1}{2}$	1 1 $\frac{3}{4}$
	Season tickets...	"	0 2 $\frac{1}{4}$	0 4	0 2 $\frac{1}{2}$	0 2 $\frac{1}{2}$	0 4 $\frac{3}{4}$	0 2 $\frac{3}{4}$
	Mean ...	"	0 10 $\frac{3}{4}$	2 1 $\frac{1}{4}$	0 11 $\frac{3}{4}$	0 11	2 4 $\frac{1}{4}$	1 0 $\frac{1}{4}$
Average receipts from Coaching traffic per average mile of line.	First-class ...	£ s. d.	185 6 2	84 15 5	159 5 10	198 18 2	92 11 7	170 17 1
	Second-class ...	"	195 16 7	132 8 11	179 8 6	201 17 8	134 11 6	184 2 9
	Season tickets...	"	36 19 7	7 1 7	29 4 10	36 17 4	8 9 2	29 7 6
	Total ...	"	418 2 4	224 5 11	367 19 2	437 13 2	235 12 3	384 7 4
	Horses and carriages, parcels, &c.	"	40 2 7	33 10 1	38 8 3	41 5 10	32 0 0	38 16 10
	Mails ...	"	18 6 9	37 5 2	23 4 8	16 9 10	39 2 5	22 9 2
	Miscellaneous...	"	9 1 4	11 10 3	9 14 0	10 15 0	10 9 10	10 13 7
Gross ...	"	485 13 0	306 11 5	439 6 1	506 3 10	317 4 6	456 6 11	
Average receipts per passenger train mile.	First-class ...	d.	27·41	20·62	26·22	29·02	30·23	27·33
	Second-class ...	"	28·97	32·22	29·54	29·46	29·41	29·45
	Season tickets...	"	5·47	1·72	4·81	5·38	1·85	4·70
	Total ...	"	61·85	54·56	60·57	63·86	61·49	61·48
	Horses and carriages, parcels, &c.	"	5·94	8·15	6·32	6·02	6·99	6·21
	Mails ...	"	2·71	9·06	3·83	2·41	8·55	3·59
	Miscellaneous...	"	1·34	2·80	1·60	1·57	2·29	1·71
Gross ...	"	71·84	74·57	72·32	73·86	69·32	72·99	
Proportion of classes.	First-class ...	%	18·90	15·27	18·63	20·06	15·67	19·75
	Second-class ...	"	40·84	64·90	42·62	41·82	63·28	43·34
	Season tickets...	"	40·26	19·83	38·75	38·12	21·05	36·91
		"	100·00	100·00	100·00	100·00	100·00	100·00
Proportion of receipts.	First-class ...	%	44·32	37·80	43·29	45·44	39·29	44·45
	Second-class ...	"	46·84	59·05	48·76	46·14	57·12	47·91
	Season tickets...	"	8·84	3·15	7·95	8·42	3·59	7·64
		"	100·00	100·00	100·00	100·00	100·00	100·00

^a Includes 1,714,980 journeys made with workmen's tickets.

^g Includes £12,695 for workmen's tickets.

^b 9,984
^c 1,724,964
^d 1,732,440
^e 19,428
^f 1,751,868

^h £63
ⁱ £12,758
^k £12,875
^l £123
^m £12,998

The

The number of first-class passengers carried shows—

An increase of...	299,085	for South and West lines.
„ ...	5,659	„ North line.
An increase of...	304,744	„ all lines.

The number of second-class passengers carried shows—

An increase of...	428,607	for South and West lines.
A decrease of ...	11,417	„ North line.
An increase of...	417,190	„ all lines.

The number of season tickets (journeys)—

Decreased ...	14,090	for South and West lines.
Increase ...	14,968	„ North line.
An increase of...	878	„ all lines.

The total increase in the number of passengers carried on all lines was 722,812.

The receipts for coaching traffic—

Increased ...	£60,358	for South and West lines.
„ ...	16,445	„ North line.
An increase of...	£76,803	„ all lines.

The receipts from coaching traffic per average mile of line show—

	£	s.	d.	
An increase of...	20	10	10	for South and West lines.
„ ...	10	13	1	„ North line.
„ ...	17	0	10	„ all lines.

The receipts per train mile show—

An increase of...	2.02	for South and West lines.
A decrease of ...	5.25	„ North line.
An increase of...	0.67	„ all lines.

The proportion of percentage of classes of passengers shows—

An increase of...	1.12	for 1st class.
„ ...	0.72	„ 2nd „
A decrease of ...	1.84	„ season tickets.

The proportion of percentage of receipts—

Increased ...	1.16	for 1st class.
Decreased ...	0.85	„ 2nd „
„ ...	0.31	„ season tickets.

Particulars of
goods traffic.

The goods traffic, compared in the same way, is shown as under:—

REVENUE.—GOODS TRAFFIC.

		Year ending 31 December, 1887.			Year ending 30 June, 1888.			
		S. & W.	North.	Total.	S. & W.	North.	Total.	
Tons carried	Merchandise ...	Tons	950,980	161,233	1,112,263	1,002,074	179,215	1,181,289
	Coal	"	330,026	1,749,618	2,079,644	330,836	1,774,310	2,105,146
	Wool	"	55,948	21,135	77,083	54,472	19,676	74,148
	Live Stock.....	"	58,683	11,580	70,263	57,278	10,823	68,101
	Total	"	1,395,637	1,943,616	3,339,253	1,444,660	1,984,024	3,428,684
Receipts from Goods Traffic.	Merchandise ...	£	638,603	160,788	799,391	667,202	160,488	827,690
	Coal	"	60,681	80,943	141,624	63,944	81,504	145,448
	Wool	"	170,432	58,346	228,778	164,010	53,643	217,653
	Live Stock.....	"	163,179	19,132	182,311	147,040	17,747	164,787
	Miscellaneous..	"	4,305	1,387	5,692	5,772	1,358	7,130
Total	"	1,037,200	320,596	1,357,796	1,047,968	314,740	1,362,708	
Average rate per ton.	Merchandise ...	s.	13.43	19.94	14.38	13.31	17.91	14.02
	Coal	"	3.67	0.93	1.36	3.81	0.92	1.38
	Wool	"	60.93	55.21	59.36	60.22	54.53	58.71
	Live Stock.....	"	55.61	33.04	51.89	51.35	32.80	48.40
	Mean	"	14.86	3.29	8.13	14.51	3.17	7.95
Average No. of tons per mile of line.	Merchandise ...	Tons	663	322	575	670	334	581
	Coal	"	230	3,492	1,074	221	3,310	1,036
	Wool	"	39	42	40	36	37	37
	Live Stock.....	"	41	23	36	39	20	33
	Total	"	973	3,879	1,725	966	3,701	1,687
Average receipts per mile of line.	Merchandise ...	£ s. d.	445 0 6	320 18 6	412 18 2	445 19 10	299 8 5	407 6 8
	Coal	"	42 5 8	161 11 3	73 3 1	42 14 9	152 1 2	71 11 7
	Wool	"	118 15 4	116 9 4	118 3 5	109 12 7	100 1 8	107 2 2
	Live Stock.....	"	113 14 3	38 3 9	94 3 4	98 5 9	33 2 2	81 1 10
	Miscellaneous..	"	3 0 0	2 15 5	2 18 9	3 17 3	2 10 7	3 10 2
Total	"	722 15 9	639 18 3	701 6 9	700 10 2	587 4 0	670 12 5	
Average receipts per train mile.	Merchandise ...	d.	52.64	52.27	52.57	54.38	60.38	55.45
	Coal	"	5.00	26.32	9.31	5.21	30.66	9.74
	Wool	"	14.05	18.97	15.04	13.37	20.18	14.58
	Live Stock.....	"	13.45	6.22	11.99	11.99	6.68	11.04
	Miscellaneous..	"	0.35	0.45	0.37	0.47	0.51	0.48
Total	"	85.49	104.23	89.28	85.42	118.41	91.29	

In the tonnage carried there was—

An increase of 69,026 in merchandise.

" 25,502 in coal.

A decrease of 2,935 in wool.

" 2,162 in live-stock.

89,431 total increase.

Per average mile of line open, the result shows—

An increase of .6 tons in merchandise.

A decrease of .38 " coal.

" .3 " wool.

" .3 " live-stock.

38 total decrease.

The

The receipts show—

An increase of	£28,299	in merchandise.
„	3,824	in coal.
A decrease of	11,125	in wool.
„	17,524	in live-stock.
An increase of	1,438	in miscellaneous:
	<u>£4,912</u>	total increase.

Per average mile of line open, the receipts show—

	£	s.	d.	
A decrease of	5	11	6	in merchandise.
„	1	11	6	in coal.
„	11	1	3	in wool.
A decrease of	13	1	6	in live-stock.
An increase of	0	11	5	in miscellaneous.
	<u>£30</u>	<u>14</u>	<u>4</u>	average decrease.

The average receipts per train mile show—

	d.	
An increase of	2·88	for merchandise.
„	0·43	for coal.
A decrease of	0·46	for wool.
„	0·95	for live-stock.
An increase of	0·11	for miscellaneous.
	<u>2·01</u>	total increase.

Working Expenditure.

The particulars of the whole of the expenditure are given in the following table:—

		Year ending 31st December, 1887.			Year ending 30th June, 1888.			
		S. & W.	North.	Total.	S. & W.	North.	Total.	
Gross working expenses.	Maintenance of way, &c.	£	329,769	67,429	397,198	339,823	69,496	409,319
	Locomotive power, &c.	„	362,612	80,796	443,408	366,894	80,842	447,736
	Repairs of carriages & waggons	„	70,548	13,090	83,638	96,990	15,522	112,512
	Traffic charges	„	321,998	112,940	434,938	327,175	115,145	442,320
	Compensation—Personal	„	11,548	580	12,128	21,880	527	22,407
	Do Goods	„	980	95	1,075	4,616	67	4,683
	Miscellaneous	„	66,331	19,044	85,375	67,667	20,551	88,218
Total	„	1,163,786	293,974	1,457,760	1,225,045	302,150	1,527,195	
Expenditure per average mile of line	„	812	586	753	819	564	752	
Expenditure per train mile.	Maintenance of way, &c.	d.	15·11	13·13	14·73	15·32	12·73	14·81
	Locomotive power, &c.	„	16·61	15·74	16·44	16·55	14·81	16·21
	Repairs of carriages & waggons	„	3·23	2·55	3·10	4·37	2·84	4·07
	Traffic charges	„	14·75	21·99	16·13	14·76	21·09	16·01
	Compensation—Personal	„	0·53	0·11	0·45	0·99	0·10	0·81
	Do Goods	„	0·04	0·02	0·04	0·21	0·01	0·17
	Miscellaneous	„	3·04	3·71	3·16	3·05	3·77	3·19
Total	„	53·31	57·25	54·05	55·25	55·35	55·27	
Proportion of expenditure to gross receipts.	Maintenance of way, &c.	%	19·02	14·22	17·99	18·83	14·34	17·88
	Locomotive power, &c.	„	20·91	17·04	20·08	20·33	16·67	19·55
	Repairs of carriages & waggons	„	4·06	2·76	3·78	5·37	3·20	4·91
	Traffic charges	„	18·57	23·82	19·70	18·12	23·75	19·32
	Compensation—Personal	„	0·67	0·12	0·55	1·21	0·11	0·97
	Do Goods	„	0·06	0·02	0·05	0·26	0·02	0·21
	Miscellaneous	„	3·82	4·01	3·86	3·74	4·24	3·85
Total	„	67·11	61·99	66·01	67·86	62·33	66·69	

The increased mileage opened will account for the increase in the expenditure for maintenance of way, locomotive power, and traffic charges; but the increase in the charge for repairs of carriages and waggons calls for remark,—it is £28,874 in excess of the expenditure for the year ending 31st December, 1887, and represents an increase equal to 34 per cent. This expenditure is owing to the abnormal accumulation of stock in need of repair, but the repair of which could not be economically performed previously owing to the limited accommodation afforded. This condition of affairs will last some little time longer—till all arrears are pulled up, which will soon be accomplished as the shops at Eveleigh will admit of 400 carriages, and 3,375 trucks being repaired in the year. The conveniences are so great that the same number of men can turn out 25 per cent. more work than they could accomplish in the old premises.

The total working expenditure, compared with 1887, increased—
 £61,259, for South and West lines.
 £ 8,176 ,, North line.
 £69,435 ,, all lines.

The expenditure per average mile of line open—
 Increased £ 7 for South and West lines.
 Decreased £22 for North line.
 ,, £ 1 for all lines.

The expenditure for train mile shows as follows—
 An increase of 1·94d. for South and West lines.
 A decrease of 1·90d. for North line.
 An increase of 1·22d. for all lines.

The proportion of expenditure to gross receipts from all sources shows—
 An increase of ·75 per cent. for South and West lines.
 ,, ·34 ,, North lines.
 ,, ·68 ,, all lines.

Percentage of gross earnings, working expenditure, and net earnings to capital.

The subjoined abstract furnishes the percentages which the gross earnings, the working expenditure, and the net earnings bear to the capital invested in lines in operation for 1887-8, as compared with 1887:—

	1887-8.			1887.		
	S. & W.	North.	Total.	S. & W.	North.	Total.
Net receipts from all sources ... £	580,187	182,628	762,815	570,320	180,214	750,534
Do per average mile... £	388	341	375	398	359	388
Do per train mile ... d.	26·17	33·45	27·61	26·12	35·09	27·83
Proportion of gross receipts to capital ... %			8·56	.....	.....	8·72
Do of expenditure to capital ...			5·71	.....	.....	5·76
Do of net receipts to capital ...			2·85	.....	.....	2·96

The net earnings from all sources for the year show as follows—

£9,867 increase South and West.
 2,414 „ North.
 12,281 „ all lines.

The net earnings per average mile of line open show—

A decrease of £10 for South and West lines.
 „ £18 for North lines.
 „ £13 for all lines.

The proportion of gross earnings to capital—

Decreased 0·16 % on all lines.

The proportion of net receipts to capital—

Decreased 0·11 % on all lines.

The following is a summary of the gross earnings, working expenditure, and net earnings of the Railways for 1887, as against 1887-8 :—

	South and West.	North.	Total.	Summary of gross earnings, working expenditure, and net earnings.
	£	£	£	
Gross earnings, 1887-8	1,805,232	484,778	2,290,010	
Do 1887	1,734,106	474,188	2,208,294	
Increase for 1887-8	71,126	10,590	81,716	
Working expenditure, 1887-8	1,225,045	302,150	1,527,195	
Do 1887	1,163,786	293,974	1,457,760	
Increase for 1887-8	61,259	8,176	69,435	
Net earnings, 1887-8... ..	580,187	182,628	762,815.	
Do 1887	570,320	180,214	750,534	
Increase for 1887-8	9,867	2,414	12,281	

7.—DIVISION OF THE RAILWAY LINES INTO SECTIONAL AREAS.

The particulars to the end of the year 1887 are given in my Report of that year. The transactions of the six months ending the 30th June last will not materially affect the result therein shown, and it is unnecessary to encumber this Report with a repetition of the tables.

WOOL

8.—WOOL TRAFFIC.

In the Report for the year 1887 there is given a statement of the wool traffic for the season of 1887-8. I said that the prospect of an extremely heavy clip of wool during the approaching season (we have now entered upon it) is very encouraging. The realization, so far, has exceeded expectations, the quantity of wool received for the months of September and October being unprecedented. The number of sheep in the Colony is 47,000,000, the largest stock ever known in our history, and double the number depastured in 1878. The improved wool and stock traffic which will result from this large increase is not the only advantage which will accrue therefrom; on the down journey there will be a corresponding increase in the tonnage of station supplies carried.

In concluding this brief report upon the Railways, for the year ending the 30th June last, preparatory to the Department being handed over to the new administration, I may be permitted to point out that the new management will enter upon its functions under circumstances of considerable advantage. Trade is reviving, the traffic on the railways at the present time is unprecedented in the history of the Colony, and for some years to come the Administration will not be burdened with newly-opened and undeveloped lines upon which, before any return can be expected, a traffic has to be created.

At the request of the Government I have had to forecast the probable revenue and expenditure of the Department for the year 1889. I shall not, of course, be instrumental in realizing the prospect, but my successors should have no difficulty in doing so. While the gross revenue will be £2,570,000, the working expenditure should not exceed £1,589,675, and the net revenue will give a return of 3½ per cent. to the capital invested in lines open on the 31st December, 1889.

I have the honor to be,

Sir,

Your most obedient servant,



Commissioner for Railways.

The Hon. John Sutherland,
Secretary for Public Works,
&c., &c., &c.

TRAMWAYS OF NEW SOUTH WALES.

Department of Public Works, Railway Branch,
Sydney, 20 October, 1888.

Sir,

In the concluding portion of my report on the Tramways for the year 1887, I said, while expressing my disappointment with the results, that it was my intention to submit, in a few weeks, a return of the operations for the year ending the 30th June, 1888, and I added that I had every reason to believe that I should be able to place before you a more encouraging statement of our tramway affairs.

In redeeming that promise, it affords me pleasure to state that an appreciable improvement has taken place—the return to the capital invested in our city and suburban tramways has increased from 1·76 per cent. to 2·27 per cent.

In the subjoined return are given the capital expenditure on the Government Tramways of New South Wales to 31st December, 1887, and the subsequent expenditure to 30th June, 1888.

Lines and Sections.	Total Expenditure to 31 December, 1887.			Amount expended during half-year ending 30 June, 1888			Total expenditure to 30 June, 1888.		
	£	s.	d.	£	s.	d.	£	s.	d.
Railway Station to Circular Quay	61,707	4	8	5,028	3	9	66,735	8	5
Liverpool-street to Randwick and Coogee	105,790	18	1	.....	.....	105,790	18	1	
Darlinghurst Junction to Waverley and Woollahra	48,996	10	0	.....	.....	48,996	10	0	
Crown-street to Cleveland-street	16,038	10	1	.....	.....	16,038	10	1	
Newtown (Glebe Junction) to Marrickville: £53,365 3 3									
Deduct excess credit	681	3	3						
	52,684	0	0	.....	.....	52,684	0	0	
Glebe Point and Forest Lodge	38,021	2	10	.....	.....	38,021	2	10	
Railway Station Junction to Botany	78,820	12	9	183	10	2	79,004	2	11
Forest Lodge Junction to Leichhardt	35,574	16	1	316	10	1	35,891	6	2
Waverley to Bondi	23,302	11	3	33	17	5	23,336	8	8
Waverley to Randwick	8,146	11	7	.....	.....	8,146	11	7	
North Shore Cable	62,582	3	10	14	12	11	62,596	16	9
Newcastle to Plattsburg	47,396	9	0	1,066	14	4	48,463	3	4
Kogarah to Sans Souci	9,427	5	2	979	19	4	10,407	4	6
Campbelltown to Camden	38,404	7	3	.....	.....	38,404	7	3	
Circular Quay to Kent-street	100,216	18	2	.....	.....	100,216	18	2	
Newtown to Cook's River	297	3	7	.....	.....	297	3	7	
Harris-street to Pyrmont	276	1	10	.....	.....	276	1	10	
Total cost of construction	727,683	6	2	7,623	8	0	735,306	14	2
Tramway Workshops	55,186	5	2	.....	.....	55,186	5	2	
Rolling Stock	217,536	18	10	4,992	12	6	222,529	11	4
Machinery	15,584	19	9	1,018	4	11	16,603	4	8
Furniture	2,113	0	3	.....	.....	2,113	0	3	
Trial surveys	4,849	13	8	608	0	0	5,457	13	8
Grand total	£1,022,954	3	10	14,242	5	5	1,037,196	9	3

* Reduced by £681 3s. 3d.—Credit during 1887—Marrickville Line.

The

The total expenditure on the city and suburban Tramways to 30th June, 1888, was as under:—

Lines opened for Traffic.	Length in miles.	Total Cost.	Cost per mile.
		£	£
Railway Station to Circular Quay	1 $\frac{3}{4}$	66,735	38,147
Liverpool-street to Randwick and Coogee	5 $\frac{1}{4}$	105,791	20,150
Darlinghurst Junction to Waverley and Woollahra	3 $\frac{1}{2}$	48,996	13,999
Waverley to Bondi Beach	1 $\frac{3}{4}$	23,336	13,335
Waverley to Randwick	1 $\frac{1}{2}$	8,147	5,431
Crown-street Junction to Cleveland-street	0 $\frac{3}{4}$	16,038	21,385
Newtown (Glebe Junction) to Marrickville	3 $\frac{1}{4}$	52,684	16,210
Railway Station to Glebe and Forest Lodge	2 $\frac{1}{4}$	38,021	16,898
Forest Lodge to Leichhardt	2 $\frac{3}{4}$	35,891	13,051
Railway Station Junction to Botany	6 $\frac{3}{4}$	79,004	11,704
Average cost of construction	29 $\frac{1}{2}$	474,645	16,088
Tramway Workshops ... ..	.....	55,186	.....
Rolling Stock ... ..	.....	199,276	.....
Machinery ... ..	.....	11,335	.....
Furniture ... ..	.....	2,113	.....
Average cost, all charges	29 $\frac{1}{2}$	742,555	25,171

REVENUE AND EXPENDITURE.

The total earnings derived from the city and suburban Tramway for the year ending 30th June, 1888, were £221,060; the expenditure was £204,227; the net earnings were £16,833, giving a return to capital invested of 2·27 per cent.

I have not prepared tables showing the earnings and expenditure for each section of the city lines; the increase has been very general on all the lines. The following table gives the earnings and expenditure on the whole of the sections:—

CITY AND SUBURBAN TRAMWAYS—1887-8.

ALL SECTIONS.

Year ending 30th June, 1888.

All sections.

Expenditure.				Earnings.		
All Sections—				All Sections—		
Miles open	29 $\frac{1}{2}$	Cost per train mile.	Per cent. to earnings	Miles open	29 $\frac{1}{2}$	Earnings per train mile.
Train mileage	1,246,543			Train mileage ...	1,246,543	
Locomotive expenses ...	£ 125,129	d. 24·09	56·64	Earnings from all sources	£ 221,060	d. 42·56
Permanent-way do ...	26,963	5·19	12·20			
Traffic do ...	40,565	7·81	18·35			
General do ...	11,570	2·23	5·19			
	204,227	39·32	92·38			
Balance, net earnings ...	16,833					
	£ 221,060				£ 221,060	.....
Capital expended—						
Construction		£474,645				
Rolling stock, &c.		267,910				
		£742,555		Per cent. per annum return on capital		2·27
Lines in operation 12 months.						

NORTH SHORE CABLEWAY.

No alteration was made in the return to capital on this line for the year ending 30th June, 1888, as compared with the year 1887. The surplus land at Milson's Point, taken for the purposes of this tramway, which it was proposed to level, subdivide, and sell with wharf improvements, and which would have realized, it was expected, £35,000, has been practically taken for the railway from the Crow's Nest to the deep water of the North Shore. When the capital account for the tramway is relieved of the amount named, which will be properly chargeable to the vote for the railway, the return which the net earnings will give will be appreciably increased.

The following table gives the particulars of the capital expenditure and the revenue and working expenses of the line :—

NORTH SHORE CABLE TRAMWAY.

Year ending 30th June, 1888.

Expenditure.				Earnings.		
Miles open	1½	Cost per train mile.	Per cent. to earnings	Miles open	1½	Earnings per train mile.
Train mileage.....	67,711			Train mileage.....	67,711	
Locomotive expenses ...	£ 4,562	d. 16.17	62.94	Earnings from all sources	£ 7,248	d. 25.69
Permanent-way do ...	762	2.70	10.51			
Traffic do ...	1,194	4.23	16.46			
General do ...	315	1.12	4.35			
	£ 6,833	24.22	94.26			
Balance, net earnings ...	415					
	£ 7,248				£ 7,248	...
Capital expended—						
Construction			£62,597			
Rolling stock, &c.			8,922			
			£71,519	Per cent. per annum return on capital		0.58
Line in operation 12 months.						

KOGARAH AND SANDRINGHAM TRAMWAY.

ON the 31st December last, this line had been opened 3½ months only, and its working for that period resulted in a loss of £98. The loss for the 9½ months it has been in operation to 30th June last has been £338.

I said in my last report that while the line itself does not pay, it must not be forgotten that it is a valuable feeder to the Illawarra Railway line, and that it required the development of a larger residential traffic to make it self-supporting.

The

The following table gives the return of Revenue and Expenditure :—

KOGARAH AND SANDRINGHAM.
Year ending 30th June, 1888.

Kogarah and
Sandringham
Line.

Expenditure.				Earnings.			
Miles open	5	Cost per train mile.	Per cent. to earnings	Train mileage— Coaching	15,457	Earnings per train mile.	
Train mileage	16,415			Goods	958		
				Total	16,415		
Locomotive expenses ...	£ 982	d. 14 36	98 78	Earnings from—	£	d.	
Permanent-way do ...	211	3 09	21 23	Coaching	983	15 26	
Traffic do ...	133	1 94	13 38	Goods	11	2 75	
General do ...	6	0 08	0 61		994	14 53	
	£ 1,332	19 47	134 00	Balance—			
				Loss on working ...	338		
					£ 1,332		
Capital expended—							
Construction			£10,407				
Rolling stock, &c. ...			3,745				
			£14,152	Loss per cent. per annum on capital			2 96
Line in operation 9½ months.							

NEWCASTLE AND PLATTSBURG TRAM LINE.

For the 5½ months—this line had been opened on the 31st December, 1887—the loss on working amounted to £179. For the 11½ months to which the return for the period ending 30th June last brings the operations, it is shown that instead of a loss there has been a slight gain. The line should, in my opinion, be extended further into the city of Newcastle, and a 1d. section be established between Newcastle and Hamilton, with a largely increased tram service between those two points.

In the following table are given particulars of the Revenue and Expenditure :—

NEWCASTLE AND PLATTSBURG TRAM LINE.
Year ending 30th June, 1888.

Expenditure.				Earnings.			
Miles open	7½	Cost per train mile.	Per cent. to earnings	Miles open	7½	Earnings per train mile.	
Train mileage	74,532			Train mileage	74,532		
Locomotive expenses ...	£ 4,340	d. 13 97	52 86	Earnings from all sources	£ 8,211	d. 26 44	
Permanent-way do ...	724	2 33	8 82				
Traffic do ...	2,813	9 06	34 25				
General do ...	259	0 83	3 15				
	8,136	26 19	99 08				
Balance, net earnings ...	75						
	£ 8,211				£ 8,211		
Capital expended—							
Construction			£48,463	Return per cent. per annum on capital			0 12
Rolling stock, &c. ...			14,707				
			£63,170				
Line in operation 11½ months.							

CAMPBELLTOWN AND CAMDEN TRAMWAY.

The transactions of this Tramway continue to give satisfactory results. At the close of the year 1887 the return which the net revenue gave to the capital expended was 4·29 per cent. The transactions for the year ending 30th June last show an increase on the return from 4·29 to 4·64 per cent. The following table gives the particulars:—

CAMPBELLTOWN AND CAMDEN TRAMWAY.
Year ending 30th June, 1888.

Expenditure.				Earnings.		
Miles open	7½	Cost, per train mile.	Per cent. to earnings	Train mileage—Coaching	10,021	Earnings per train mile.
Train mileage	25,457			Goods	15,436	
					25,457	
Locomotive expenses ...	£ 1,016	d. 9·58	24·66	Earnings from—	£	d.
Permanent way do ...	730	6·88	17·74	Coaching ...	1,987	47·58
Traffic do ...	267	2·52	6·48	Goods ...	2,133	33·09
General do ...	10	0·09	0·24			
		2,023	19·07			
Balance, net earnings ...	2,097					
	£ 4,120				£ 4,120	38·84
Capital expended—						
Construction ...			£38,404			
Rolling stock, &c. ...			6,761			
			£45,165			
Line in operation 12 months.				Per cent. per annum return on capital...		4·64

In concluding this Report it will be unnecessary for me to comment upon the two main features which have characterised the recent history of the Department, viz., the appointment of the Royal Commission to inquire into the alleged tramway frauds and the proposal of the Government, with the approval of Parliament, to lease the trams.

All the facts connected with these matters are so fresh in the mind of the public as to require no further reference to them.

From a forecast by the Accountant for Railways, to which I have made reference elsewhere, it would appear that the transactions of the Tramway to the end of the present year will give a return of not less than 3 per cent. on the capital expended.

I have the honor to be,

Sir,

Your most obedient Servant,

Commissioner for Railways.

The Honorable John Sutherland, Esq.,
Secretary for Public Works.

APPENDIX

TO THE

REPORT ON THE RAILWAYS AND TRAMWAYS

OF

NEW SOUTH WALES,

YEAR ENDING 30TH JUNE, 1888.

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APPENDIX TO REPORT ON RAILWAYS—1887-8.

No. 1.

RETURN showing the CAPITAL EXPENDITURE on the Government Railways of NEW SOUTH WALES to the 31st December, 1887, and subsequent Expenditure to the 30th June, 1888.

Lines and Sections.	Total Expenditure to 31 December, 1887.	Amount Expended Half-year ending 30 June, 1888.	Total Expenditure to 30 June, 1888.
	£ s. d.	£ s. d.	£ s. d.
Trunk Line—			
Darling Harbour Branch	240,627 4 2	10,611 3 2	251,238 7 4
City Extension.....	5,687 10 9	.....	5,687 10 9
Sydney to Granville	1,067,284 15 0	4,883 6 0	1,072,168 1 0
Tramways.....	4,878 7 1	.....	4,878 7 1
Total, Trunk Line.....£	1,318,477 17 0	15,494 9 2	1,333,972 6 2
Southern Line—			
Granville to Liverpool	158,981 19 7	.....	158,981 19 7
Liverpool to Campbelltown	144,466 11 1	.....	144,466 11 1
Campbelltown to Menangle	84,796 19 5	.....	84,796 19 5
Menangle to Picton.....	337,342 2 7	.....	337,342 2 7
Picton to Goulburn.....	1,143,801 5 4	348 9 6	1,144,149 14 10
Goulburn to Yass.....	442,989 10 7	74 2 10	443,063 13 5
Yass to Cootamundra	565,496 1 1	1,343 0 3	566,839 1 4
Cootamundra to North Wagga	425,900 19 11	204 4 10	426,105 4 9
North Wagga to Albury.....	809,250 11 10	112 1 3	809,362 13 1
Albury to the River Murray	92,417 2 9	30 17 9	92,448 0 6
Junee to Narrandera	355,232 9 2	.....	355,232 9 2
Narrandera to Hay	584,174 18 0	340 3 3	584,515 1 3
Narrandera to Jerilderie.....	406,350 16 8	113 9 10	406,464 6 6
Sydney to Wollongong and Kiama	1,574,160 4 2	79,132 9 1	1,653,292 13 3
Goulburn to Cooma.....	1,133,226 5 1	131,135 7 8	1,264,361 12 9
Cootamundra to Gundagai.....	222,456 11 10	525 8 3	222,982 0 1
Murrumburrah to Blayney.....	992,736 12 4	38,546 4 6	1,031,282 16 10
Tarago to Braidwood	2,894 14 9	2 14 10	2,897 9 7
Gundagai to Tumut.....	34,382 13 11	36 10 3	34,419 4 2
Kiama to Jervis Bay	3,012 12 4	.....	3,012 12 4
Bega to Eden	4,949 10 9	634 9 5	5,584 0 2
Goulburn to Crookwell	3,864 18 1	.....	3,864 18 1
Galong to Burrowa.....	1,161 5 4	.....	1,161 4 4
Wagga to Tumberumba	6,249 2 1	.....	6,249 2 1
Culcairn to Corowa.....	2,556 7 5	31 3 2	2,587 10 7
Total, South.....£	9,553,152 6 1	252,610 16 8	9,785,763 2 9
Western Line—			
Granville to Penrith	583,753 5 1	1,416 0 10	585,169 5 11
Blacktown to Richmond.....	170,598 16 1	129 18 9	170,728 14 10
Penrith to Bathurst.....	2,127,245 9 5	5,270 6 0	2,132,515 15 5
Bathurst to Orange.....	404,494 4 0	1,234 9 3	405,728 13 3
Orange to Wellington.....	455,327 13 6	386 4 1	455,713 17 7
Wellington to Dubbo	235,594 19 10	903 1 11	236,498 1 9
Dubbo to vicinity of Bourke	1,285,274 13 2	2,226 10 8	1,287,501 3 10
Wallerawang to Mudgee.....	948,248 14 1	950 4 6	949,198 18 7
Orange to near Forbes	273,053 13 11	.....	.....
Deduct Excess Credit.....	†894 2 5	.....	.....
	272,159 11 6	241 10 0	272,401 1 6
Perth to Rockley.....	2,374 3 7	6 16 8	2,381 0 3
Forbes to Wilcannia	11,956 16 7	.....	11,956 16 7
Nyngan to Cobar.....	4,776 2 6	.....	4,776 2 6
Total, West.....£	6,501,804 9 4	12,765 2 8	6,514,569 12 0

* Reduced by £894 2s. 5d., credits during 1887, and marked, thus †.

No. 1—continued.

Lines and Sections.	Total Expenditure to 31 December, 1887.	Amount Expended Half-year ending 30 June, 1888.	Total Expenditure to 30 June, 1888.
	£ s. d.	£ s. d.	£ s. d.
Northern Line—			
Newcastle to West Maitland	679,132 4 5	4,659 5 0	683,791 9 5
Morpeth Branch	57,602 0 11	.....	57,602 0 11
West Maitland to Singleton	352,666 2 11	211 1 3	352,877 4 2
Singleton to Murrurundi	738,988 5 10	162 1 4	739,150 7 2
Murrurundi to Tamworth	470,079 14 0	201 1 10	470,280 15 10
Werris Creek to Gunnedah	248,542 8 7	12 18 10	248,555 7 5
Tamworth to Uralla	951,147 18 5	23 1 6	951,170 19 11
Uralla to Glen Innes	735,418 9 4	138 3 6	735,556 12 10
Glen Innes to Tenterfield	772,796 9 3	1,973 13 10	774,770 3 11
Gunnedah to Narrabri	305,334 17 11	30 17 2	305,365 15 1
Homebush to Waratah	1,934,146 13 5	141,875 11 6	2,076,022 4 11
North Shore to S. and N. Junction Railway	23,238 6 7	57,394 7 4	80,632 13 11
Inverell to Glen Innes	6,005 1 7	5 0 0	6,010 1 7
South Grafton to Glen Innes	30,784 9 2	.....	30,784 9 2
Grafton to River Tweed	12,424 0 7	3,277 18 0	15,701 18 7
Musclebrook to Cassilis	4,811 19 3	315 14 1	5,127 13 4
Tenterfield to Queensland Border	103,304 1 7	6,758 16 6	110,062 18 1
Narrabri to Moree	2,488 4 8	.....	2,488 4 8
Total, North.....	£7,428,911 8 5	217,039 11 8	7,645,951 0 1
Total cost of Construction.....	£24,782,346 0 10	497,910 0 2	25,280,256 1 0
Rolling Stock—			
South and West	2,630,725 11 6	21,944 14 11	2,652,670 6 5
North	618,756 10 5	5,593 16 7	624,350 7 0
Richmond Line	5,226 1 1	.....	5,226 1 1
Tramways.....	1,712 12 3	.....	1,712 12 3
Total, Rolling Stock.....	£3,256,420 15 3	27,538 11 6	3,283,959 6 9
Machinery—			
South and West	183,623 4 9	14,616 14 3	198,239 19 0
North.....	33,357 13 0	585 2 9	33,942 15 9
Total, Machinery.....	216,980 17 9	15,201 17 0	232,182 14 9
Workshops—			
Redfern and Eveleigh.....	588,348 19 11	22,731 19 3	611,080 19 2
Furniture—			
South and West	6,183 13 8	293 15 10	6,477 9 6
North.....	847 19 1	.....	847 19 1
Total, Furniture	£7,031 12 9	293 15 10	7,325 8 7
Trial Surveys	69,692 10 9	4,907 19 8	74,600 10 5
Grand total	£28,920,820 17 3	568,584 3 5	29,489,405 0 8

No. 2.

DETAIL of Cost of Additions and Improvements to Stations and Buildings and Siding Accommodation to meet increasing traffic, &c., charged to Capital Account during 6 months ending 30 June, 1888.

NORTH AND NORTH-WESTERN LINE.

BULLOCK ISLAND JUNCTION.			<i>Willow Tree</i> —			£	s.	d.
	£	s.	d.					
Additional sidings...	2,882	6	9	New Turntable	3	16	0*	
NEWCASTLE TO WEST MAITLAND.			<i>Quipolly</i> —					
<i>Newcastle</i> —			Additional siding accommodation			48	0	2
Alterations and additions to sidings	214	14	6	<i>Werris' Creek</i> —				
Approach to wharf	0	18	8*	Gas-works, manager's house ...	23	1	9*	
Box office for sub-inspectors ...	35	11	2	<i>Terrible Vale</i> —				
Interlocking apparatus	61	12	3	Additional siding accommodation..	21	15	1*	
Absolute block system	8	4	4*	<i>Tamworth</i> —				
<i>Wickham</i> —			Weighbridge			22	10	6*
New Footbridge	54	7	8	Improvements in yard approach...	40	19	10	
<i>Hamilton</i> —			TAMWORTH TO URALLA.					
Interlocking apparatus	1,248	19	11	<i>Walcha Road</i> —				
Picket fence on station	31	7	8	Weighbridge	0	15	0*	
<i>Sandgate</i> —			<i>Uralla</i> —					
Additions to station buildings ...	12	5	2*	Weighbridge	0	15	0*	
Additional signals	102	15	11	URALLA TO GLEN INNES.				
Additional siding accommodation	6	1	0*	<i>Kelly's Plains</i> —				
Cemetery				Additional siding accommodation	23	10	3*	
WEST MAITLAND TO SINGLETON.			<i>Armidale</i> —					
<i>Whittingham</i> —			Additions to refreshment room ...			38	15	11
Loading Stage &c.	162	4	6	<i>Duval</i> —				
<i>Singleton</i> —			Waiting-shed			58	7	1
Additional loco. office	31	6	11	<i>Guyra</i> —				
Lamp-room	17	9	10*	Additions to platform	17	10	3*	
SINGLETON TO MURRURUNDI.			GLEN INNES TO TENTERFIELD.					
<i>Glennie's Creek</i> —			<i>Tanks</i> —					
New Crane	6	15	6	Tanks for fettlers	51	2	2	
<i>Ravensworth</i> —			<i>Tenterfield</i> —					
House for station-master	14	10	0	Refreshment room and cooking				
<i>Wingen</i> —			range			52	9	7
Additional siding accommodation	67	7	6	GUNNEDAH TO NARRABRI.				
<i>Blandford</i> —			<i>Emerald Hill</i> —					
Additional signal	20	13	1*	Approach to platform	4	16	0*	
<i>Murrurundi</i> —			<i>Narrabri</i> —					
Gatekeeper's Cottage	59	10	9	Stock-yards	26	1	2	
MURRURUNDI TO TAMWORTH.			<i>Generally</i> —					
<i>Doughboy Hollow</i> —			Water supply			10	19	11*
Additional signals	40	18	6					
								£5,525 7 3

Part cost only.

No. 2—continued.

SOUTHERN LINE.

				SOUTHERN LINE.					
				£	s.	d.	£	s.	d.
<i>Darling Harbour—</i>							<i>Bowral—</i>		
New siding accommodation	...	...	...	2,400	3	2	Additional siding	...	121 5 0
New overbridge, William Henry-street	...	...	...	841	0	9	<i>Badgery's Siding—</i>		
New Meat Market	...	...	...	4,308	17	3	Platform	...	53 0 4
Produce Depot	...	...	...	2,091	10	8	<i>Bundamoon—</i>		
Farm Produce Market	...	...	...	752	10	6	Additional siding accommodation	...	11 7 6*
Verandah to goods-shed	...	...	...	122	11	6	<i>Marulan—</i>		
Work done at sheds (Cobar Copper Co.)	...	...	...	94	9	4	New siding	...	23 1 6*
SYDNEY TO GRANVILLE.									
<i>Sydney—</i>							<i>Goulburn—</i>		
Interlocking apparatus	...	...	...	0	12	1*	Additions to permanent-way shop	...	11 0 9*
Machinery, permanent-way shop...	...	...	...	6	3	0*	New signals	...	4 8 9*
Tank for gasholder in yard	...	...	...	1,232	1	8	Improving drainage in yard	...	8 16 8*
Quadrupling line, Sydney to Granville	...	...	...	3	3	0*	Additions to station	...	6 12 6*
Absolute block system, Sydney to Granville	...	...	...	2	5	9*	GOULBURN TO YASS.		
<i>Eveleigh—</i>							<i>Breadalbane—</i>		
Shops for telegraph instruments...	...	...	...	236	2	9	New siding	...	17 14 3*
<i>Macdonaldtown—</i>							<i>Culverts—</i>		
Subway	...	...	...	898	8	5	New culvert, 152 miles 51 chains..	...	1 12 6*
<i>Stanmore—</i>							<i>Waterways—</i>		
New station	...	...	...	250	5	2	Waterway, 154 miles 9 chains 51 links	...	10 0 0*
<i>Petersham—</i>							<i>Yass—</i>		
New station	...	...	...	137	9	6	Water supply, refreshment room..	...	21 2 5*
Interlocking apparatus and signals	...	...	...	34	17	10	Additions and alterations to station	...	17 16 0*
<i>Lewisham—</i>							YASS TO COOTAMUNDRA.		
Signals	...	...	...	113	11	4	<i>Galong—</i>		
<i>Croydon—</i>							Interlocking apparatus		
Additions to station buildings	...	...	...	0	18	2*	...	...	401 3 1
<i>Strathfield—</i>							<i>Harden—</i>		
New station arrangements	...	...	...	1,332	13	0	Signals	...	0 4 1*
<i>Homebush—</i>							Additions to station buildings		
Interlocking apparatus	...	...	...	21	9	5*	...	...	49 12 10
Footbridge at station	...	...	...	62	17	10	<i>Murrumburrah—</i>		
<i>Flemington—</i>							Goods-shed and landing stage		
New crossover road	...	...	...	2	12	5*	...	...	358 7 10
<i>Auburn—</i>							Bridge		
New station	...	...	...	8	15	7*	...	...	0 19 11*
Fencing land	...	...	...	13	4	0*	<i>Nubba—</i>		
<i>Rosehill Junction—</i>							Loading stage		
Interlocking apparatus	...	...	...	528	6	8	...	...	18 11 2*
<i>Granville—</i>							<i>Cootamundra—</i>		
Additional signals...	...	...	...	3	11	5*	New station	...	512 1 4
PICTON TO GOULBURN.									
<i>Thirlmere—</i>							COOTAMUNDRA TO NORTH WAGGA.		
Additional siding accommodation	...	...	...	2	11	0*	<i>Junece—</i>		
<i>Colo Vale—</i>							New siding		
New siding	...	...	...	106	5	6	...	...	220 15 10
							<i>Harefield—</i>		
							Additional signals...		
							...		
							Additions to loading stage		
							...		
							8 16 4*		
							<i>Fences—</i>		
							Wiring fences, G.S.R.		
							...		
							34 8 4		
							<i>Wagga—</i>		
							Additional sidings		
							...		
							93 16 1		

* Part cost only.

No. 2—continued.

WAGGA WAGGA TO ALBURY.				Cowra—				£	s.	d.
<i>Sandy Creek</i> —		£	s. d.	Cart weighbridge...	...	...	23	3	4	
Interlocking apparatus ...	...	53	5 2	Platform at crane...	...	...	0	2	2*	
<i>Dudal Cooma</i> —				<i>Lyndhurst</i> —						
Waiting-shed ...	...	12	3 3*	Hay-gauge...	...	...	10	16	11*	
W.C. and urinal accommodation...	...	25	16 11	NARRANDERA TO HAY.						
<i>Yambla</i> —				<i>Yanko</i> —						
Additions to station-master's house	...	36	5 6	Converting siding into loop ...	...	...	40	7	6	
GOULBURN TO COOMA.				<i>Wells</i> —						
Level-crossing				Wells for fettlers S.W. line ...	...	...	203	10	4	
Do. 166 miles, 34 chains	...	40	13 3	<i>Hay</i> —						
<i>Bungendore</i> —				Verandah to employees' cottages...				95	5	5
New hay gauge ...	...	0	11 7*	NARRANDERA TO JERILDERIE.						
Road over tunnel.				<i>Colombo</i> —						
Do. 190 miles, 57 links	...	0	16 3*	Crane ...	...	...	100	17	8	
MURRUMBURRAH TO BLAYNEY.				<i>Widgiewa</i> —						
<i>Demondrille</i> —				Additions to station buildings ...				40	18	1
Additional sidings ...	...	119	19 1	<i>Coonong</i> —						
Interlocking apparatus ...	...	76	1 2	New W.C's. and urinals ...	...	...	26	1	3	
<i>Kingsvale</i> —				<i>Geppally</i> —						
Forming approach to siding ...	...	9	9 0*	Water Supply ...	...	...	38	4	5	
<i>Young</i> —				£19,233 12 11						
Additions to siding accommodation	...	450	12 3	EXCESS CREDITS.						
<i>Sidings</i> —				Interlocking Albury £15 9 7						
New signals at siding 251m. 3ch.	...	4	14 9*	Do. Junee 258 12 1	...	...	274	1	8	
<i>Crowther, 272 miles</i> —				£18,964 11 3						
Station buildings ...	...	88	12 6							

SYDNEY TO WOLLONGONG AND KIAMA.

<i>Marrickville</i> —				<i>Hurstville</i> —						
Safety points ...	...	3	9 4*	Truck weighbridge ...	...	...	241	6	10
<i>Tempe</i> —				<i>Como</i> —						
Additions to platform ...	...	87	0 7	Waiting-shed ...	...	...	51	3	8
<i>Rockdale</i> —				<i>Mount Kembla</i> —						
Fencing on platform ...	...	53	1 10	Loop siding ...	...	...	150	0	0
House for pumper	274	8 4	<i>Dapto</i> —						
<i>Kogarah</i> —				Pumper's cottage ...				288	3	3
New siding ...	...	177	1 10	£1,413 0 1					
<i>Carlton</i> —										
New Signals ...	...	0	6 3*						
New platform ...	...	86	18 2						

HOMEBUSH TO WARATAH.

<i>Hornsby</i> —				<i>Awaba</i> —						
Safety points ...	...	69	7 6	New siding...	...	...	2	2	2*
<i>Mullet Creek</i> —				Gate and approach road ...				16	2	3*
Furnace for footwarmers...	...	10	17 11*	<i>Adams Town</i> —						
Accommodation for Loco. men ...	...	19	18 3	Waiting-shed ...	...	...	41	0	9
<i>Wyong</i> —				£227 10 8						
Additions to station buildings ...	...	68	1 10						

*Part cost only.

No. 10a—continued.

WESTERN LINE.

GRANVILLE TO PENRITH.

<i>Parramatta</i> —	£	s.	d.
Interlocking apparatus	1	19	5*
<i>Rooty Hill</i> —			
Addition to platforms	31	2	11
<i>Mount Druitt</i> —			
Dock wall	171	11	8
<i>St. Mary's</i> —			
Additional sidings	29	2	6
New station	1,161	7	8

PENRITH TO BATHURST.

<i>Springwood</i> —			
House for station-master	1	8	5*
<i>Linden</i> —			
Signals	19	7	8*
Additional sidings	114	18	10
Additions to porter's house	55	15	4
Pumper's cottage	20	11	6
<i>Lawson</i> —			
Additional siding accommodation	393	19	3
Goods-shed and dock	114	10	5
<i>Katoomba</i> —			
New siding	82	18	3
<i>Mount Victoria</i> —			
Additional signal	3	16	9*
<i>Clarence Siding</i> —			
Shoot for Mr. Wilton	17	1	3*
<i>Eskbank</i> —			
New coal-stage	64	19	2
Interlocking apparatus	197	11	7
<i>Lithgow Zig Zag</i> —			
Additional signals	0	16	7*
Improvements to cottage... ..	14	18	5*
<i>Brewongle</i> —			
Additions to N. O. cottage	2	18	5*
<i>Bathurst</i> —			
New coal-stage	728	4	4
Quarters for drivers	0	10	10*
New overbridge	2,939	0	9
New engine-shed	589	15	1
Alterations to refreshment room	4	10	8*

BATHURST TO ORANGE.

<i>Embankments</i> —			
Piling Embankments 150 miles ...	59	8	4
<i>Blayney</i> —			
Interlocking apparatus at Line siding	252	15	1

<i>Hintley</i> —	£	s.	d.
Interlocking apparatus	154	6	8
<i>Orange</i> —			
House for station-master... ..	59	17	0
Alterations in yard	613	0	5
Cottage for gatekeeper	61	7	1
Sand house	33	14	8

ORANGE TO WELLINGTON.

<i>Mumbil</i> —			
House for porter in charge	355	5	11

WELLINGTON TO DUBBO.

<i>Ponto</i> —			
Additional siding accommodation	2	11	10*

DUBBO TO BOURKE.

<i>Narromine</i> —			
Ashpits	88	14	5

<i>Nevertire</i> —			
Ashpits	209	5	6
Turntable	30	6	5
Porter's cottages	32	11	5

<i>Nyngan</i> —			
Quarters for drivers and loco. men	2,874	13	9

<i>Bourke</i> —			
Additional sidings and stock yards	16	19	0*

WALLERAWANG TO MUDGEES.

<i>Capertee</i> —			
Lime Co's. siding	70	13	2
<i>Rylstone</i> —			
Turntable	553	9	8

RICHMOND LINE.

<i>Schofield</i> —			
Platform	101	10	11

<i>Richmond</i> —			
Additions to station-master's house	28	7	10

<i>Generally</i> —			
Water supply	24	10	8

£12,386 7 5

EXCESS CREDITS.

Sale of buildings Bathurst	97	7	6
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£12,288 19 11

* Part cost only.

SUMMARY.

	£	s.	d.
North and North-western Line	5,525	7	3
South and South-western Line, including Goulburn to Cooma, and Murrumburrah to Blayney	18,964	11	3
Illawarra Line	1,413	0	1
Homebush to Waratah	227	10	8
Western Line, including Mudgee and Molong Branches	12,288	19	11
	£38,419	9	2

No. 3.

STATEMENT showing the COST OF CONSTRUCTION and COST PER MILE open on different Sections of the Railway Lines, to 30th June, 1888.

Lines opened for Traffic.	Length in Miles.	Total Cost.	Cost per Mile.
	No.	£	£
Darling Harbour Branch	1	251,238	251,238
Sydney to Granville	13	1,065,709	81,977
Haslem's Creek Branch	$\frac{1}{2}$	6,459	12,918
Granville to Wodonga	374 $\frac{1}{2}$	4,207,556	11,235
Junee to Hay	167	939,748	5,627
Narrandera to Jerilderie	65	406,464	6,253
Granville to Bourke	490	5,103,127	10,415
Wallerawang to Mudgee	85	949,199	11,167
Blacktown to Richmond	16	170,729	10,670
Goulburn to Michelago	87 $\frac{1}{2}$	840,057	9,600
Cootamundra to Gundagai	34	222,982	6,558
Orange to Molong	22	268,013	12,182
Murrumburrah to Blayney	106	1,031,283	9,729
Sydney to Waterfall, and Clifton to Kiama	58	971,455	16,749
Homebush to Hawkesbury, and Gosford to Waratah	88 $\frac{1}{2}$	1,671,292	18,884
Newcastle to Tenterfield	391	4,750,516	12,150
Werris Creek to Narrabri	97	553,921	5,710
Bullock Island Branch	1 $\frac{1}{2}$	67,145	44,763
Morpeth Branch	4	57,602	14,400
	2,101 $\frac{1}{2}$	23,534,495	11,199
		£	
Pitt-street Tramway	4,878		
Rolling Stock	3,283,959		
Machinery	232,183		
Workshops—Redfern and Eveleigh	611,081		
Furniture	7,326		
	.....	4,139,427	.....
	2,101 $\frac{1}{2}$	27,673,922	13,168

In rolling-stock, the cost of the Carriages and Waggon used on the Camden Line, and the cost of two Locomotive Engines used on the Sans Souci Line, is included, as the vehicles were those originally provided for Railway service. Total value of stock so used: Camden Line, £3,223; Sans Souci Line, £2,390—£5,613.

No. 4.

RETURN of EARNINGS from Traffic in Passengers and Goods during year ending 30th June, 1888.

APPENDIX TO REPORT ON RAILWAYS--1887-8.

Year and Name of Railway.	Miles open for Traffic.	Gross Earnings from Coaching.							Gross Earnings from Goods.						Gross Earnings from all sources.	
		Passengers.			Excess-Luggage, Parcels, Cloak Room, Horses, Carriages, and Dogs.	Mails.	Miscellaneous.	Total from Coaching.	Live Stock.	Minerals.	Wool.	General Merchandise.	Miscellaneous.	Total from Goods.		
		1st and 2nd Class Passengers.	Holder's of Season Tickets	Total from Passengers.												
1888 (30th June).		£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.
South and West	1,548	599,590 0 0	55,154 0 0	654,744 0 0	61,769 0 0	24,665 0 0	16,086 0 0	757,264 0 0	147,040 0 0	63,944 0 0	164,010 0 0	667,202 0 0	5,772 0 0	1,047,968 0 0	1,805,232 0 0	
North	553½	121,759 0 0	4,536 0 0	126,295 0 0	17,151 0 0	20,969 0 0	5,623 0 0	170,038 0 0	17,747 0 0	81,504 0 0	53,643 0 0	160,488 0 0	1,358 0 0	314,740 0 0	484,778 0 0	
Total	2,101½	721,349 0 0	59,690 0 0	781,039 0 0	78,920 0 0	45,634 0 0	21,709 0 0	927,302 0 0	164,787 0 0	145,448 0 0	217,653 0 0	827,690 0 0	7,130 0 0	1,362,708 0 0	2,290,010 0 0	
1887 (30th December).																
South and West	1,503	546,933 0 0	53,066 0 0	599,999 0 0	57,582 0 0	26,315 0 0	13,010 0 0	696,906 0 0	163,179 0 0	60,681 0 0	170,432 0 0	638,603 0 0	4,305 0 0	1,037,200 0 0	1,734,106 0 0	
North	533	108,826 0 0	3,545 0 0	112,371 0 0	16,736 0 0	18,666 0 0	5,770 0 0	153,593 0 0	19,132 0 0	80,943 0 0	58,346 0 0	160,788 0 0	1,387 0 0	320,596 0 0	474,189 0 0	
Total	2,036	55,759 0 0	56,611 0 0	712,370 0 0	74,368 0 0	44,981 0 0	18,780 0 0	850,499 0 0	182,311 0 0	141,624 0 0	228,778 0 0	799,391 0 0	5,692 0 0	1,357,796 0 0	2,208,295 0 0	
Increase	65½	65,580 0 0	3,079 0 0	68,669 0 0	4,552 0 0	653 0 0	2,929 0 0	76,803 0 0	.....	3,824 0 0	.....	28,299 0 0	1,438 0 0	4,912 0 0	81,715 0 0
Decrease	1888	.....	.....	.....	.....	.....	.....	.....	17,524 0 0	.....	11,125 0 0	.....	.....	.....	.....

No. 5.

RETURN of TRAFFIC in Passengers and Goods during year ending 30th June, 1888.

Year and Name of Railway	Miles open for Traffic.	Coaching Traffic.				Goods Traffic.				
		Passengers.				Live Stock.	Mineral.	Wool.	General Merchandise.	Total.
		First Class.	Second Class.	Number of Journeys.	Total.					
1888.										
South and West	1,548	No. 2,828,579	No. 5,895,817	No. 5,375,170	No. 14,099,566	Tons. 57,278	Tons. 330,836	Tons. 54,472	Tons. 1,002,074	Tons. 1,444,660
North	553½	168,366	680,023	226,160	1,074,549	10,823	1,774,310	19,676	179,215	1,984,024
Total	1,101½	2,996,945	6,575,840	5,601,330	15,174,115	68,101	2,105,146	74,148	1,181,289	3,428,684
1887.										
South and West	1,503	2,529,494	5,467,210	5,389,260	13,385,964	58,683	330,026	55,948	950,980	1,395,637
North	533	162,707	691,440	211,192	1,065,339	11,580	1,749,618	21,135	161,283	1,943,616
Total	2,036	2,692,201	6,158,650	5,600,452	14,451,303	70,263	2,079,644	77,083	1,112,263	3,339,253
Increase, 1888	65½	304,744	417,190	878	722,812	.....	25,502	.....	69,026	89,431
Decrease, 1888 .....	.....	.....	.....	.....	.....	2,162	.....	2,935	.....	.....

No. 6.

RETURN of WORKING EXPENSES and ROLLING STOCK during year ending 30th June, 1888.

Year and Name of Railway.	Miles open, 31 December.	Locomotive Power.	Carriage and Waggon Repairs.	Maintenance and Renewal of Way.	Traffic Charges, Coaching and Merchandise.	Compensation—Personal Injury, &c.	Compensation—Damage to and Loss of Goods.	Miscellaneous Working Expenditure and General Establishment.	Total Working Expenses.	Total Earnings.	Net Earnings.	Proportion per cent. of Expenditure to Total Earnings.	Rolling Stock.			
													Locomotives.	Passenger Stock.	Goods Stock.	Total Vehicles.
1888 (30 June.)		£	£	£	£	£	£	£	£	£	£		No.	No.	No.	No.
South and West...	1,548	366,894	96,990	339,823	327,175	21,880	4,616	67,667	1,225,045	1,805,232	580,187	67.86	...	...	...	...
North	533½	80,842	15,522	69,496	115,145	527	67	20,551	302,150	484,778	182,628	62.33	...	...	...	...
Total	2,101½	447,736	112,512	409,319	442,320	22,407	4,683	88,218	1,527,195	2,290,010	762,815	66.69	...	...	...	...
1887 (31 Dec.)																
South and West...	1,503	362,612	70,548	329,769	321,998	11,548	980	66,331	1,163,786	1,734,106	570,320	67.11	349	735	6,664	7,748
North	533	80,796	13,090	67,429	112,940	580	95	19,044	293,974	474,188	180,214	61.99	77	272	2,134	2,483
Total	2,036	443,408	83,638	397,198	434,938	12,128	1,075	85,375	1,457,760	2,208,294	750,534	66.01	426	1007	8,798	10,231
Increase, 1888..	65½	4,328	28,874	12,121	7,382	10,279	3,608	2,843	69,435	81,716	12,281	.68	...	...	...	...
Decrease, 1888	...	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	...	...	...	...

No. 7.

WORKING EXPENSES.

SCHEDULES of Expenditure in Revenue Account, during the year ending 30th June, 1888.

Schedules.	South.	North.	Total.
LOCOMOTIVE BRANCH.			
GENERAL EXPENSES.			
Schedule No.	£ s. d.	£ s. d.	£ s. d.
1. Superintendence and office expenses	31,547 19 5	7,691 18 0	39,239 17 5
2. Repairs of offices, workshops, and buildings	1,232 19 9	187 8 6	1,420 8 3
3. Renewals of do do do	650 4 3	127 15 4	777 19 7
4. Repairs of machinery, tools, and implements	9,390 2 9	1,807 8 4	11,197 11 1
5. Renewals of machinery	485 0 4	710 13 2	1,195 13 6
6. Lighting buildings and depôts	3,657 15 7	320 4 5	3,978 0 0
7. Casualties	1,029 10 7	4 13 4	1,034 3 11
8. Sundries	7,103 0 3	1,665 2 7	8,768 2 10
RUNNING EXPENSES.			
10. Wages of enginemen and firemen	121,959 14 6	27,095 15 4	149,055 9 10
11. Wages of cleaners, fuelmen, and shed labourers	41,742 3 10	7,792 0 9	49,534 4 7
12. Fuel	39,288 1 5	14,815 0 8	54,103 2 1
13. Running stores, exclusive of fuel	15,045 19 6	2,950 8 4	17,996 7 10
14. Cleaners' stores	3,233 19 9	913 11 7	4,147 11 4
15. Water supply	10,785 0 9	1,790 16 9	12,575 17 6
16. Renewals for water supply	827 11 4	173 13 7	1,001 4 11
REPAIRING EXPENSES.			
20. Repairs of engines	67,564 3 11	8,197 13 4	75,761 17 3
21. Renewals of engines	20,275 17 7	6,398 13 5	26,674 11 0
22. Improvements to engines	1,186 7 4	116 0 1	1,302 7 5
23. Casualties	1,408 10 2	148 16 0	1,557 6 2
CARRIAGES.			
30. Repairs of carriages	21,596 16 3	2,389 12 8	23,986 8 11
31. Renewals of carriages	16,713 7 1	4,078 17 8	20,792 4 9
32. Improvements to carriages	1,137 9 9	76 7 11	1,213 17 8
33. Casualties	1,243 17 0	35 0 9	1,278 17 9
WAGGONS.			
40. Repairs to waggons	21,957 8 4	2,465 13 8	24,423 2 0
41. Renewals of waggons	20,335 4 3	3,674 2 6	24,009 6 9
42. Improvements to waggons	1,954 2 7	689 4 1	2,643 6 8
43. Casualties	284 0 10	107 5 4	391 6 2
44. Gas vehicles	248 0 0	.....	248 0 0
Total, Locomotive Branch	£ 463,884 9 1	96,363 18 1	560,248 7 2
PERMANENT WAY BRANCH.			
GENERAL EXPENSES.			
50. Superintendence and office expenses	29,720 18 2	6,908 10 4	36,629 8 6
51. Repairs of offices, workshops, and buildings	131 18 9	2 0 10	133 19 7
52. Renewals of do do do	375 13 11	.....	375 13 11
53. Repairs of machinery and tools and implements	6,057 7 7	1,529 4 8	7,586 12 3
54. Renewals of machinery	82 6 11	42 10 7	124 17 6
55. Lighting workshops and buildings	96 5 9	175 9 11	271 15 8
56. Casualties	1,043 7 11	40 16 6	1,084 4 5
57. Sundries	6,685 19 4	290 8 10	6,976 8 2
MAINTENANCE.			
60. Repairs of line, sidings, &c.	169,499 12 3	46,147 14 7	215,647 6 10
61. Renewal of ditto	67,420 9 2	5,063 11 2	72,484 0 4
62. Repairs of station buildings, platforms, gate-houses, wharves, signals, &c.	12,246 18 4	3,069 8 9	15,316 7 1
63. Renewals of station buildings, platforms, gatehouses, wharves, signals, &c.	5,511 10 8	311 19 3	5,823 9 11
64. Repairs of tunnels, viaducts, bridges, culverts, gates, fences, &c.	23,076 0 4	3,716 2 8	26,792 3 0
65. Renewals of do do do do do do	9,466 12 2	407 14 11	9,874 7 1
66. Slips and flood repairs	5,590 0 10	344 19 0	5,934 19 10
67. Repairs of signals and interlocking machinery	2,216 0 1	628 2 3	2,844 2 4
68. Renewals of do do	597 5 8	817 0 6	1,414 6 2
69. Repairs of electric block arrangements	4 4 5	0 12 4	4 16 9
Total, Permanent Way Branch	£ 339,822 12 3	69,496 7 1	409,318 19 4

No. 7—continued.

Schedules.	South.	North.	Total.
TRAFFIC BRANCH.			
	£ s. d.	£ s. d.	£ s. d.
GENERAL EXPENSES.			
Schedule No.			
70. Management and office expenses.....	56,051 18 3	27,328 10 7	83,380 8 10
71. Wages of signalmen, switchmen, gatekeepers, &c.	22,023 0 0	13,309 9 11	35,332 9 11
72. Greasing and oiling goods and passenger stock	11,113 16 4	4,137 12 10	15,251 9 2
73. Line telegraphs.....	21,753 1 9	7,300 2 5	29,053 4 2
74. Repairs of station furniture, fittings, and implements (includes cranes and weighing machines).....	2,242 19 5	272 9 7	2,515 9 0
75. Renewals of station furniture, fittings, and implements (includes cranes and weighing machines).....	6,186 12 1	1,094 13 0	7,281 5 1
76. Fuel and lighting (includes lamps, gas, &c.).....	21,324 4 1	4,275 8 3	25,599 12 4
77. Casualties	381 6 4	241 12 4	622 18 8
78. Sundries.....	8,124 3 0	3,015 7 2	11,139 10 2
COACHING CHARGES.			
80. Wages of clerks, guards, conductors, porters, &c.....	72,902 4 10	12,759 15 11	85,662 0 9
81. Compensation for personal injury	21,879 13 5	527 1 5	22,406 14 10
82. Sundries	714 19 0	440 1 2	1,155 0 2
GOODS CHARGES.			
90. Wages of clerks, guards, wharfingers, porters, &c.	88,682 7 9	24,249 6 3	113,031 14 0
91. Compensation for loss of, or damage to, goods.....	4,616 7 1	66 17 5	4,683 4 6
92. Steam cranes and staiths	263 9 1	14,962 6 11	15,225 16 0
93. Repairing tarpaulins.....	2,359 11 0	603 2 4	2,962 13 4
94. Renewing tarpaulins.....	6,140 19 11	740 17 0	6,881 16 11
95. Sundries.....	6,910 12 7	314 0 6	7,224 13 1
Total, Traffic Branch.....£	353,671 5 11	115,738 15 0	469,410 0 11
GENERAL CHARGES.			
100. Proportion of general establishment	11,046 10 6	3,630 18 7	14,677 9 1
101. Auditing.....	7,876 13 0	3,074 6 3	10,950 19 3
102. Store expenses	5,637 10 5	2,050 15 7	7,688 6 0
103. Office expenses and contingencies	1,081 13 9	153 12 10	1,235 6 7
104. Advertising and stationery, printing, &c.	8,004 15 5	2,397 19 10	10,402 15 3
105. Holidays.....	29,284 19 8	8,184 13 0	37,469 12 8
106. Half-pay.....	743 2 11	138 3 9	881 6 8
107. Compensation.....	119 18 9	668 3 2	788 1 11
108. Sundries.....	3,871 4 8	252 15 9	4,124 0 5
Total, General Charges.....£	67,666 9 1	20,551 8 9	88,217 17 10
Grand total, Working Expenses	£1,225,044 16 4	302,150 8 11	1,527,195 5 3
SUMMARY OF EXPENDITURE, 30TH JUNE, 1888.			
	£ s. d.		
Locomotive Branch.....	560,248 7 2		
Permanent-way Branch	409,318 19 4		
Traffic Branch	469,410 0 11		
General Charges.....	88,217 17 10		
Total, Expenditure.....	£1,527,195 5 3		

No. 8.

TRAMWAYS—CITY AND SUBURBAN.

WORKING EXPENDITURE of City and Suburban Tramways during the Year ending 30th June, 1888.

	£	s.	d.		£	s.	d.
LOCOMOTIVE BRANCH.				<i>Locomotive Branch, brought forward</i>	126,643	8	10
GENERAL EXPENSES.				<i>Per. Way Branch, brought forward</i>	1,514	5	6
Schedule No.				PERMANENT WAY BRANCH—contd.			
1. Superintendence and office expenses ...	6,499	3	5	MAINTENANCE.			
2. Repairs of offices, workshops, and buildings	576	19	10	Schedule No.			
3. Renewals of offices, workshops, and buildings	303	14	1	60. Repairs of lines, sidings, &c.	16,893	10	4
4. Repairs of machinery, tools, and implements	2,241	18	2	61. Renewal of line, sidings, &c.	13,955	9	11
5. Renewals of machinery	3	11	9	62. Repairs of station buildings, platforms, gate-houses, wharves, signals, &c. ...	177	5	10
6. Lighting buildings and depôts	924	17	0	63. Renewals of station buildings, platforms, gate-houses, wharves, signals, &c. ...	81	8	8
7. Casualties	314	16	10	64. Repairs of tunnels, viaducts, bridges, culverts, gates, fences, &c.	387	13	10
8. Sundries	278	11	7	65. Renewals of tunnels, viaducts, bridges, culverts, gates, fences, &c.	3	16	6
RUNNING EXPENSES.				Total, Permanent Way Branch ...£	33,013	10	7
10. Wages of enginemen and firemen	35,823	8	2	TRAFFIC BRANCH.			
11. Wages of cleaners, fuelmen, and shed labourers	10,236	0	9	GENERAL EXPENSES.			
12. Fuel	11,817	15	7	70. Management and office expenses	4,938	9	2
13. Running stores, exclusive of fuel	2,270	9	3	71. Wages of signalmen, switchmen, gate-keepers, &c.	6,504	3	2
14. Cleaners' stores	469	9	4	72. Greasing and oiling goods and passenger stock	356	16	7
15. Water supply	1,023	0	0	73. Line Telegraphs	0	8	2
16. Renewals for water supply	81	8	4	74. Repairs of station furniture, fittings, and implements (includes cranes and weighing-machines)	11	6	8
17. Sweeping and cleaning roads	3,088	2	11	75. Renewals of station furniture, fittings, and implements (includes cranes and weighing-machines)	21	6	8
REPAIRING EXPENSES.				76. Fuel and lighting (includes lamps, gas, &c.)	2,292	5	2
20. Repairs of engines	33,355	19	9	77. Casualties	16	15	3
21. Renewals of engines	3,315	17	9	78. Sundries	1,841	16	3
22. Improvements to engines	22	9	1	79. Sweeping and cleaning roads	3,207	9	5
23. Casualties	115	19	11	COACHING CHARGES.			
CARRIAGES.				80. Wages of clerks, guards, conductors, porters, &c.	20,731	5	6
30. Repairs of carriages	10,683	6	1	81. Compensation for personal injury	603	3	0
31. Renewals of carriages	1,273	10	3	82. Sundries	40	0	0
33. Casualties	399	4	10	Total, Traffic Branch...£	40,565	5	0
WAGGONS.				GENERAL CHARGES.			
40. Repairs to waggons	130	16	1	100. Proportion of general establishment ...	1,311	18	6
41. Renewals of waggons	39	15	2	101. Auditing	1,039	16	6
43. Casualties	28	17	5	102. Store expenses	1,208	0	8
Total, Locomotive Branch ...£	125,129	3	4	103. Office expenses and contingencies	140	14	5
PERMANENT WAY BRANCH.				104. Advertising and stationery, printing, &c.	878	0	0
GENERAL EXPENSES.				105. Holidays	6,225	18	11
50. Superintendence and office expenses ...	1,184	6	5	106. Half-pay	386	2	5
51. Repairs of offices, workshops, and buildings	5	17	6	108. Sundries	379	7	1
53. Repairs of machinery and tools and implements	35	12	4	Total, General Charges.....£	11,569,	18	6
55. Lighting workshops and buildings.....	0	5	0	Grand Total, Working Expenses ...£			
56. Casualties	272	8	0		210,277	17	5
57. Sundries	15	16	3	SUMMARY OF EXPENDITURE.			
Total, General Expenses, Per. Way Branch, carried forward.	1,514	5	6	Locomotive Branch.....	125,129	3	4
Total, Locomotive Branch, carried forward £	126,643	8	10	Permanent-way Branch	33,013	10	7
				Traffic Branch	40,565	5	0
				General Charges	11,569	18	6
				Total	£210,277	17	5
				Adjustments to be made:—			
				Add ¼ of relaying Redfern Line, 1882.....	2,387	10	0
				Add ¼ of relaying Crown-street Line, 1883.....	173	13	4
				Add ¼ of cost of relaying with 70 lb. rails	755	0	0
				Total expenditure	£213,594	9	9
				Deduct amount included in Permanent Way not properly chargeable to the year 1888, being ¼ of relaying Expenditure, Redfern Line...	9,367	3	9
					£204,226	17	0

No. 9.

CAMDEN TRAMWAY.

WORKING EXPENDITURE during the Year ending 30th June, 1888.

LOCOMOTIVE BRANCH.		PERMANENT WAY BRANCH— <i>contd.</i>	
GENERAL EXPENSES.	£ s. d.	MAINTENANCE— <i>continued.</i>	£ s. d.
Schedule No.		Schedule No.	
4. Repairs of machinery, tools, and implements	1 4 2	64. Repairs of tunnels, viaducts, bridges, culverts, gates, fences, &c.	135 19 1
RUNNING EXPENSES.		66. Slips and flood repairs	0 12 5
10. Wages of enginemen and firemen	587 5 1	68. Renewals of signals and interlocking machinery	7 3 0
11. Wages of cleaners, fuemen, and shed labourers	124 7 6	Total, Permanent Way Branch ...£	730 7 2
12. Fuel	115 11 2	TRAFFIC BRANCH.	
13. Running stores, exclusive of fuel	16 3 5	GENERAL EXPENSES.	
14. Cleaners' stores	9 0 0	70. Management and office expenses	5 8 0
15. Water supply	42 14 5	72. Greasing and oiling goods and passenger stock	8 15 0
REPAIRING EXPENSES.		75. Renewals of station furniture, fittings, and implements (includes cranes and weighing machines)	4 5 2
20. Repairs of engines	90 14 11	76. Fuel and lighting (includes lamps, gas, &c.)	16 17 1
CARRIAGES.		78. Sundries	4 0 7
30. Repairs of carriages	26 9 2	COACHING CHARGES.	
WAGGONS.		80. Wages of clerks, guards, conductors, porters, &c.	227 9 10
40. Repairs to waggons	2 15 4	Total, Traffic Branch.....£	266 15 8
Total, Locomotive Branch£	1,016 5 2	GENERAL CHARGES.	
PERMANENT WAY BRANCH.		102. Store expenses	5 14 5
GENERAL EXPENSES.		105. Holidays	3 18 0
50. Superintendence and office expenses.....	85 12 1	Total, General Charges£	9 12 5
MAINTENANCE.		Grand Total, Working Expenses£	2,023 0 5
60. Repairs of line, sidings, &c.	476 11 2		
61. Renewal of line, sidings, &c.	6 5 1		
62. Repairs of station buildings, platforms, gatehouses, wharves, signals, &c.	18 4 4		

SUMMARY OF EXPENDITURE.		£ s. d.
Locomotive Branch		1,016 5 2
Permanent-way Branch		730 7 2
Traffic Branch		266 15 8
General Charges		9 12 5
Total Expenditure.....	£2,023 0 5	

No. 9a.

NORTH SHORE CABLE TRAMWAY.

WORKING EXPENDITURE during the year ending 30th June, 1888.

LOCOMOTIVE BRANCH.				PERMANENT WAY BRANCH.			
GENERAL EXPENSES.		£	s. d.	MAINTENANCE OF WAY.		£	s. d.
Schedule No.				Schedule No.			
C. 1.	Superintendence and office expenses ...	43	3 4	50.	Superintendence and office expenses ...	11	6 5
2.	Repairs of offices, workshops, and buildings	129	7 7	51.	Repairs of buildings.....	1	4 0
3.	Renewals of offices, workshops, and buildings	28	14 2	53.	Tools and implements	0	2 11
4.	Repairs of machinery, tools, and implements.....	30	2 8	54.	Repairs of lines, sidings, &c.	744	10 9
5.	Renewals of machinery	37	17 1	55.	Renewals of line, sidings, &c:	4	10 10
6.	Lighting buildings and depôts	83	10 2	Total, Permanent Way Branch... £		761	14 11
8.	Sundries	79	3 11				
RUNNING EXPENSES.				TRAFFIC BRANCH.			
10.	Wages of gripmen and stationary engine-drivers	1,327	13 1	61.	Greasing and oiling rolling stock.....	1	17 11
11.	Wages of cleaners, firemen, pulley-oilers, and running shed labourers.....	264	4 10	63.	Repairs of furniture, fittings, and implements	3	7 6
12.	Cost of fuel	675	15 1	65.	Fuel and lighting	27	2 9
13.	Running stores for engines or cable (exclusive of fuel)	159	6 11	66.	Wages of clerks, conductors, &c.	1,071	4 0
14.	Cleaners' stores	0	5 0	67.	Cost of personal injury	0	4 11
15.	Cost of water.....	38	6 2	69.	Sundries.....	9	19 2
16.	Cleaning grooves, &c.	78	13 1	69a.	Cleaning grooves, &c.	79	19 7
REPAIRING EXPENSES.				Total, Traffic Branch		1,193	15 10
20.	Repairs of stationary engines	73	15 6				
23.	Repairs of cable	23	14 0	GENERAL CHARGES.			
24.	Renewals of cable	852	19 9	70.	Proportion of general establishment ...	37	19 2
25.	Repairs of running gear and other cable fittings	88	8 0	71.	Auditing	5	11 0
26.	Renewals of running gear and other cable fittings.....	86	4 11	72.	Store expenses	62	18 11
27.	Repairs of grippers	30	1 4	73.	Office expenses and contingencies	14	6 1
28.	Renewals of grippers	14	19 9	74.	Advertising, stationery, &c.....	10	15 0
29.	Repairs to water supply (pipes, &c.) ...	2	9 3	75.	Holidays	78	19 5
30.	Renewals of water supply.....	0	4 6	76.	Half-pay.....	5	8 0
CARRIAGE REPAIRS.				78.	Sundries	99	15 0
40.	Repairs of carriages and dummies	410	7 6	Total, General Charges		315	12 7
41.	Renewals of carriages and dummies ...	2	12 1				
Total, Locomotive Branch		£ 4,561	19 8	Grand Total, Working Expenses... £		6,833	3 0

SUMMARY OF EXPENDITURE.

	£	s. d.
Locomotive Branch	4,561	19 8
Permanent Way Branch	761	14 11
Traffic Branch	1,193	15 10
General Charges	315	12 7
Total Expenditure	£6,833	3 0

No. 96.

SANS SOUCI TRAMWAY.

WORKING EXPENDITURE during the Year ending 30th June, 1888.

LOCOMOTIVE BRANCH.		PERMANENT WAY BRANCH— <i>contd.</i>	
Schedule No.	£ s. d.	Schedule No.	£ s. d.
RUNNING EXPENSES.		MAINTENANCE.	
10. Wages of enginemen and firemen	434 14 1	60. Repairs of lines, sidings, &c.	203 8 8
11. Wages of cleaners, fuemen, and shed labourers	69 7 9	Total, Permanent Way Branch ...£	210 13 9
12. Fuel	173 11 5	TRAFFIC BRANCH.	
13. Running stores, exclusive of fuel	29 7 1	GENERAL EXPENSES.	
14. Cleaners' stores	7 9 9	72. Greasing and oiling goods and passenger stock	8 8 0
15. Water Supply	2 9 11	77. Casualties	1 18 4
REPAIRING EXPENSES.		COACHING CHARGES.	
20. Repairs of engines	162 13 10	80. Wages of clerks, guards, conductors, porters, &c.	123 6 8
CARRIAGES.		Total, Traffic Branch.....£	133 13 0
30. Repairs of Carriages.....	102 7 4	GENERAL CHARGES.	
Total, Locomotive Branch£	982 1 2	102. Store expenses	5 19 2
PERMANENT WAY BRANCH.		Total, General Charges	5 19 2
GENERAL EXPENSES.		Grand Total, Working Expenses.....£	1,332 7 1
50. Superintendence and office expenses ...	7 5 1		

SUMMARY OF EXPENDITURE.

	£ s. d.
Locomotive Branch	982 1 2
Permanent Way Branch	210 13 9
Traffic Branch	133 13 0
General Charges	5 19 2
Total Expenditure	£ 1,332 7 1

No. 9c.

NEWCASTLE AND PLATTSBURG TRAMWAY.

WORKING EXPENDITURE during the year ending 30th June, 1888.

LOCOMOTIVE BRANCH.		TRAFFIC BRANCH.	
GENERAL EXPENSES.		GENERAL EXPENSES.	
Schedule No.	£ s. d.	Schedule No.	£ s. d.
1. Superintendence and office expenses ...	47 9 6	70. Management and office expenses.....	159 13 2
4. Repairs of machinery, tools, and imple- ments.....	10 14 9	71. Wages of signalmen, switchmen, gate- keepers, &c.	1,269 17 11
5. Renewals of machinery	0 12 2	72. Greasing and oiling goods and passenger stock	27 13 6
6. Lighting buildings and depôts.....	1 3 1	75. Renewals of station furniture, fittings, and implements (includes cranes and weighing machines).....	8 15 6
7. Casualties	0 7 6	76. Fuel and lighting (includes lamps, gas, &c.)	100 1 0
8. Sundries	13 17 6	77. Casualties	10 5 6
RUNNING EXPENSES.		78. Sundries	133 13 4
10. Wages of enginemen and firemen	1,396 5 3	79. Sweeping and cleaning roads	169 3 2
11. Wages of cleaners, fuelmen, and shed labourers	664 3 11	COACHING CHARGES.	
12. Fuel	790 13 2	80. Wages of clerks, guards, conductors, porters, &c.	932 16 7
13. Running stores, exclusive of fuel	94 9 9	GOODS CHARGES.	
14. Cleaners' stores.....	42 15 0	90. Wages of clerks, guards, wharfingers, porters, &c.	0 14 6
15. Water supply	12 3 1	Total, Traffic Branch £ 2,812 14 2	
REPAIRING EXPENSES.		GENERAL CHARGES.	
20. Repairs of engines.....	784 16 1	100. Proportion of general establishment ...	47 9 9
21. Renewals of engines.....	215 12 2	101. Auditing.....	3 5 7
23. Casualties	5 7 3	102. Store expenses	65 17 11
CARRIAGES.		103. Office expenses and contingencies	3 0 8
30. Repairs of carriages	117 16 2	104. Advertising and stationery, printing, &c.	29 16 2
31. Renewals of carriages	116 9 6	105. Holidays.....	108 16 7
32. Improvements to carriages	5 10 1	108. Sundries.....	0 11 0
33. Casualties	19 4 7	Total, General Charges £ 258 17 8	
Total, Locomotive Branch £ 4,339 10 6		Grand Total, Working Expenses... £ 8,135 12 4	
PERMANENT WAY BRANCH.		GENERAL CHARGES.	
GENERAL EXPENSES.		GENERAL CHARGES.	
50. Superintendence and office expenses ...	10 13 4	100. Proportion of general establishment ...	47 9 9
53. Repairs of machinery and tools and implements	5 16 11	101. Auditing.....	3 5 7
57. Sundries	5 18 6	102. Store expenses	65 17 11
MAINTENANCE.		103. Office expenses and contingencies	3 0 8
60. Repairs of lines, sidings, &c.	576 14 0	104. Advertising and stationery, printing, &c.	29 16 2
61. Renewal of lines, sidings, &c.	115 7 0	105. Holidays.....	108 16 7
62. Repairs of station buildings, platforms, gatehouses, wharves, signals, &c. ...	3 12 0	108. Sundries.....	0 11 0
64. Repairs of tunnels, viaducts, bridges, culverts, gates, fences, &c.	6 8 3	Total, General Charges £ 258 17 8	
Total, Permanent Way Branch ... £ 724 10 0		Grand Total, Working Expenses... £ 8,135 12 4	
SUMMARY OF EXPENDITURE.			
		£	s. d.
Locomotive Branch	4,339	10	6
Permanent Way Branch	724	10	0
Traffic Branch	2,812	14	2
General Charges	258	17	8
Total Expenditure	£8,135	12	4

No. 10.
ANALYSIS OF WORKING EXPENSES.

Heads of Expenditure.	1887.	1888.	Increase, 1888.	Decrease, 1888.
LOCOMOTIVE BRANCH.				
	Per train mile.	Per train mile.		
Locomotive Power, &c.—	d.	d.	d.	d.
South and West	16'61	16'55	.....	'06
North	15'74	14'81	.....	'93
Carriage and Waggon Repairs—				
South and West	3'23	4'37	1'14	.....
North	2'55	2'84	'29	.....
	Per mile open.	Per mile open.		
Permanent Way Branch—	£	£		£
South and West	229'96	227'15	.....	2'81
North	134'45	129'65	.....	4'80
	Per train mile.	Per train mile.		
Traffic Branch—	d.	d.		d.
South and West	14'75	14'76	0'01	.....
North	21'99	21'09	.....	'90
Compensation, Personal Injury—				
South and West	0'53	0'99	0'46	.....
North	0'11	0'10	.....	'01
Compensation, Damage to and Loss of Goods—				
South and West	0'04	0'21	0'17	.....
North	0'02	0'01	.....	0'01
General Charges—				
South and West	3'04	3'05	0'01	.....
North	3'71	3'77	0'06	.....
Gross Working Expenses—				
South and West	53'31	55'25	1'94	.....
North	57'25	55'35	1'90	.....

No. 11.

TABULAR ANALYSIS showing WORKING EXPENSES, GROSS EARNINGS, and NET EARNINGS, per Mile open, and Train Mile, for year ending 30th June, 1888.

Mileage.	Miles open— Average.	Train miles.	Miles run, including shunting.
South and West.....	1,496	5,321,477	.....
North	536	1,310,172	.....
Total.....	2,032	6,631,649	.....
Heads of Expenditure.	Amount.	Per mile open.	Per train mile.
Locomotive Power and Repairing Engines—	£	£	d.
South and West	366,894	245'25	16'55
North	80,842	150'83	14'81
Total	447,736	220'34	16'21
Carriage and Waggon Repairs—			
South and West	96,990	64'83	4'37
North	15,522	28'96	2'84
Total	112,512	55'37	4'07
Maintenance and Renewal of Way—			
South and West	339,823	227'15	15'32
North	69,496	129'65	12'73
Total.....	409,319	201'44	14'81
Traffic Charges, Coaching, and Merchandise—			
South and West	327,175	218'70	14'76
North	115,145	214'82	21'09
Total.....	442,320	217'68	16'01
Compensation, Personal Injury, &c.—			
South and West	21,880	14'63	0'99
North	527	0'98	0'10
Total.....	22,407	11'03	0'81
Compensation, Damage to, and Loss of Goods—			
South and West	4,616	3'08	0'21
North	67	0'13	0'01
Total	4,683	2'30	0'17
Miscellaneous Working Expenses and General Establishment—			
South and West	67,667	45'23	3'05
North	20,551	38'34	3'77
Total.....	88,218	43'41	3'19
Gross Expenditure—			
South and West	1,225,045	818'88	55'25
North	302,150	563'71	55'35
Total	1,527,195	751'57	55'27
Gross Earnings—			
South and West	1,805,232	1,206'71	81'42
North	484,778	904'43	88'80
Total.....	2,290,010	1,126'97	82'88
Net Earnings—			
South and West	580,187	387'83	26'17
North	182,628	340'72	33'45
Total.....	762,815	375'40	27'61

No. 12.

TABULAR SYNOPSIS of the TOTAL EARNINGS under the different heads of Traffic per Mile open and Train Mile for year ending 30th June, 1888.

Mileage.	Train Mileage.		Total Mileage run, including shunting.	
	Passenger.	Goods.	Passenger.	Goods.
South and West	2,460,529	2,944,520	.....	.....
North	588,671	637,929	.....	.....
All Lines	3,049,200	3,582,449	.....	.....
Heads of Traffic.	Miles open for Traffic—average	Earnings.	Per Mile open.	Per Train Mile.
COACHING.				
Passengers, 1st and 2nd Class—				
South and West	1,496	599,590	400'80	58'48
North	536	121,759	227'16	49'64
All Lines	2,032	721,349	355'00	56'78
Season Tickets—				
South and West	1,496	55,154	36'87	5'38
North	536	4,536	8'45	1'85
All Lines	2,032	59,690	29'37	4'70
Horses, Carriages, Dogs, Parcels, &c.—				
South and West	1,496	61,769	41'29	6'02
North	536	17,151	32'00	6'99
All Lines	2,032	78,920	38'84	6'21
Mails—				
South and West	1,496	24,665	16'49	2'41
North	536	20,969	39'12	8'55
All Lines	2,032	45,634	22'46	3'59
Miscellaneous—				
South and West	1,496	16,086	10'75	1'57
North	536	5,623	10'49	2'29
All Lines	2,032	21,709	10'68	1'71
Total Coaching—				
South and West	1,496	757,264	506'20	73'86
North	536	170,038	317'23	69'32
All Lines	2,032	927,302	456'35	72'99
GOODS.				
Live Stock—				
South and West	1,496	147,040	98'29	11'99
North	536	17,747	33'11	6'68
All Lines	2,032	164,787	81'09	11'04
Minerals—				
South and West	1,496	63,944	42'74	5'21
North	536	81,504	152'06	30'66
All Lines	2,032	145,448	71'58	9'74
Wool—				
South and West	1,496	164,010	109'63	13'37
North	536	53,643	100'08	20'18
All Lines	2,032	217,653	107'11	14'58
General Merchandise—				
South and West	1,496	667,202	445'99	54'38
North	536	160,488	299'42	60'38
All Lines	2,032	827,690	407'33	55'45
Miscellaneous—				
South and West	1,496	5,772	3'86	0'47
North	536	1,358	2'53	0'52
All Lines	2,032	7,130	3'51	0'48
Total Goods—				
South and West	1,496	1,047,968	700'51	85'42
North	536	314,740	587'20	118'41
All Lines	2,032	1,362,708	670'62	91'29
Gross Earnings—				
South and West	1,496	1,805,232	1,206'71	81'42
North	536	484,778	904'43	88'80
All Lines	2,032	2,290,010	1,126'97	82'88

1888.

LEGISLATIVE ASSEMBLY.
NEW SOUTH WALES.

RAILWAYS.

(STATEMENT OF COMMISSIONER UPON RELINQUISHING OFFICE.)

Ordered by the Legislative Assembly to be printed, 21 October, 1888.

Statement of the Commissioner for Railways upon relinquishing office,
October, 1888.

IN relinquishing the office of Commissioner for Railways of the Colony and transferring the management to the new Board of Commissioners, I desire to place on record a brief memorandum setting forth the main features of my administration, the difficulties I have had to encounter, and the measure of success which, in spite of obstacles, has attended my efforts.

I entered on the office of Commissioner in January, 1878. I have therefore filled the office of Commissioner for Railways for nearly eleven years.

For some time prior to my appointment the management of the railways had fallen into a condition of considerable disorganization, it being under an administration which, while actuated doubtless by the best intentions, was not possessed of that knowledge of railway business without which successful management is impossible.

The facilities for working the traffic were notoriously deficient, and strong representations on this point were made by the Traffic Manager, but those with whom the matter rested declined to increase them. A complete dislocation of the traffic arrangements ensued, and this led to incessant complaints from the public, and to charges of maladministration against the Department.

In other respects the administration was defective and weak, and a dangerous state of disorganization had crept into the staff. This was evidenced in many ways, but especially by an occurrence which I will briefly describe. At the period in question (1877) the operations of the traffic were carried on under a code of Rules and Regulations issued in 1869. It had, however, been found that in the extension of the lines and the development of traffic the business had to some extent outgrown the provisions of the Rules and Regulations, and that it was necessary to amend and extend and more accurately define them. This was accomplished by the then Traffic Manager by the issue of what he termed "Working Orders." A station-master in a case of some difficulty acted solely on the Rules and Regulations, and disregarded the "Working Orders," with the result that a disastrous collision was narrowly averted.

By a singular error of judgment, and without any inquiry, the "Working Orders" were at once cancelled.

About this time Mr. Secretary Sutherland took office, and it devolved upon him to deal with this case.

The Minister himself investigated the case, and circumstances brought to light led him to the conclusion that the Department was in a dangerous state of confusion and disorder, that a complete re-organization was necessary in the public interests, and that it was essential that the supreme management should be placed in the hands of an officer familiar with railway working and management, and with the requisite capabilities for administering this important branch of the Public Service.

The Minister's choice fell upon me, and I relinquished the post of Secretary of Railways, which I had filled for some years, to take up the appointment of Commissioner for Railways.

My commission is dated 29/1/78, and the day following—there had of course been no time to re-organize the arrangements—the disastrous Emu Plains accident occurred—a practical comment upon the inefficiency of the administration which was in course of being superseded. That that disaster was due to

to want of experience and judgment on the part of the management, and directly to the cancelment of the Working Orders, is indisputable. The causes which led to the accident are clearly set forth in a minute by Mr. Secretary Sutherland, from which the following is an extract:—

The evidence given at the inquiry shows very clearly that the Working Orders made for the guidance of the Staff in carrying out the Rules and Regulations were absolutely essential to provide for the public safety, and that in abolishing them the door was thrown open to uncertainty, contradiction, and danger. It is to my mind marvellous, that with the evidence of the value of these Working Orders before him, the late Commissioner should have ventured to cancel them. His only reason appears to have been that one officer, who was charged with disobeying them, stated in his defence that they clashed with the Rules and Regulations. No inquiry appears to have been made whether this was so or not; but, recklessly and without thought of the consequences apparently, the Working Orders were abolished, and the Staff left entirely to form their own judgment in regard to the interpretation to be placed upon the Rules—the very action of abolishing the Working Orders implying that the practice they sanctioned was wrong, and something different to that practice was to be adopted; something different was adopted; the system which the Working Orders provided—that “written line-clear reports” were to be placed [in the hands of the guards, showing to what points they were entitled to run—was abandoned, “line clear reports” were no longer obtained, and the duty of making safe arrangements for crossing trains was left to the discretion of the guards, without, in the case of goods-trains meeting, any time being fixed, whereby one train was to be in before the other was due out.

In the matter of rates and charges the policy of the superseded administration was defective in the extreme. For some years prior to my appointment, efforts had been made to induce the Minister for Works to consent to a considerable augmentation of the rates for the conveyance of merchandise and produce. To this policy I was always opposed, being convinced that the truest wisdom was to reduce the rates to the lowest possible point consistent with securing a fair return on the capital expenditure, and throughout my administration this is the aim which I have kept in view.

The following comparison of the rates which ruled at the period when that proposal was made with present rates is both suggestive and instructive, and will serve to show that I have steadily pursued the policy above indicated of minimising the rates:—

	Rates which for 130 miles it was proposed to raise.	Present rates for 130 miles.
Hay.....	20/ per ton.	8/11 per ton.
Straw and Chaff.....	20/ ” ”	8/6 ” ”
Grain.....	19/5 ” ”	11/3 ” ”
Flour.....	24/8 ” ”	11/3 ” ”
Coal.....	17/5 ” ”	10/1 ” ”
Bricks.....	22/8 ” ”	10/1 ” ”
Bark.....	17/5 ” ”	11/3 ” ”
Cement.....	43/4 ” ”	21/8 ” ”
Sleepers.....	28/ ” ”	14/ ” ”
Fruit.....	24/8 ” ”	11/3 ” ”
Limestone.....	17/5 ” ”	10/1 ” ”
Timber.....	28/ ” ”	11/3 ” ”

That a maintenance of these high rates (which a pseudo-expert desired to increase) would have been detrimental to the industries and to the best interests of the Colony needs no argument to prove. It is remarkable, moreover, as showing the folly of the proposed policy, that in the year when it was desired to increase rates, already inordinately high, the return upon the capital was only 1·817 per cent.; while in 1882, when the rates now in force had already been established, the percentage was 5·135; and in 1887, after a period of prolonged drought and great commercial depression, and when the account was burdened with the cost of 300 miles of newly-opened and undeveloped and practically unprofitable lines, the return was still within a fraction of 3 per cent.

STATISTICS.

Appendix A.

The accompanying tabulated statement furnishes particulars of the extension of the mileage and of the development and increase of the traffic during my tenure of office. It will be seen that the mileage of working railways was gradually increased from 688 miles when I took charge in 1878 to 2,036 miles in 1887, up to which date I have carried my calculations. It will also be seen that the additions to the mileage have been out of all proportion to the increase of population, and that, while in 1878 we had an average of 977 persons to every mile of railway open, the proportion of population per mile had, by the large extensions of the mileage, diminished to 512 in 1887. That this must have had an adverse influence on the average earnings of the railways is a self-evident fact. And this is not the only circumstance which has diminished the financial success of the railways. The construction of non-paying lines, for reasons which could not be defended on a sound commercial policy, has had a disastrous influence in diminishing the average earnings of the lines. The Hay and Jerilderie line, for instance, is worked at an annual loss, and there is no prospect of its paying expenses for many years to come. These unprofitable lines will account for the reduction of the gross earnings from £1,311 per mile of open line in 1878 to £1,084 in 1887. The exceptionally good returns for the years 1880-1884 will be remarked. These favourable results are due to causes which will be referred to hereafter. The compensation paid for personal injury and loss of, or damage to, goods may, I think, be claimed as a very low average. The first-named, however, was largely augmented in 1887 by the disastrous Peat's Ferry accident. The diminution in the number of employes per mile of line from 5·706 in 1878 to 4·602 in 1887 is a favourable feature. The average return of interest, for the 10 years 1878 to 1887, on capital expended, is 3·98 per cent. I desire to call especial attention to the fact that no railway system in any of the Australian Colonies, not excepting Victoria, which comes next, can show, for the period named, so good a return to the railway capital invested; and I think I have a right to expect, in justification of my removal from the position of Chief Manager, that under the new administration the return to the capital will at least be equal to the average return which has been made, if it does not equal the maximum, which for the year 1881 was 5½ per cent. The small return shown for the years 1886 and 1887 was due to the opening of new lines, which were either more or less unprofitable, or the traffic of which was not fully developed.

IMPROVEMENTS

IMPROVEMENTS AND INCREASE OF TRAFFIC FACILITIES.

I had long been aware of defects in the arrangements which precluded us from properly developing and working the traffic, but which I had been powerless to remedy, and as soon as I took office I initiated efforts to bring about necessary improvements.

One of my first measures, with the concurrence of the Minister, was to increase our working appliances in especial our stock of goods trucks, which, under the circumstances already set forth, had not been maintained in proportion to the increase of the business of the Department.

I may take occasion to state here that for the last three years I have been endeavouring to increase the number of the live-stock waggons (it is in this direction only that the appliances for working the traffic are now deficient), but the political influence at work in regard to the character of the waggon to be used has kept this question hung up for so long a time that at this present moment the Department is at a deadlock, the demand for live-stock waggons being largely in excess of our ability to supply. I foresaw this, and repeatedly warned the Minister of the consequences of delay; but the decision was practically taken out of his hands by a Parliamentary Committee appointed to inquire into the rival merits of various designs of trucks, notwithstanding that two Boards of experts had previously reported upon the matter, and it was felt that nothing could be done till the Parliamentary Committee had reported. Nothing has been done since the Committee has reported, and I presume nothing will be done till the new administration, freed as it is from political interference, can take measures to meet the demand.

That our working appliances are fully utilised will be apparent from the following facts:—Our engines earn £2,584 per engine as against £2,337 in Great Britain, and they run more miles in the year. That our carriages are as well utilised as they are in Great Britain, and that the number is not in excess of the requirements is shown by the fact that the earnings per carriage are £496 Os. 2d. as against £356 14s. 3d. in Great Britain. We show still more favourably as regards waggons. Our earnings per waggon are £67 1s. as against £38 18s. 6d. This no doubt is due in part to the higher charges made in the Colony, but it is indisputable that our waggons are used to a greater degree than in England. Owing to the absence (nearly to the present time) of facilities, much of the rolling stock, especially the carriages, will be found to be in want of renovation. The commodious paint-shop recently completed at Eveleigh will afford the means of rapidly remedying this defect.

INADEQUATE ACCOMMODATION AT REDFERN.

Redfern Station, the central terminus of our railway system, was, and although I have been able to accomplish much, still is, utterly inadequate as the terminus of so extensive and important a system of railways. Concentrated in the one confined area, not too extensive for passenger accommodation only, are the passenger station and sidings, the goods sheds and sidings, and, until quite lately, the locomotive and carriage and waggon repairing shops and sidings. In the interests of the public convenience, an extension of the line into the city and the establishment of the passenger terminus there was much required; and I urged upon successive Ministers the expediency of carrying out this work, which, while giving much-needed accommodation to the public, would have the effect of relieving Redfern of the plethora of traffic.

Failing the adoption of that measure, I urged the desirability of resuming land at Redfern and providing additional accommodation there. But I was never able to bring the authorities to recognize the importance of these proposals. Neither of the suggested improvements has been carried out, and the great mass of the railway traffic of the country continues to be poured into the Redfern Station-yard. That a traffic so enormous should for so many years have been received into so confined a space without the occurrence of any serious accident is matter for congratulation, and reflects infinite credit on the officers and staff who have the management and manipulation of the business at Redfern.

WORKSHOPS.

The location of the Locomotive-repairing and Carriage and Waggon Shops at Redfern in the same confined area was not only a source of inconvenience and danger, but owing to the limited space available it was impossible to introduce improved appliances and economical methods of working, and the cost of our repairs and of any articles manufactured in the shops was thereby very largely increased. Owing to the limited accommodation afforded, carriage repairs, painting, and trimming had often to be done in the open air, and the work was necessarily interfered with by unfavourable weather; the men, moreover, were scattered, and proper supervision could not be exercised over them.

In view of these inconveniences, and impressed with the urgent importance of relieving the Redfern yard of the irregular traffic with which the location of the shops there encumbered it, and with the still greater importance of providing repairing shops on a scale commensurate with the magnitude of our operations, and thus enabling us, by adopting the best and cheapest methods of working, to diminish the cost of our repairs, I very early brought the subject under the notice of the Minister, who frankly adopted my views, and as early as 1879 a large area of land was resumed at Eveleigh for the erection of suitable shops.

Building operations were commenced in 1882, and although something yet remains to be done, the building of the new shops may be looked upon as practically accomplished, and we have now the finest and most complete locomotive depôt in the Southern Hemisphere—perhaps in the whole world. My management has not had the good fortune to benefit by these magnificent shops; the new administration will reap the advantage, and will find the value of them. The Locomotive Engineer anticipates that the same number of men will be able to turn out 25 per cent. more work than they could accomplish in the old premises; and if this expectation be realised, and I see no reason why it should not, the money thus saved will more than pay the interest on the cost of the building.

The following brief statement of the accommodation afforded by the shops will show the completeness of the provision made:—

1. Boiler, steam-hammer, and smiths' shops.—These shops are 300 feet x 180 feet, communicating with the other shops and the main lines by rails through the buildings and turn-tables at each end.
2. Iron and brass foundry, tin and copper smiths' shop, 300 feet x 60 feet, with annexes.

3. A block of buildings 550 feet x 300 feet, containing the following shops:—Engine and tender repairing and paint shops; wheel, machine, and fitting shops; joiners' shops; and stores. In these shops the erecting and general repairs of the engines and tenders are done, as also the turning of wheels and axles, &c., and the general machine and fitting work required for the construction and repair of engines and tenders.
4. Engine running shed No. 1.—This building, which is 303 feet x 300 feet, is capable of accommodating 126 engines of the largest type.

The plan of the latter building is a somewhat novel one. The roof is of the arched type, in three spans of 101 feet each, and, springing direct from the ground, it is complete in itself and independent of the walls of the building, and the latter having to act only as screens and to give general appearance to the building, have consequently been constructed light in proportion to the height and extent of the structure.

There is a clear height of 37 feet from rail level and 45 feet to top of lantern. The columns, supports, ties, &c., attendant upon roofs of ordinary construction, are dispensed with, leaving a large, clear, uninterrupted space, both horizontally and vertically.

The area covered by this building is 91,000 square feet, or about $2\frac{1}{2}$ acres; this area is amply lighted from about 48,000 square feet of skylights and 2,400 square feet of side light, being a total area of about $1\frac{1}{2}$ acre of glass; the skylights are on the ridge and furrow principle, forming a number of small roofs on the main roof, and glazed on "Rendle's" patent combination system. At night the building is lighted by incandescent electric lamps, besides numerous portable burners attached to flexible tubes for the purpose of enabling the workmen to apply the light to any part of the engine. Ventilation is provided for by three lantern roofs with louvres, each 250 feet long, and by 240 openings in the main roof.

Some adverse criticism has been passed upon the expensive character of the running shed, but it has been successfully replied to. In the Appendix will be found an official *précis* of the correspondence.

Besides the above-described shops and buildings, there will be on the same side of the main lines the following buildings and appliances, viz., engine and boiler house, engine-driver's quarters, sand-house and furnace, stores for Locomotive Department, two 50-ft. turn-tables, water-cranes, one ordinary coal-stage 300 ft. x 30 ft., one elevated siding over a coal-stage 720 ft. x 15 ft.

Carriage and waggon repairing shops, in a block of buildings, 600 ft. x 350 ft., containing waggon-repairing shops, wood-working machine shop, fitting and turning shop, smiths' shop, carriage-repairing shop, paint-shop, trimming-shop, and stores.

These shops will accommodate 40 carriages and 98 trucks for repair. If an average of 40 carriages are under repair throughout the year—allowing 5 weeks for each carriage—400 carriages per annum may be repaired. Again, if an average of 75 trucks are in for repair throughout the year—allowing 7 days for each truck—3,375 trucks may be repaired in the year.

In addition to these shops there is a carriage-painting shop, 400ft. x 160ft., which is at present capable of holding 6 trains, and will ultimately, when completed, have accommodation for 8 trains.

It will be apparent from this statement that ample means have been provided for keeping the rolling stock in good running order.

The whole of the shops are amply fitted and provided with all necessary machinery and appliances that are required for the descriptions of work to be performed.

On the same side of the line there will be found Locomotive Engineer's Office, a two-story building, 100 ft. x 50 ft., containing offices for the Locomotive Engineer, Locomotive Overseer, Locomotive Inspector, and the professional and clerical staff, &c., in connection with this branch of the Department. From the position of the building it commands a good view of the whole of the yard.

The general railway stores, which are now constructed, consist of 1 main building, 200 ft. x 50 ft., and 1 open shed, also 200 ft. x 50 ft.; also detached office building for the storekeeper and his staff. The stores are fitted up in the most convenient manner, and communicate with the main lines and workshops by means of sidings and turntables.

INTERLOCKING AND BLOCK SYSTEM.

The interlocking of points and signals, a system which I introduced about the year 1880, is one of the most important of the improvements which I have adopted in connection with our railways. The system has now been applied to 50 stations, 19 junctions, and 36 sidings at which there is no person in charge, at a cost of £79,500.

The application of this appliance adds an important element of safety to the working of the line, and I have had it in view to adopt it at all stations and junctions on the main trunk lines over which mail and express trains travel at a high rate of speed; the work, however, being of such magnitude must of necessity take some considerable time for its completion.

To many sidings on the main lines at which there is no person in charge, and the points of which are worked by guards of trains appointed to shunt the same, I have had the interlocking applied, but there are some few still to be done.

Sidings on single lines which cannot at all times be worked only by trains which carry the main staff have been fitted with fixed signals and interlocking complete; but for those which can always be worked by trains carrying the staff it was my intention to have the points locked by a special lock which can only be unlocked by a key fitted to the staff, which key, after having unlocked the points, cannot again be taken out of the lock until the points have been properly set and locked for the main lines. By this device the facing points are secured before the staff can be released to enable the train to proceed on its journey.

For the interlocking at small stations, where it could be worked by the existing staff of men, the machines have been placed on the platforms near the ticket office, in order that the officers in charge may work the points and signals, and thus save the cost of extra men.

Notwithstanding the important bearing which these appliances have in regard to the safety of railway travelling, £79,500 is considered by some persons a large amount to have spent on interlocking; but, as compared with the other Colonies, our expenditure on this head has been very moderate, while from the judgment which has been shown in adopting the system only at those points where it was required by the exigencies of the traffic, the cost and utility of our interlocking will bear favourable comparison with that of any of the Australian Colonies, as the following table will show:—

South Australia	has spent on interlocking an amount equal to 75 per cent. of its capital expenditure.				
Victoria	do	do	52	do	do
New South Wales	do	do	30	do	do
					As

As regards the value set upon these safety appliances in England, I will take as an instance the expenditure on the London and North Western Railway. On that railway, the mileage of which is not equal to that of New South Wales, but which earns a gross revenue four times as large, there has been expended £2,000,000 in interlocking. This sum represents 2 per cent. of the entire capital of the Company. If our expenditure had been in like proportion, we should have spent in interlocking £560,000; if taken in proportion to the relative revenue, we should have expended £500,000; or to the train mileage, which is perhaps the fairest form of comparison, £330,000. It has been, as before stated, £79,000 only, but I shall expect to see a large increase of expenditure in this direction in the immediate future.

A brief reference to the "absolute block" system, as employed on our lines, may not be out of place here. This system, which I introduced in 1879, is worked on our double lines by Preece's instruments, and has been gradually applied to the main suburban line (Sydney to Parramatta), on the Illawarra line (Sydney to Hurstville), and Great Northern Railway, from Burwood junction to Wallsend junction.

The following sections of single lines are also worked by "absolute block," but with Morse telegraph instruments, in addition to the main staff and ticket system:—Bargo and Mittagong, and Harden and Demondrille junction, on the Great Southern Railway; also between Lapstone Zig Zag and Glenbrook and Clarence station, and bottom points at Lithgow Zig Zag. The portion of line between Lapstone Zig Zag and Glenbrook is blocked by telephone.

The further extension of "absolute block" working on single lines has been delayed, pending a trial of the Tyer's electric train tablet system, by which the staff and block system is combined. I have imported several sets of instruments for the purpose of testing the system on the most dangerous sections of our mountain lines, with a view to adopting it on those portions of the railway.

I am aware of the defect in this system, but I consider the advantages it possesses outweigh its disadvantages, and as these tablets are in use on some portions of the lines of the Caledonian Railway—from whose staff Mr. Eddy comes to us—I shall expect to see them adopted here, even to a greater extent than I contemplated.

DARLING HARBOUR.

An enormous and constantly-increasing traffic in minerals, wood, timber, firewood, farm produce, &c., is carried to Darling Harbour. When I took charge the accommodation provided at that place was quite inadequate even for the business then transacted there. I at once commenced to improve the facilities and appliances, and a large expenditure has been incurred to date in putting the accommodation in a condition to cope with the augmented traffic. The principal improvements are the erection of a dead-meat market, which will be fitted up with the best apparatus for chilling, and in this climate will be highly convenient and useful. Additional siding accommodation has been provided from time to time, as the exigencies of the business required. With a view to obviate the danger to passengers from the increased traffic, a bridge was erected at William-Henry-street (to which the city contributed a proportion), at a cost to the Department of £16,000. A farm-produce sale shed has been provided, at a cost of £5,000; and a contract has been let for a produce store market, which is to cost nearly £17,000. Additional office accommodation has been erected, at a cost of upwards of £5,000. Cranes, additions to goods-sheds, cattle-yards, &c., have absorbed nearly £14,000, and many minor improvements have been effected.

It was at my instigation that the Government resumed from private owners 15 acres of land known as the Darling Harbour-resumptions. Though the propriety of that course was cavilled at and impugned by many at the time, I do not think a single voice would now be raised in contradiction of its wisdom. The inordinate claims made by the owners for compensation caused a convulsion of public feeling, and I think it must be confessed the expression of opinion on the subject was not uncalled for. Upon viewing calmly at this distance of time the compensation which was obtained in the Supreme Court actions which followed, it cannot, I think, be denied that the reaction following upon these claims resulted in verdicts being given for amounts below the actual value of the property. At all events, if the land could be resold at the present time it would realise at least twice the amount which the Government had to pay for it.

I have had plans prepared for a further extension of the accommodation at Darling Harbour, which must be largely increased, unless the project for the extension of the railway into the city and to the deep waters of the harbour be given effect to. Looking to the requirements of the next fifty years, it would not be too soon to acquire some additional land at Pyrmont with water-frontage, to meet the demand which will grow with the years for further shipping accommodation.

INCREASED TRAFFIC, SUBURBAN LINES.

Our railway system originated in a line from Sydney to Parramatta. An extension of this line, commenced in 1858, is our present Western line. The Southern line junction is at Granville. After the completion of the line to Parramatta, settlement between that point and Sydney increased very rapidly, and very soon collections of houses, which in time rose to the dignity of boroughs, were formed at intervals all along the line; and year by year the traffic with these places—we term it the suburban traffic—continued to augment, until it assumed enormous dimensions. And as the whole of the traffic from the south and west, with this suburban traffic, is carried on the single pair of lines into and out of Sydney, it is hardly necessary to say that the lines are worked, not only up to their utmost capacity, but beyond the limit of safety.

In 1882 the Illawarra line was put under construction, and by the completion thereof a further large accession of traffic would, as a matter of necessity, be brought on to the already overcrowded main line. In view of this circumstance I recommended that the Redfern tunnel should be widened to admit of laying in two additional lines of rails, and that the lines should be quadrupled thence to the Illawarra junction. This was approved by the Minister, and the work has been carried out.

Since that the Northern line has been completed (except the bridge over the Hawkesbury), and connected with the main line at Homebush.

This brings all the Northern traffic, both goods and passenger, on to the main line from Homebush to Sydney, and this traffic will be largely augmented (with the addition probably of minerals to a large amount) when the opening of the bridge over the Hawkesbury gives uninterrupted communication.

communication with Newcastle and the Northern District. In a word, an accession of traffic will be brought on to the main road which the existing pair of lines (the quadruplication extends only to Eveleigh) cannot carry with safety. In view of this circumstance I have mooted the expediency of continuing the quadruplication of the line from Eveleigh to Homebush. This will, I am sure, have to be carried out by my successors in the administration.

And here I might direct attention to the unfavourable condition under which our suburban traffic is carried on. The same lines convey the through passenger and goods traffic going in both directions, as well as the enormous suburban traffic, the number of trains passing each way per day being 130; and it is most creditable to the management that this has been accomplished with entire immunity from serious accident. In Melbourne, where there is a large suburban traffic, the conditions are very different. The principal suburbs have independent lines. There is no clashing between through and local trains, and the traffic is carried with ease, and there is no impediment to its being carried with perfect safety.

RULES AND REGULATIONS.

When I took charge, the traffic as already pointed out, had outgrown the Rules and Regulations under which the Department was administered. I therefore caused them to be revised and amplified, and have taken special care that, as the business of the Department increased, the scope of the Rules and Regulations should be extended in the same proportion. I think they may now be claimed to be complete in every way, and framed to meet all conditions of working. Every emergency has been provided for, and I believe that to the comprehensiveness of these rules our happy immunity from serious disaster is to a large extent due.

THE EMPLOYEES.

Great caution has been observed in the matter of accepting candidates for the Service, with a view to secure that only properly-qualified and otherwise suitable men are admitted. Precedent to appointment a candidate must be passed by a Board of Medical Examiners, and in the promotion of men to responsible positions only those are selected who have been proved to be competent by a proper examination by a Board constituted for the purpose. I believe that for efficiency, discipline, and devotion to duty, the Railway Staff of these railways could not be excelled by any Railway Staff in the world.

The mental and moral improvement of the men has not been lost sight of. Libraries, technical schools, and classes for mutual improvement have been established, the Department contributing in aid of these objects. They are at present in their initial stage, but many of the men take a keen interest in these matters, and much benefit may be expected to result from the movement.

It is admitted that our railways compare very favourably with railways generally in respect of accident to life or limb, and consequently in the amount paid for compensation in such cases; also in the amount paid for loss of or damage to goods or property received for conveyance. These favourable results are not the effects of chance, but are fairly attributable to the care with which our men are selected, to the training through which they have to pass, to the practical nature and completeness of our rules, and generally to the integrity and zeal of the employés.

It will probably devolve upon my successors to complete the re-organization of the staff of the Engineer for Existing Lines. Under circumstances which are set forth in the papers, the staff in question had grown by slow and almost imperceptible degrees, until it assumed undue proportions, and since 1886 I have directed my efforts to the work of placing it on a more economical basis. Something in this direction has been accomplished, but much more remains to be done. I beg to direct the attention of the Commissioners to the papers on the subject, and especially to my minutes of 15/5/88 and 26/9/88.

As regards, however, the general question of the number of hands employed, it will be seen by a reference to Appendix B that the number of men to the mile of line when I took charge of the Department was 5·967, and now I am leaving it the number is 4·602 to the mile of line. That this number is not excessive can be established by reference to the number of men employed to the work done on any railway of which I possess the statistics. That neither the London and North-Western Railway nor the Caledonian Railway is worked with such economy the new Chief Commissioner will have to admit. The average lifting in the Traffic Branch of the railways of New South Wales equals 1,511 tons per man per annum. I shall be surprised to learn that more work is done per man on any railway in the world. On the London and North-Western Railway of England, which claims to be in the van of railway administration, and has availed itself of all labour-saving appliances, 36,000,000 tons are lifted by 25,000 men employed in the Traffic Branch of that Company's staff. These figures give a return of 1,440 tons per man per annum.

AMBULANCE ARRANGEMENTS.

The possibility of accident is one which a railway manager should have in view and make provision for. I was always of opinion that much suffering might be saved and much benefit accrue if some number of the employés were made competent to afford "first aid to the wounded" in case of casualty.

In this view I compiled a pamphlet on the subject, and issued it to every employé, and engaged competent professional men at the chief centres to give instruction to those desirous of identifying themselves with so laudable a service. In due time I established an Ambulance Corps, which has had remarkable success. Professional examinations have been instituted, and medals of honor are conferred on the successful candidates. The result of this plan is that we now have scattered over the lines a large body of men competent to render prompt and skilful aid in any casualty that may occur, and thereby avert much bodily suffering, and even save life in cases where instant precautions are necessary to that end. The practical value of this institution has already been experienced when accidents—such as cannot be avoided in a large concern like this—have happened on the lines and in the workshops.

RATES AND CHARGES.

The rates charged on our railways will bear favourable comparison with those of the other Australasian Colonies. Complaints, however, have been made from time to time that they are excessive. A few years ago these complaints became so persistent and outspoken that the then Minister for Public Works (Mr. Jno. Lackey) deemed it expedient to test the question by appointing a Board of experts unconnected

unconnected with the Department and the Government to investigate the subject. This Board (comprised of the most experienced men in the Colony) were unanimously of opinion (in which they were fully supported by the evidence taken) that there was no ground for disturbing the rates and arrangements adopted by the Railway Department.

Subsequently, the special rates which we have adopted with reference to the border traffic, with a view to neutralise the action of Victoria in endeavouring to monopolise the trade by reducing their rates to the Border, were assailed by persons whose interests were affected by the special rates. But the abolition of those rates would have had the effect of throwing the whole of the Border traffic into the hands of Victoria; and, in the policy not of retaliation, but of defence, adopted by us, we are supported by such eminent authorities as Mr. Farrar, Secretary of the Board of Trade, Mr. Grierson, of the Great Western Railways of England, and Mr. Swarbrick, of the Great Eastern Railway of England. The report of a Select Committee of the House of Commons which sat a few years ago also distinctly justifies such special arrangements. The official paper which I have prepared on this subject, in answer to the demand for equal mileage rates, and a reply to the extraordinary proposals of Mr. Haynes, M.P., for Mudgée, will be found in the Appendix.

Appendix C.

I some time ago wrote a minute suggesting a means by which a competition which is equally injurious to both colonies might be put an end to, and this Border traffic be carried at fairly remunerative rates. Broadly stated, the plan I had in view was that each Colony should convey such traffic as offered to and from the competitive districts at ordinary rates. The proceeds of such traffic, after deducting a fair proportion for working expenses, to be "pooled," that is, to be paid into a common fund and divided on the basis of the mileage worked by each Colony in the conveyance of such traffic. I took an opportunity some time ago of broaching the scheme to Mr. Speight, and he seemed to be of opinion that it offers a means of escape from this long-standing difficulty. I commend this scheme or some modification of it to the consideration of my successors.

The returns on the traffic, comparing one year with another, have varied considerably. This is due in some measure to the influence of the seasons on the production of wool and other produce.

But other causes have been in operation. It will be seen by the return that the interest paid on the capital cost of the railways was unusually good in the years 1880 to 1883. This was the period during which Mr. Lackey was Secretary for Works; and that gentleman not only confessedly, but actually, left the administration of the railways in the hands of the Commissioner, who, untrammelled by the political control and influence which has been so serious an obstacle to the successful working of the railways, was enabled to carry out such reforms as he considered necessary, and to work the lines as nearly as possible on commercial principles. Tentative concessions were made with a view to encourage particular lines of traffic, and all drastic measures were avoided,—such, for instance, as those carried out by Mr. Secretary Combes, who made alterations in the rates which, while affording no appreciable advantage to the public, affected the railway returns in the aggregate to the extent of £100,000 annually. It has been too much the practice to make alterations in rates, in wages, in train running, &c., on political grounds, and not to meet legitimate railway requirements, and the railway revenue has thereby been most seriously affected.

GRADIENTS.

The railways of the Colony will always labour under peculiar disadvantages, due to the geographical features of the country. Between the seaboard with the ports of shipment and the interior precipitous mountain ranges are interposed, and those ranges, at least on the routes adopted, can only be surmounted by series of unusually heavy gradients. We have many miles of such gradients, by which the load carried is limited to about 120 tons; while in England, where these severe grades do not occur, a load of 300 or 400 tons is carried at the same cost in locomotive power, wages, &c. How severely our railways are handicapped in respect of the profit on the working of them by this condition of things will be apparent to every railway expert.

Whether easier routes could have been found is a question which I am not at present prepared to deal with. It may be that, with the amount of capital expended, lines with a better level could not have been constructed; but it is quite certain that any saving in cost of construction effected by nearly following the contour of the country, as we have done, is much more than neutralized by the enormously increased cost of working.

THE NEW MANAGEMENT.

The new management will enter upon its functions under circumstances of considerable advantage. The past two seasons have been exceptionally favourable ones, and in consequence we anticipate an enormous wool and stock traffic in the season upon which we have just entered. Many of the lines are almost entirely dependent for their business upon the pastoral interest; and in 1887 the number of sheep in the Colony was 46,900,000, the largest number ever known in our history, and double the number held in 1878. The improved wool and stock traffic which will result from this large increase in the number of sheep is not the only advantage which will accrue therefrom; on the down journey there will be a corresponding increase in the tonnage of general supplies carried.

Another favourable feature is that for some years to come the traffic will not be burdened with newly-opened and undeveloped lines upon which a traffic has to be created. At the present moment we have only 54 miles under construction—a smaller mileage than has ever been recorded since I assumed the control; and a portion of this, moreover—the Hawkesbury Bridge and Mullet Creek section—will give good returns and materially assist present non-paying sections.

The recent impetus given to gold and silver mining promises to furnish a considerable addition to the traffic, and the opening up and working of new coal-mines will have an appreciable effect on the revenue.

At the request of the Government, I have had to forecast the probable Revenue and Expenditure of the Department for the year 1889. I shall not of course be instrumental in realizing the prospect, but my successors should have no difficulty in doing so. While the gross Revenue will be £2,570,000, the working expenditure should not exceed £1,589,675; and the net Revenue will give a return of 3½ per cent. to the capital invested in lines open on the 31st December, 1889.

CH. A. GOODCHAP,

The Honorable the Secretary for Public Works.

20/10/88.

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COMPARATIVE Statement of Traffic of the Railways of New South Wales, with full details, for the years 1878 to 1887, inclusive.

Year.	Mileage open.	Number of passengers carried.	Tonnage of goods.	Earnings from coaching traffic.	Earnings from goods traffic.	Total earnings.	Working expenses.	Number of train miles run.*	Locomotive expenses per train mile. †	Permanent Way expenses per train mile. †	Traffic expenses per train mile.	Miscellaneous working expenses and general establishment per train mile.	Compensation, personal injury, &c., per train mile.	Compensation, damage to and loss of goods, per train mile.	Total working expenses per train mile.	Total earnings per train mile.	Percentage of working expenses to gross earnings.	Net earnings.	Net earnings per train mile.	Capital expended on lines open.	Interest on capital.	Number of employees.		Population from per mile of line open.
																						Total.	Average per mile of line.	
1878	688	3,705,733	1,625,886	306,308	596,681	902,989	536,988	2,655,176	19-82	11-19	14-58	2-18	·57	·20	48-54	81-62	59-47	366,001	33-08	9,784,645	3-741	3,967	5-766	977
1879	734	4,317,864	1,720,815	319,950	632,416	952,366	604,721	2,932,463	20-24	11-76	15-87	1-55	·04	·03	49-49	77-94	63-49	347,645	28-45	10,406,495	3-841	4,177	5-691	967
1880	849	5,440,138	1,712,971	390,149	770,868	1,161,017	647,719	3,239,472	18-80	11-40	15-84	1-46	·45	·04	47-99	86-02	55-79	513,298	38-03	11,778,819	4-358	4,687	5-521	874
1881	905	6,907,312	2,033,850	488,675	995,551	1,444,226	738,334	3,923,929	17-46	11-55	14-59	1-29	·24	·03	45-16	88-33	51-12	705,892	43-17	13,301,597	5-307	5,876	5-906	783
1882	1,268	8,984,313	2,619,427	587,325	1,111,038	1,698,863	934,635	4,851,127	17-86	12-96	13-76	1-45	·16	·05	46-24	84-05	55-02	764,228	37-81	15,843,616	5-135	7,060	5-568	639
1883	1,320	10,272,037	2,864,566	661,751	1,269,713	1,931,464	1,177,788	5,937,261	17-71	13-88	14-23	1-60	·12	·07	47-61	78-07	60-97	753,676	30-46	16,905,014	4-484	7,609	5-764	650
1884	1,618	11,253,109	3,124,425	745,665	1,340,572	2,086,237	1,301,259	6,403,041	19-09	13-77	14-12	1-65	·11	·03	48-77	78-19	62-37	784,978	29-42	20,080,138	4-201	8,365	5-169	559
1885	1,732	13,506,346	3,273,004	830,904	1,343,464	2,174,368	1,458,153	6,638,399	18-84	16-38	15-08	2-12	·26	·04	52-72	78-61	67-06	716,215	25-89	21,831,276	3-370	9,544	5-510	553
1886	1,889	14,881,604	3,218,582	849,253	1,310,817	2,160,070	1,492,992	6,479,265	20-16	16-02	15-95	2-89	·24	·04	55-30	80-01	69-12	667,078	24-71	24,071,454	2-901	9,432	4-993	530
1887	2,036	14,451,303	3,339,253	850,499	1,357,796	2,208,294	1,457,760	6,472,107	19-54	14-73	16-13	3-16	·45	·04	54-05	81-88	66-01	750,534	27-83	26,532,122	2-965	9,730	4-602	512

* Exclusive of shunting and ballast trains mileage.

† Includes locomotive power and repairs to engines, carriages, and waggon.

‡ Includes maintenance and renewals.

ROOF OF RUNNING SHED, EVELEIGH.

EARLY in 1882 the Engineer for Existing Lines submitted a plan and specification, and an estimate of £38,000, for the roof of the running shed, Eveleigh. In his design the engineer adopted the novel plan of an iron arched roof—novel, that is, when applied to a running shed—instead of an ordinary trussed roof.

The Commissioner was startled by the unusual character of the design, and he drew the attention of the engineer to the matter, pointing out that the style of roof proposed had heretofore been applied only to railway stations, halls of entertainment, &c.

The engineer, however, assured the Commissioner that the kind of roof recommended—the price of labour and material in the Colony being so high—was cheaper in construction and erection than an ordinary roof on walls would be.

Tenders were therefore called for in the Colony to the design suggested by the engineer, and the tender of Mr. W. H. Jennings for £38,600 was accepted.

Mr. Jennings associated with him in the contract the firm of D. & W. Robertson, and by them the ironwork for the roof was ordered from England.

In the *Engineer* for 12th January, 1884, an article appeared criticising this roof unfavourably, both in a professional and economical point of view. The writer stated that this was “the first time that a design, which is of necessity more expensive than an ordinary trussed roof, has been erected for such a building as a locomotive running shed.” Admitting, however, that this design had “the advantage of an open space, unimpeded by intermediate columns,” and “of the ridge and furrow system of lighting which is convenient not only in construction but for easy repair afterwards.” This admission was qualified by the assertion that the skilful simplicity of detail which characterized the earlier roofs and which was one of the signs of a skilful designer, was in some parts wanting in this structure. There was the writer said, unnecessary “smithing” and welding which added to the cost and risked the safety of the structure. The article proceeded to give examples of this kind of roof. The first was that of the St. Pancras Station of the Midland Railway, with a span of 240 feet. In this case the thrust of the roof, minimised by the shape of the arch, was resisted by the girders of the floor which formed the tie. The Roof of the Drill Hall at Derby, by Handysides of that town, 150 feet long, with a space of 75 feet. In this case no tie-rod was required, the slope of the roof and its connection with the cast-iron stanchions giving it the requisite stability. A roof, almost identical with this, was also fixed over the Gymnasium at the Royal Naval Hospital, Greenwich; in the roof over the St. Enoch’s Station of the Glasgow and South-western Railway, at Glasgow, 518 feet long with a span of 198 feet, by Handysides, the form of the arch and the anchorage to the large base plates which project inwards render a tie unnecessary; the joint Station at Manchester of the Great Northern, Manchester, Sheffield, and Lincolnshire, and Midland Railways, 550 feet long with a span of 210 feet.

The Eveleigh roof, the article continued (300 feet long with a span of 101 feet), was rather heavy in details, having double triangulation and vertical or normal struts at every fifth apex.

Until, the writer remarked, the maximum strains on roofs of this kind was ascertained with sufficient accuracy to enable designers to place confidence in their figures they would continue to employ large sectional areas to make sure of sufficiency; and so long as this was the practice we should never arrive at the elegant lightness of such roofs as that of the new station at Berlin. Returning to the Eveleigh roof, the writer stated that the specification required all the wrought iron used to be of the best quality, tough, ductile, and uniform, capable of sustaining 50,000 lb. per square inch of area in tension without fracture, and 24,000 lb. per square inch of area without taking a permanent set, and the compression breaking strain to be not less than 37,000 lb. per square inch of area, and 24,000 lb. per square inch of area without taking a permanent set.

The same question was taken up in the *Sydney Morning Herald* of 20/6/83. A correspondent of that paper, under the *nom de plume* of “Observer,” after quoting the criticisms in the *Engineer* upon the roof of the Eveleigh running shed, pointed out that the statements made in that paper were “full of valuable observations” and that they were “palpably impartial and well intentioned criticisms,” and maintained that if we did not want to part with our money unwisely and to be laughed at into the bargain by those who would benefit by our blunders, our future indents for large structures would require to be closely watched by those whose duty it was to protect the interests of the Colony.

Hereon the Commissioner remarked that perhaps “Observer” was not so innocent as he appeared to be, that he professed to think the criticisms referred to were impartial, but if he would look round the question and see the interests (home interests, not colonial) which were involved, he would come to know how these articles were inspired and why.

When the Commissioner came to know of the criticisms in the *Engineer*, he minuted that when the plans were submitted to him he himself had objected that the proposed design was a very unusual one for a running shed, and suggested that an ordinary truss roof would be cheaper; but he was assured by Mr. Cowdery that owing to the price of labour in the Colony and also of material this style of roof affording its own support, was cheaper in construction and erection than an ordinary roof on walls would have been. With reference to the charge implied (not directly stated) by the writer in the *Engineer*, that the roof of our running shed compared unfavourably in point of weight with the roofs of some structures in England and on the Continent, he (the Commissioner) was particular in his inquiries on this head, and, at his suggestion, some figures were obtained from which it appeared that the Eveleigh roof compared most favourably in point of weight with similar roofs elsewhere. The writer in the *Engineer*, referred especially to the Manchester roof, leaving his readers to infer—which was most unfair—that the Eveleigh roof was of the same weight, but as a matter of fact the comparison was absurd—the Manchester roof being 45 lb., and the Eveleigh roof 25 $\frac{1}{4}$ lb. to the foot. The Commissioner added that he would like to have a report from Mr. Cowdery, as statements were being industriously circulated that our roof was excessively heavy.

A report accordingly was prepared by the Assistant Engineer who was directly responsible for the design. In this report, which dealt exhaustively with the subject, the designer pointed out that it was no unusual thing for a new work to be subjected to criticism, that designs by some of the most eminent engineers in the world have been criticised and depreciated; and that as opinions among men will always vary, it was not to be expected that any work, however good, would be universally praised or pronounced perfect. He thought, however, that he would be able to show that the cost of the Eveleigh shed compared favourably with cost of running sheds elsewhere.

He believed the *Engineer* was right in saying that this was the first time an arched roof had been applied to a running shed, but that was no reason why it should be the last; and it certainly was the first time that a running shed had been put up to include within four walls an area of 91,000 square feet (nearly 2 acres) and 6,300 feet of track. An arched roof moreover was not of necessity more expensive than an ordinary trussed roof; that would depend upon the nature of the ground, cost of labour, &c. In our case the foundations had to be carried to a depth of 14 feet, and for that reason large spans were adopted for the roof, it being universally admitted that where foundations had to be carried to a great depth it was more economical to have a few strong supports than a number of small ones. The present building had in fact cost no more than one with an ordinary trussed roof would have done. It might be admitted that the roof, taken as a roof only, cost more than a trussed roof; but the cost of the extra foundations, columns and stronger walls required for the latter must be taken into consideration. It would be seen by the illustrative estimate submitted that the very lowest price at which a plain brick and iron structure, with an ordinary trussed roof, and affording the same extent of space and accommodation, would amount to just as much as the present building had cost. If the plan of round houses, now so much in vogue, had been adopted, three times the area would have been required, and the cost would have been four times as great. Again, if the plan of traversers (at one time proposed) had been adopted, an area 50 per cent. larger would have been necessary. Buildings of galvanized iron and wood, such as were proposed in Victoria, or with wooden roofs, as adopted by the London and North-western Railway, England, would be much cheaper in first cost, but they would soon require renewal, and would be costly in respect of repairs. The following comparative table of particulars of several running sheds would show much to the advantage of our shed:—

Where situate.	Style.	Area in square feet.	No. of Engines.	Area in square feet for each Engine.
Philadelphia.....	Circ., 300 feet dia.	70,686	40	1,767
Altoona.....	„ 283 „	136,511	120	1,138
„	„ 195 „			
„	„ 236 „			
Pittsburgh (2).....	„ 274 „	117,927	78	1,512
Harrisburg	„ 294 „	129,023	81	1,593
„	„ 279 „			
Meadows	„ 350 „	92,212	42	2,290
Melbourne (3).....	„ 284 „	190,041	91	2,088½
Derby	Rect., 360 x 184	132,480	88	1,505½
„	„ „ „			
„	Circ., 185 feet dia.	59,108	50	1,182
„	„ 146 „			
„	„ 136 „			
Eveleigh	Rect., 303 ft. x 300 ft.....	90,900	126	721½

It would be seen that the area per engine in our shed was only 721 feet per engine, while in the seventeen engine-sheds quoted it varied from 1,138 feet to 2,290 square feet per engine, and he did not believe any of these, except the Victorian one, which was of wood and galvanized iron, cost less for the accommodation provided.

The cost of our shed which was £68,455, equal to £543 per engine, included £14,000 for foundations and pits, and gave the cost per cubic foot of space at 5½d., a price no higher than that of an ordinary galvanized iron shed. With reference to the statement in the *Engineer*, that the “skilful simplicity of detail which was so characteristic of the earlier structures and one of the best signs of a skilful designer is, in the present case, wanting in some parts; that there appears to be unnecessary smithing and welding, which add to the cost and involve risk to the structure,” the writer of the report asked where the unnecessary “smithing and welding” occurred, pointing out that the critic vaguely alleged the existence of the defect, but did not say in what part it was to be found, and adduced no proofs. It was evident that the critic had not examined the drawings. This was distinctly proved by his assertion that the ribs, besides double triangulation, had normal struts at every fifth apex,—an assertion distinctly opposed to the fact. What the critic took to be normal struts were simply the section of the main purlins shown in connection with the elevation of the ribs. He (the writer) had seen letters from the English manufacturers praising the simplicity and skilfulness of the design, and stating (what they were the best judges of)

of) that it was very easy of manufacture. In one case only had the manufacturers asked for any departure from the original design, and that was not on account of any difficult smithings or weldings, but with a view to facilitate the carriage of certain parts, and to lessen the cost of erection. There might fairly be a difference of opinion as to whether smithing or welding should be employed instead of riveted or bolted connections; but the *Engineer* must not forget that on a roof construction there must of necessity be more smithing and welding than in a simple girder, and he maintained that there was no unnecessary smithing and welding in the Eveleigh roof. He (the writer of the report) was surprised that the *Engineer* had not criticised a very remarkable roof construction designed in this Colony for an important building and now being manufactured in England—a roof hardly able to support itself, and of which the manufacturers said that it was the most extraordinary structure they had yet seen—a conglomeration of forgings and welds, and fancifully cut and curved plates and angle irons. The *Engineer* would lead his readers to believe that our roof was as heavy as the Manchester roof; but how erroneous and unfair this was, and how favourably the Eveleigh roof compared in point of weight with that and other roofs, would be seen by the following comparative statement:—

Weight of ironwork of various roofs per square foot of area covered.

	lb.
Midland Railway Station, Bath	25
Railway Station, Middlesboro'	29.5
Agricultural Hall, London... ..	23.5
St. Enoch Station, Glasgow	32
Railway Station, Manchester	46.5
Eveleigh shed	25.5

It would be seen that the weight per square foot of area of the Eveleigh shed was not much more than half that of the Manchester Station.

The writer of the report continued that the strains of the Eveleigh roof were got out with the utmost care, and were determined according to English practice, with due regard to a proper factor of safety and to facility of construction and erection. He might have carried out the principle of economy of material according to Continental practice, and thereby have saved 50 or 100 tons of material, but there would have been an increase in cost of construction and erection, and probably no saving in total cost, while the very persons who now, from ignorance or a worse motive, condemned the structure as excessively heavy, would, in that case, have alleged that a weak and unsafe building had been put up.

The report proceeded to expose inaccuracies and misstatements in the *Engineer* article relative to certain other roofs of this character; but as these remarks have no special bearing on the matter under discussion, except as showing how little knowledge of the subject the writer of the article really possessed, they need not be further referred to here.

The report pointed out that if the alleged defects really did exist in this roof, they would have been found out and exposed by competent authorities, and that, as there had been no such adverse criticism, it might fairly be assumed that the profession at large did not share the opinions of the *Engineer*. It further suggested, in conclusion, that this criticism had been written or inspired by the person who wrote the articles in the *Engineer* on "Colonial Contracts," which articles betrayed a sign of prejudice against work designed out of England, and led one to suspect that the writer was employed to serve some party adverse to colonial industry and development.

Subsequently the writer of the above report supplemented his remarks by stating that he had ascertained that the sum of £75,000 had been placed on the Victorian Estimates for the wood and galvanized iron structure referred to by him in his report, while the cost of the Eveleigh shed completed would be £68,455.

In April, 1884, it having been alleged that some of the ironwork imported from England for this work was not to specification, the Minister gave permission for a deputation from the Iron Trades Employees Association to visit and inspect the works, accompanied by an officer of the Department.

The officer who designed the roof, and who wrote the report before-noticed, was deputed to undertake this duty.

The deputation carefully examined the works, and pointed out the portion to which the complaint referred; but it turned out that they had not discovered anything which was not already known to the Department; that the defects referred to had been officially reported, and that steps had been taken to remedy them.

Under date of 23rd April, 1884, the officer who accompanied the deputation reported that the defects complained of referred to some defective work supplied by the contractors ten months before, upon which he (the writer) reported on the 26th July, 1883, and that the defective work was then at once condemned and taken out and reconstructed, in accordance with the spirit and intention of the specification. The part replaced was somewhat different in appearance from the rest of the work, but it was all sound and good. He explained to the deputation that the most rigorous and careful inspection was exercised both by himself and by the Inspector on the works, and that no work was passed which was not of good quality and according to specification. The deputation, at the conclusion, expressed an opinion that the work was of a first-class character.

The question was again brought forward in an article in the *Globe* of 22nd July, 1886, in which the manager of the Atlas Ironworks is stated to have said, of the railway sheds at Eveleigh, that the contract was given out of the country though a Sydney firm put in an extremely low tender, and that he knew of no railway station in England, not even the magnificent ones owned by the Midland and North-western Railways, which had such an expensive and elaborate roof as was demanded by the specification for this structure, which at the best was only an engine-shed in an out-of-the-way place, and could have been erected and made just as serviceable for half the money.

This

This gentleman's allegation as to the expensive and elaborate character of the Eveleigh roof has been fully answered by anticipation in the report of the designer of this roof. It is there shown that the roof in question, taking into consideration the cost of foundations, walls, &c., was not more expensive than an ordinary roof would have been, while it was admitted in the unfriendly critique in the *Engineer* already noticed, that the style of roof adopted presents advantages in the way of ventilation, light, &c., which a roof of the truss construction does not possess. The assertion that the contract was given out of the country is, to say the least, a misapprehension. The contract, as before shown, was given to a Sydney firm. The contractor, it is true, did have the ironwork manufactured in England, but this is a circumstance for which the Government is not responsible. There can be no doubt that if a firm, capable of doing the work, and possessed of sufficient enterprise to undertake it, could have been found in the Colony, the contractor, in view of the risk attendant upon operations carried on at so great a distance, would have much preferred to place the order here. This, however, is a matter which the gentleman, whose remarks are now particularly under notice, should, from his connection with an iron manufacturing establishment in the Colony, be well qualified to give an opinion.

C.A.B., 10/8/86.

C.

No. 1.

Extract.

From the *Evening News*, Saturday, October 15, 1887.

RAILWAY RATES.

MEMORANDA on the existing merchandise rates of our railways, with proposals for an alteration of the same.

THE following has been addressed by Mr. J. Haynes, M.P. for Mudgee, to the Premier:—

“To the Hon. Sir Henry Parkes, K.C.M.G., Colonial Secretary,—

“Dear Sir,—I beg to submit to the Government, through you the following memoranda on the present system of merchandise charges on our railways. I am aware that, in some respects, the matter concerns the Works Department, and that my proposals might have been submitted to either the Commissioner for Railways or his chief, the Minister for Works; but as, according to my view, the whole thing is a question of public policy, affecting the government of the interior districts of this country, I have thought it the better course to submit the proposals to the Cabinet. In this work I stand representing the entire inland community, who are affected one way or another—for good or for harm—by the management of our great national highways. The question as to this management or control is one far beyond official or departmental concern, and is, in reality, a question of public policy. The representations in regard to the management of our railways which I now make, are from the country. It is fitting that these representations should be made to the Minister who represents the Government. Therefore I address you; and have only to hope that as the reforms proposed are really of an urgent character, no time will be lost by the Government in ascertaining whether they are sound or unsound. With these few introductory words I beg to proceed.

1. For a considerable period of time, principally during my last five or six years connection with the Press, I have watched the relative advance in trade development of our metropolitan and inland districts, and I have been struck with the comparatively small headway of the latter, notwithstanding their varied and great resources. Of late many bitter complaints have come up to us from the country of the continued unproductiveness of labour and enterprise of every kind. The tillers of the soil, spread over the railway-traversed centres of the country, have complained that they are almost wholly shut out from the great coast markets; while, on the other hand, those markets inland at all available are reached by cheaply-borne produce from outside Colonies. Very many of our farmers took up their lands years ahead of railway communication, and they have in the interval plodded on, expecting a complete change with the appearance of the locomotive. But to these the railways have come, and the farmers find their position changed if anything but little; in many cases they are the worse off. This disappointment has been felt inland, not by the farming interest alone. Almost every branch of trade, manufacturing as well as mercantile, has long been suffering from drawbacks which all could feel, but few describe. The recent three or four years of depression, felt here as in other parts of the world, has intensified the effect of this condition of things; and after all it is not perhaps surprising, in the uncertainty of the hour, many of our inland people, hitherto conspicuous as a body in their attachment to free trade, should lend for a time, at any rate, a partially willing ear to the delusive cry of protection.

2. I always felt that there must be something radically wrong with our governmental or administrative system (and as far as our inland communities are concerned they are one and the same under our centralising system), which would induce men to entertain even for a moment a proposition that to relieve trade of depression we must burden it with fresh handicaps rather than free it from those which it already bears. I was convinced that free trade meant deep and lasting prosperity, and I perceived that the existing handicaps to inland development could not come from our fiscal policy. I could see that our farming community were a laborious and steady people, and that our country business men were as energetic as any that could elsewhere be found. I turned my attention to our facilities for transport, and I must say I was not long examining our railway tariff system before I discovered what I believe to be the great—the one only—hindrance to inland development, and the ever-present cause of agricultural depression in this country.

3. I now propose to set forth in this paper the results of my investigation on this head, giving in detail particulars of existing handicaps, and appended hereto will be found my proposals for a complete remedy. Before proceeding further, I must here state my belief that the Commissioner for Railways (Mr. Goodchap) has at all times striven to shape our railway system to the wants of the general community; and I believe, further, that his occupancy of office has been an executive success. He has organised for the country a staff of officers second to none in any other part of the world—steady, reliable, and competent. We can realise this when we note that (with almost an entire absence of sacrifice of life or loss of property) we carry between 53 and 54 million passengers and about 1½ million tons of merchandise on our railways and tramways in a single year. In this way, as an executive officer I believe Mr. Goodchap to have succeeded. But I must say that it is in this executive work his success begins and ends. I regret that I will in this paper have to show that not only has he failed to grasp the wants of the interior as regards our goods traffic, but that he has exercised ministerial rather than official powers, and has inaugurated a system of rates which is illegal as well as being diametrically opposed to the declared free trade policy of the country.

4. The profound blunder of our railway goods system is that it is shaped to meet a wholesale rather than a retail trade. It is impossible, on examination of the system, not to observe that it is to the few any favourable consideration is shown, and that the one object—benefit to the metropolis—is kept always in view. I will have to show that the wholesale principle is the body and soul of the system, as far as the metropolis and (in some respects with the view to benefiting Sydney) Newcastle are concerned, and that where the principle is extended inland at all it is to coal-mine owners and wool-growers.

5. Now it has been proposed to abolish the differential rate system, namely, that under which a specially low rate of carriage was devised to secure our trade in the terminal districts of the south and south-western trunk lines. Now, I propose—it is a paradox—to abolish the system by making it general. I believe it can be shown that the Commissioner is acting directly contrary to law in charging any such thing as a differential rate; and I believe a Maitland, Mudgee, Goulburn, or Bathurst trader could successfully resist in a court of law any further payment for carriage than the average for distance under the differential rate. (Mr. Teece, M.P., for Goulburn, informs me that the English Courts have decided the differential rates are illegal.)

6. As above stated, it is a paradox for me to say I propose obliterating these differential rates by maintaining them in general application over the entire stretch of our railways. My point is that the differential system, low as it is, pays the Department; and, extended all over the country, might be calculated to lead to a vastly increased traffic.

7. First of all, for general information, it may be as well that I describe what the differential rate system is and what it really means in pounds, shillings, and per cent. It was inaugurated, as is well known, to enable Sydney to compete for the trade of our southern border with Victoria, who had devised a specially low railway rate to retain her hold of it. Our concession to the Sydney business people was this:— (1.) The maximum rate for any class of traffic (except explosives) from Sydney to stations distant over 305 miles on the Southern and 340 miles on the South-western lines will be £5 10s. per ton; or if in truck loads not exceeding 6 tons, the maximum charge will be,—corrugated iron and fencing wire, £18 per truck; other 1st, 2nd, 3rd, and 4th class goods, £20 per truck. (2.) A reduction of 20 per cent. will be allowed on 1st and 2nd class traffic from Sydney to stations on Southern and South-western lines, distant over 340 miles. With regard to the Western line, a differential rate of £35 per truck of 6 tons is made for a distance of 503 miles.

8. The working out of the system may here be briefly illustrated. A Sydney trader may send 6 tons of corrugated iron 454 miles for £18; but a Maitland trader sending his 6 tons to Tenterfield (120 miles less haulage) would pay £26 17s. Under the same system a Sydney firm dealing, say in Victorian-made agricultural machinery, could send 6 tons of it 450 miles for £20; but the Maitland man, sending exactly the same goods only 334 miles would pay £46 10s. 6d. Under the same arrangement, a Sydney merchant sending goods, known as fourth-class, would get his 6 tons for £20 for 450 miles, while the Maitland man, sending 120 miles less, would have to, and does, pay on 6 tons his £59 19s. Sending to Bourke, 503 miles, goods of this sort, the Sydney merchant would be charged £35, but if he had to pay the same rate per mile as the Maitland business man he would contribute not £35 but £82 15s. to the railway returns.

The rate sheet has not been the work of any one person, nor the outcome of the policy of any one Government; it has been shaped by the policy of the times, and the ever varying conditions of trade.—CH. A. G., 17/10/87.

Mr. Haynes is going to level down his proposal to give the short-journey traffic the benefit of the long-journey rates—he is going, in effect, to demolish the railway revenue.—CH. A. G., 17/10/87.

This has been replied to in anticipation by an official paper written on Mr. Teece's proposed motion for the abolition of the differential rates, supplied by an article in the *Herald* on 27th September, 1887.—CH. A. G.

But in practice we know that 6 tons of fourth-class goods never forms a consignment.—CH. A. G.

9. It might be contended that this instance of Maitland on the Northern line, where the differential system does not apply, is hardly a fair illustration of the workings; but it may be illustrated with equal effect as regards intervening districts on the very lines where the differential system is in operation. For instance, Orange. This town is 192 miles from Sydney. A trader there getting up 6 tons of ironmongery, agricultural machinery, &c., would pay for the distance £31 6s. 6d., while a Sydney merchant could send his 6 tons 454 miles for £20, or 262 miles further for £11 6s. 6d. less. If the trader at Orange were receiving 6 tons of fourth-class goods he would pay £40 8s. 6d., but the man at Sydney could send his 6 tons 311 miles further on the same line for £5 8s. 6d. less; and on the Southern Line 262 miles further for £20 8s. 6d. less.

10. How it has worked out may be judged from this fact: A storekeeper at Cootamundra, being 253 miles distant from Sydney, and consequently too near for the differential system, would pay for 6 tons of ironmongery, machinery, &c., £38 0s. 6d. But he knows the differential ropes. He books his goods to Wagga (56 miles further on) so as to get within the differential reach; gets the 6 tons up to Wagga for £20, retrucks them back from Wagga to Cootamundra for £9 17s. 6d., and saves £8 3s. on the consignment by giving the Department 112 miles of extra haulage.

11. This is the differential system briefly illustrated. It is not for me just here to bring the whole thing right out. That will be done further on. My object now is to justify by illustration my contention that our railway system is the embodiment of the wholesale rather than the retail principle; that consequently it is dead in favour of the metropolitan man, whether he be a big or a little trader, and that where it does extend any advantage to the country, it does it mostly to the big man, represented in the wool or the coal ring. And here I may just keep this idea clear and distinct on the surface, that I do not propose to deprive these men of the advantages they possess under the tariff, but claim rather for an extension of the advantages to every man of the inland community. I have said that the wholesale idea is the principle of our railway system, and then make the apparently illogical assertion (as above stated) that the little man (or the retail trader) of the metropolis is favoured. The point is very simply shown. First of all, it is seen that the wholesale Sydney merchant can send his 6 tons at the reduced rate of £20, and the 6 tons may be made up of any class of merchandise. The Sydney merchant usually deals in large consignments, and they are as often over as under 6 tons. But even if under the 6 tons the same advantage is gained; and herein is the way the retail or small man in Sydney gets the benefit of the wholesale principle. In Sydney, as we know, there are carrying or forwarding agencies—Wright, Heaton, & Co.; Lee, Macalister, & Co.; &c. Now, when a Sydney trader, large or small, has 4 cwt. of a consignment to send, he forwards it to the agents; twenty others do the same thing, and a £20 truck load of 6 tons is made up, the agents charging only commission; and so the £20 principle is extended to and enjoyed by the little and big man alike in Sydney. But the inland man, the farmer or the storekeeper, battling his way on any part of the vast stretch of our railways, knows nothing of such a grand arrangement. The farmer is a retail man, and as a retail man the system kills him. Illustration and proof of this will be amply given further on.

12. Now, with regard to the application of the wholesale principle inland. That it applies to the wealthy coal-mine owner and the wool king is indisputable. For instance, 6 tons of coal are carried (say) 96 miles for 46s., and at Newcastle or at Darling Harbour the use of the cranes or staiths, which have cost the country huge sums of money, is given in free. Now the colliery man is a wholesale customer. The farmer is not. But if he has to send his 6 tons of dairy produce the way in ninety-nine cases out of 100 it is sent, it will cost him the 96 miles, not £2 6s., but £12 4s. 6d.; while his ploughs, harrows, &c., would cost him £16 19s. 6d. As to the woolgrower, he is essentially a wholesale man, and gets his wool down 454 miles for £2 19s. per ton. Now the farmer has the wholesale principle offering to him with respect to grain that he seldom uses. If he sends 6 tons of wheat he can travel at a low rate (and I will show that it may be one at 100 per cent. cheaper); but he is oftenest a small dealer, and at that rate his grain costs him for the 6 tons £34 1s. 6d.

13. In hay, straw, and chaff, the farmer has got a consideration, but these are by no means the staple products of the interior, and the farmer prefers dealing in 1 ton to 4 or 5 ton consignments of hay, chaff, &c., especially if he has any transactions with inland markets.

The

No; the truck load does not average 6 tons; it may be made up of any class of merchandise, and this admission invalidates Mr. Haynes's calculations, which are always based on the supposition that the merchants send in some cases fourth-class goods, but never less than third-class goods.—*CH. A. G.*

To be accurate, Mr. Haynes must leave Newcastle out of the calculation; the northern coal is carried on very different terms to those he states.

Mr. Haynes's figures are wrong—but it appears that the principle he advocates here is that dairy produce should be carried as cheaply as coal; now, coal is worth 5s. a ton, while dairy produce is worth 6d. a lb., or £56 a ton.

The concession applies to consignments of 5 tons or so; but if a less amount is sent he is charged for the truck load; or his consignment of 1, 2, or 3 tons is charged first-class rates, actual weight. For instance, a wool-king can send his wool down by the ton at £2 19s. for 454 miles; but a farmer sending 1 ton of hay or chaff that distance would pay £5 13s. 6d.; or from my district, Mudgee, 192 miles, £3 0s. 7d.—a rather high percentage on its value. These are illustrations that our railways are conducted on the wholesale principle to the advantage of a few. The farmer gets concessions that he seldom uses, while on the other hand, the very wholesale principle of the tariff is used as a means to swamp him in his own adjacent inland markets. Proof of this latter statement is found in the following fact:—Millers and storekeepers (say) at Tamworth and Armidale, &c., on the approach of harvest time, get up cheaply by rail on the wholesale principle large lines of imported flour from Newcastle. Then, when the farmer comes to town to sell his wheat, the large cheaply-carried stocks of flour are pointed out to him, and he is forced to accept any price, &c., &c.

This is not correct.

Figures are wrong.

14. I proceed now to show the whole merchandise system in operation; but before doing so I must lay down this idea: We have no right to consider this or that trunk line separated from any other. All the lines form a system, and the line from Sydney to Albury is as much the property and concern of the Maitland trader and the Glen Innes farmer as is the line from Newcastle to the Queensland border. As portions of the general community, the Glen Innes and Maitland people have to bear the cost and the loss, if there be any, of the Southern and Western lines, and concessions granted to one portion of the people cannot be refused to another.

15. Now, let us take the case of a Maitland business man who does a trade extending along our Queensland border. I will illustrate my point with eight lines of ordinary merchandise, which may be taken as a sample of the articles in which business is every day done. The Maitland merchant sends his goods 330 miles to Tenterfield, and pays as follows:—

	£	s.	d.
Half ton of flour	2	4	4
„ bacon, cheese, &c....	2	15	2
„ salt	2	4	4
„ sugar	2	15	2
Two tons furniture	19	16	0
Half ton galvanized iron ...	2	4	4
„ fencing wire	2	4	4
One ton machinery	7	13	8
	<hr/>		
	£41	17	0

A Sydney merchant, however, could send his 6-ton consignment 454 miles—exactly 120 miles further—for only £20. Or a coal-shipper at Newcastle, who brings flour from Melbourne almost as ballast, could send from Newcastle, 354 miles, his 6 tons of flour for £6 4s., as against the Maitland man's £41 17s. 4d.

But a Sydney merchant would pay as much if he sent the stuff 330 miles on the Western Line. It simply means that if he sends the stuff to a certain station which is the *entrepôt* of the competitive district he can do so at a cheap rate.—CH. A. G.

16. If the Maitland man wish to send 6 tons of galvanized iron and fencing wire, 6 tons of iron irrigation pipes, 6 tons of pastoral or agricultural machinery, and 6 tons of general merchandise, he pays for the 24 tons in their respective classes a total of £164 4s. 4d. for 330 miles; but the Newcastle flour-ballast importer can send his 24 tons of Victorian produce 354 miles for £24 16s. If we take the same goods and see what the Sydney man can do, I find that, while the Maitland man pays £164 4s. 4d. for 320 miles, the favoured man of the metropolis will send his goods 454 miles for only £78 18s. Those are instances of a monstrous 100 per cent tax fixed on the shoulders of the inland trade.

17. Let me illustrate it further. If we take a hundred business men in Maitland doing the above trade—and we know it merely represents their everyday transactions—and put them side by side with a hundred Melbourne business men doing business through their agent at Newcastle, we find the result as follows:—The men of Victoria would pay £2,480, while the Maitland men would contribute £16,421 13s. 4d.; and let it be understood the Maitland men would have 2,000 miles less haulage than the Victorians. Is it to be supposed that the Maitland merchant stands all this heavy tax? No; he passes on to his customer as much as he legitimately can; and so we find the farmer

The comparison between flour and the miscellaneous articles enumerated is, as regards freight rate, absurd.—CH. A. G.

farmer bearing a ruinously heavy tax for all he requires, while, on the other hand, his very local market is flooded with produce carried for next to nothing, the trucks unproductively returning empty.

18. At Mudgee, the constituency I represent, there are extensive lime-burning works. At a large outlay of money two or three local men have put the industry in full swing, and 100 hands, with a prospect of many more, are employed. A few months ago the work had no existence. Let us see how our railway policy helps this inland industry. The Department will carry 6 tons of limestone 190 miles for £3 16s. 1d.; but for turning the limestone into lime on the spot the company have to pay for 3 tons, 190 miles, £9. Or the limestone, 6 tons of it, may be carried 500 miles for £6 18s. 8d., while 3 tons of lime would cost just £18 18s.—a tax on the Mudgee industry of only a few hundred per cent. The lime is mostly ordered by the ton or half-ton, and when any less quantity than 4 tons is carried (the wholesale principle in operation) the amount is charged as 4 tons, or raised to first-class rates and charged actual weight.

19. Again, Mudgee. There is a tannery in the town, not so large now as it used to be, which is not surprising when we know the why and wherefore. If the tanner wishes to send his leather to Sydney (for the benefit mainly of the Sydney manufacturer, or the produce auction mart people or exporters) he can forward 6 tons under class 1 for £18; but if he wished to reach another and better market inland he would find his goods raised to another class, and 190 miles, not to Sydney, would cost him £22 7s. If the Mudgee man sought to travel to Bourke direct with his 6 tons of leather he would pay £45 17s., while the Sydney man could send it the same distance to the same place for £10 less; and on the Southern Line could send it very nearly the same distance for the monstrous amount of £25 17s. less.

20. At Dubbo there is a soap-making industry, and, as we know, soap is not ordered by the 6-ton lot. Well, the Dubbo maker, sending his goods $\frac{1}{2}$ -ton at a time, would pay on a total of 6 tons for 250 miles, say to Bourke, the sum of £27 2s.; while at the other end of the line the favoured man of Sydney could send his 6 tons nearly double the distance for only £20.

21. At Lithgow there are pottery works, which have had a severe struggle to get to their present success. If the company attempt to do business westward, direct from the works, they are punished for ignoring Sydney. To send 6 tons of their goods 408 miles they would have to pay £31 5s. 6d., while the imported article could be sent from Sydney, 50 miles further, for £11 5s. 6d. less. Now, we know that the Lithgow Pottery does not execute 6-ton consignments— $\frac{1}{2}$ -ton orders are oftener the rule. Then up go the goods to class 2, and when 6 tons have been sent the cost for 408 miles is £38 19s., while the Sydney importer, sending his goods $\frac{1}{2}$ -ton at a time, can, through the carriers' agency arrangement previously mentioned, send his 6 tons for £20 for 454 miles. When I was at Lithgow recently the foreman said to me—"We must have 15 or 20 per cent. protection against the imported article." But here I have shown that this very industry is taxed, as compared with the imported article, by over 100 per cent. If I can get this 100 per cent. knocked off, I wonder whether the Lithgow pottery man will have need to cry out for 15 or 20 per cent. protection.

22. At Bowenfels, 97 miles from Sydney, there are tweed mills. Say the proprietors have transactions amounting in all to 60 tons, sending 6 tons at a time. They would pay £170 10s. for 970 miles of haulage. But a similar amount of Geelong or other imported tweeds could be sent on a haulage of nearly 5,000 miles from Sydney for only £30 more. If the Bowenfels firm wished to trade with Bourke they would pay £541, while the Victorian or other imported tweeds could go along the same line for £191 less, while using 970 miles more haulage. From Bowenfels to Bourke, 406 miles, the company would pay £503; while on another trunk line the Victorian manufacturer or importer at Sydney could use 454 miles for £303 less. But if the Bowenfels man was sharp and looked closely after the shillings, he would not send to Bourke direct. He would first send his goods to Sydney, and thence to Bourke, thus saving £23 by giving the Department 1,116 miles of useless extra haulage. In reality, with regard to our railways we give the outside or foreign manufacturer an advantage of from 150 to 200 per cent. against our local manufacturer. This, simply, is freetrade in a straight-jacket.

Whoever heard of limestone being carried 500 miles. Mr. Haynes should be practical; his *reductio ad absurdum* argument is misleading. If limestone or lime were carried such distances the rates would be very different.—CH.A.G.

See reasons given in rates, Board inquiry, for this apparent anomaly. It is a scientific rate, and can be well defended; it is called for by the circumstances of the case.

This is the only piece of argument approaching common-sense which Mr. Haynes has yet used. Bourke market should be as much open to Mudgee tanners as it is to Sydney tanners, and I have urged this.—CH.A.G.

The low rate to Sydney is to allow the manufacturer to get to his central market; this is right and defensible.—CH.A.G.

This is the competitive export argument again dressed in another shape.

23. At Armilale, on the New England Plains, is a first-class man of business—currier, tanner, and boot manufacturer. If he wishes to reach Newcastle (the nearest practicable terminus to Sydney at the present time—the Hawkesbury connection being incomplete), he could send his leather down under class 1, and for 260 miles he would pay on 6 tons £22 4s. But if he attempted to reach Maitland, where a fine new market is developing, he would find his goods raised to class 2, and for travelling 20 miles less he would pay £4 3s. more. Now, does the Armidale man send his goods to Maitland direct? No. For the last ten years he has sent his leather to Newcastle, and retrucked it back to Maitland. Suppose he has done 100 tons transactions with one Maitland man in that time, then he has saved himself £130 by giving the railway 4,000 miles of needless extra haulage.

24. At Newcastle, as is well known, there is one of the largest and most successful biscuit factories in Australia. The proprietor, after a big battle for success, does a great trade in biscuits all over our northern country. Let us see how the Railway Department assists him. For his 6 tons of goods, 350 miles, he pays £48 4s., while the imported or other biscuits may be sent from Sydney 100 miles further in one direction for £28 4s. less, and in another direction 150 miles further for £13 4s. less. While, more astonishing still, if the Newcastle importer of ballast-borne Victorian flour wishes to send his 6 tons over the same stretch of our northern line as the Newcastle biscuit-maker does, he pays not £48 4s. but only £6 4s. In other words, we give the outside man an advantage over our own of about 800 per cent. Evidently the country does want protection—but it is protection from the administration of our railway system.

25. At Tamworth there is a musical warehouse, and when the proprietor comes to sum up his transactions he finds his 6 tons cost him £35 18s. 6d. for 167 miles. But our Victorian squatting friends resident down about Hay, and who do their business in Melbourne, can have their goods sent round to Sydney, and thence by rail to Hay, 454 miles, the 6 tons costing only £20. If the Melbourne transactions (or for the matter of that they may be Sydney transactions) were taxed the same as the Tamworth man's they would pay not £20 for 6 tons, but £76 3s. But the real position of the Tamworth business man is this (and I am giving the case as illustrative of the dreadful handicaps placed on inland development)—First, from Newcastle to Tamworth, his 6 tons to supply his warehouse would cost him £38 16s. for 183 miles, and his transactions in the same goods with the people of Tenterfield, 171 miles distant, would cost in carriage £36 12s. 6d.—a total of £75 8s. 6d. for a use of the railway on a haulage about half that given to the Sydney man for only £20. This is simply a tax of nearly 700 per cent. on the Tamworth business man. At Tamworth, a lot of people, ignorant of these imposts on their trade, are crying out for a miserable 15 or 20 per cent. duty at the Custom House. I propose to relieve them of a huge taxation, of which they appear to know nothing. But with these facts before us, will anyone deny that the time for decentralization has arrived, and that the first step towards its realization is a sweeping change in our wretched railway system.

26. At Newcastle there are several foundries, which, besides turning out first-class marine engines, are capable of the best foundry and engineering work. Now, at the present time there is a movement on the Namoi to store the water and irrigate the land. Well, while the farmer finds that the foreigner—(we may call the Victorian a foreigner from his very hostility to us with regard to his tariff)—can send his 6 tons of flour or fodder to Gunnedah (196 miles) for £4 5s. 11d., both he (the Gunnedah farmer) and the Newcastle foundry man find that 6 tons of their necessary iron material costs them £22 19s., while 6 tons of their machinery costs £31 18s.

27. At West Maitland is to be found one of the most extensive agricultural implement and machinery depôts in the interior of the country; and when I was recently in that town I found some of the members of the firm inclining to protection. Let us compare this firm with (say) a Melbourne branch house in Sydney, now pushing its Melbourne-made manufactures in our southern and western districts. Take for any period transactions in ironmongery up to 500 tons, and in agricultural machinery up to 500 tons. On the two kinds of merchandise, the Melbourne firm at Sydney, using a haulage of 149,850 miles, would pay, in 3-ton lots, £3,340. Now, supposing the Maitland firm used neither the Newcastle nor the Morpeth line to Maitland, but, loading them at Morpeth by steamer, brought their

This is a rate to a shipping port—"leather for exportation"—quite defensible, only Mr. Haynes is ignorant of the why and wherefore.

But not in the same direction. If the Newcastle biscuit-baker wishes to send to Bourke he can do so precisely on the same terms as the Sydney biscuit-baker or the importer. I have not space here to answer all the statements.—CH. A. G., 18/10/87.

goods on by dray to their depôt, then their transactions would commence with up-country. Their business, carried on in exactly the same way as the Melbourne firms, would result in their paying £7,600 for a haulage of only 109,890 miles. In other words, the Maitland firm, for using nearly 50 per cent. less haulage, would have to pay over 100 per cent. more money. If the Melbourne or Sydney man were served like the Maitland firm, he would pay for his 1,000 tons, not £3,340, but £9,814; while, if the Maitland man were treated as leniently as the other, he would pay, not £7,600, but under £2,650.

28. Let us take the case of a farmer at Cootamundra, 253 miles, who turns his attention to bacon-curing. He pays on 6 tons of salt, $\frac{1}{2}$ ton at a time, £22 11s.; and sending his bacon to market in the same way he pays £27 6s. 6d. On the other hand, New Zealand and Victoria bacon imported to Sydney can be sent 221 miles further for £7 6s. 6d. less.

29. When at Morpeth recently I found two leading residents—one an engineer, and another a cabinet-maker, both in a large way of business—very active in the cause of protection. They wanted a 15 to 25 per cent. duty at the Custom House. Here is how they stood with regard to the railways: If the cabinet-maker attempted business with the new centres about Tenterfield, 330 miles distant, he would pay on his 6 tons £46 2s.; while on another stretch of our railways an importer could send his 6 tons 454 miles in one direction for £20, and 500 miles in another for £35. In point of fact the Morpeth cabinet-maker who cries out for 25 per cent. lives under an impost of something like 130 or 150 per cent. that he knows nothing of. With regard to the Morpeth engineer and agricultural implement maker, I found that if he attempted to reach the grand new wheat areas of the New England tableland he would pay on 6 tons, 334 miles, £46 10s. 6d.; while a similar consignment of Melbourne-made (imported) machinery would be taken on another stretch of our lines 450 miles for £20. However, the New England farmer is not likely to do much business in furniture for his home or with improved agricultural machinery for his farm. He is robbed by railway freight on the one hand, and on the other ruined, even in his own local markets, by cheaply-borne Victorian produce. The farmer's machinery costs him £46 10s. 6d., but a similar load of Victorian flour can be run up on the same line the same distance for £6 4s. Is there any wonder in the Morpeth engineer and the cabinet-maker crying out for relief? In this gloom they cried out for a delusion.

30. We know that half-ton orders of galvanized iron are the rule. Well, if a Maitland firm, who does a large business in the line, sends 6 tons in that way to their constituents, the freight is £32 2s. for 330 miles, but a Victorian squatting firm down by Jerilderie or at Hay can get his 6 tons for £20 on a run of 454 miles.

31. At West Maitland there is just forming a great inland produce depôt or bazaar. That the development of this new centre of trade should be assisted is a matter that cannot be questioned. Buyers flock in increasing numbers from Sydney, Newcastle, the mining districts, and from all the towns above and about Maitland; and a business is doing which augurs an annual cash overturn of £500,000 in a few years hence. Let us see how the railway system helps the thing. A Guyra or Ben Lomond farmer, midway between Glen Innes and Armidale, whose pits and barns are filled with produce which is rotting, never to reach a market, would find, if he attempted to reach Maitland in lots to suit trade, that on his 6 tons of potatoes he would pay £21 13s. for 281 miles, while on his bacon sent in the same way he would pay £29 8s. 6d. On the other hand, he would find the wholesale flour importer at Newcastle sending 6 tons the same distance for £5 3s. 9d., while a $5\frac{1}{2}$ truck load of chaff would go for £2 17s. 1d. Is it to be wondered at that the New England and Liverpool Plains farmers should say they have no markets?

32. At East Maitland are the Shamrock Meat-works; and if their goods are sent to Newcastle (centralising system again) they are carried under special class A. If, however, they are sent in any other direction they are raised to first-class goods (and I am not sure that they are not raised to third-class). Well, taking it at first-class. Now, for 330 miles the Maitland merchant sending these goods northward to his customers would pay £26 12s.; whereas, if the same rate prevailed upward as downward, he would pay, not £26 12s., but only £7.

33. The hay, straw, and chaff rates look very liberal for the farmer, but they are not framed to facilitate the small man or the inland trade. If a farmer executes an order for 2 tons of chaff he finds a
tremendous

tremendous jump in prices, and he pays from Mudgee to Sydney, 192 miles, £6 1s. 2d., and when a total of 6 tons is reached he has paid £18 3s. 6d. At Newcastle, however, where the coal exporter deals in return with wholesale lines of Victorian produce, the 5½ tons can be sent 350 miles for £3 10s. If the Mudgee farmer wants to execute a 2 ton order of chaff for Bourke, 500 miles, he would pay £12 6s. 6d., and his 6 tons would cost him £36 19s. 6d.; while the wholesale importer at Sydney could, as he sends it, send it the same distance for £4 11s. 7d.

34. Ale and porter, as well as spirits, are lines in which a great business is done. Here is how the question of freights affect them: The Maitland brewer sending his 6 tons of ale to Glen Innes, 300 miles, would pay £30 17s.; but imported ale on another stretch of our lines could go the 6 tons, 450 miles, for £20. The man at Tenterfield pays for his whisky or brandies £48 4s. for 350 miles; but on another branch of our lines only £20 is the cost for 450 miles. Why even the hotel-keeper at Mudgee, 192 miles, pays £31 6s. 6d. for goods which another man, distant 450 miles, gets for £20. Is this not monstrous?

35. I will now instance how a Glen Innes farmer is swamped in competition by reason of these one-sided railway rates (and I am putting it in the absurd way the Department expects a farmer will send his dairy produce—a ton at a time). He consigns to Newcastle 6 tons of bacon, 1 ton at a time, and in return for his sale gets up 3 tons of agricultural machinery and 3 tons of furniture. Now the freight would stand thus:—

6 tons dairy produce	£26	5	0
3 „ agricultural machinery	22	14	9
3 „ furniture	22	14	9
	£71	14	6

Against him the Newcastle importer of Victorian flour or fodder could send the following goods on the very same stretch of railway:—

12 tons Victorian flour	£10	3	0
10 trucks Victorian chaff	27	15	0
24 tons Warrnambool potatoes	20	6	0
12 „ American timber	10	3	0
	£68	7	0

But so can the New South Wales grower send his own produce by specifying Victorian flour, chaff, and potatoes.

Balance still against the Glen Innes farmer, £1 18s. The above case, bad even as it is, puts the farmer in a much better position than he usually occupies. He does not send down his bacon in tons, but quarters, and so his cost in the above transaction would be increased from £26 5s. to £32 9s.

36. A Goulburn boot manufacturer sends 6 tons of his boots to Wagga, 175 miles, and pays £28 19s.; but a Sydney importer or manufacturer can send his 6 tons 454 miles, to Hay, for £20. In other words, the Goulburn man pays £8 19s. more for travelling 269 miles less. Let me take a large transaction in which we may illustrate how the trade of an entire town is affected. The Goulburn tradespeople get up 500 tons of ironmongery, furniture, spirits, &c., and would pay on the amount, for 134 miles, the sum of £1,769 15s. 10d., the total, in 6-ton lots, representing a haulage of about 10,988 miles. Now, the Sydney merchant, for sending the same goods on the same line, would pay only £1,680 for a haulage, not of 10,988, but of 37,228 miles, or about £120 less for 26,240 miles more haulage.

37. It would be useless to proceed further with these illustrations. Every branch of industry or occupation inland is affected, and an incalculable amount of mischief is done. I believe I would be correct in saying that a general feeling of disappointment has followed on the opening of many of our railway extensions. The farming community, after waiting for years in expectancy of reaching near and distant markets, find themselves shut out from both, while those very immediate centres hitherto held by themselves are flooded with cheaply-borne produce from outside sources. It might, in fact, be urged that positive disadvantages have, in many cases, come to inland traders from the opening of our railway extensions. The ordinary road-carrying business has disappeared as the locomotive has advanced, and the people have now no alternative but to use the present costly system of the railways.

38. It appears to me that a radical alteration of the whole system is required, and I beg to submit proposals in that direction, and I do so with full confidence that my proposals will lend long-promised but long-denied aid to inland trade development; that they will assist our farmers to regain not only the intervening but also the coast markets of this country, and that they will bring increased returns to our railway revenue.

This is all nonsense.

Eureka.

39. From time to time quite a number of proposals have been put forth by way of a remedy; but they more or less have been of a patchwork character—special rather than common. Some reformers have proposed a variety of systems which really have no uniform applicable basis. In the present tariff we have this style of grasping the difficulty, and it is consequently not perhaps surprising to find the noxious principle of protection mischievously adopted to accomplish that which a sound, fair, and common-sense system alone would have won.

40. My proposal is to come to a common basis, allowing discounts or decrease in charges where the run of the train is lengthy—not as is done now, simply to bridge the distance out of sympathy for our people and enmity to our neighbours, but on account of the less handling or terminal work, and the consequent less cost in carriage. The differential system pays or it does not pay. If it pays, then it should be general; while if it be a loss, then a few should not benefit at the cost of the many. But we can safely go on the basis that differential system does pay, and that it may be expected to greatly increase the returns when general.

41. There must still be a classification of goods. Classification is affected by either the bulk of the goods, their perishable or other character, or the amount of handling required in the loading and unloading. Now, the classification at present adopted is notoriously defective and nonsensical. For instance, 6 tons of ironmongery is in most cases neither bulky nor fragile, and certainly does not require as much care, say, as flour. Yet we find that 6 tons of flour are carried 500 miles for £7 14s., while the carriage of the ironmongery for only half the distance would be £37 14s.

42. I have already pointed out that for every class of goods, 1st, 2nd, 3rd, or 4th, or for large or small consignments of anything, the differential system exists in Sydney from the fact that forwarding agents, acting for a number of people, can always secure a 6-ton truck load for conveyance, the maximum distance for the minimum cost.

43. Now, I propose that the present classification be altered to accommodate inland trade in the same way; but as there are no carrying agencies except here and there, I propose that the goods sheds or receiving stations act as such, that the goods be received in large or small parcels, and the loading or unloading be done under the direction and with the assistance of the porters in charge.

44. I propose that for general merchandise there be but one class—on the 6-ton per truck principle, applied retail as well as wholesale at every platform and station in the country, just as it has been so long and successfully applied solely in Sydney.

45. The differential rate appears to be about 1½d. per ton per mile, and so while we would get for a 13-truck goods train the sum of £260 (at £20 per truck of 6 tons) the cost would only be about £85 9s. for 350 miles.

46. Now, I suggest that all goods be received on any stretch of inland railway for 25 miles and over at 2d. or 2½d. per ton per mile—wool, mill and farm produce, coal, wood, hay, &c., being dealt with specially; the basis of this one general merchandise rate to be actual weight, with a reasonable addition in the case of unusual bulk. This would mean that as the Sydney man can take his 1 or 2 cwt. of goods of any description to the carriers' agent and have his consignment forwarded under the differential rate, as if he were sending a truck-load, so the inland man may take his goods to the station, and forward them in amounts as low as 2 cwt., or lower, on the differential estimate, a booking or entry commission being charged for receiving and handling, &c.

47. Let me illustrate this just and simple arrangement. If a farmer now sends 1 ton of bacon 350 miles, the cost is £4 12s. 8d., and 6 tons costs £27 16s.; while if he sends at half a ton at a time the 6 tons costs him about £34 12s. If he were in Sydney his 6 tons, whether sent in the one lot or by ½ cwt., would only cost him £20. Well, applying the differential system to the farmer, he would pay only actual weight at 2d. or 2½d. per mile, and instead of paying £5 15s. 4d. per ton in small lots, he would pay only £3 12s. 11d., and his 6 tons would stand him in £21 17s. 6d. (I have here reckoned at 2½d. per mile). With regard to ironmongery or machinery ordered by him, he would on 6 tons, in small or large lots, pay, not £48 4s., but only £21 17s. 6d. (it will be seen that I am working out these figures above the differential rate, for a purpose subsequently to be seen.) The arrangement would be actual weight down to 56 lb., with a small commission or handling charge added. As to bulk goods, there would

This is done; see our paper where it is defended—Teece's motion.

And by their value, and the freight they will stand—the most important factors of all: apply them in this case.

If general merchandise is carried at 1½d. per ton per mile for any distance, there will be no net revenue to speak of.—
C.P.A.G.

This is some advance on the 1½d. per any distance.

I do not think this is correct.

be but little extra charge in regard thereto, as a truck will accommodate 6 tons of almost any goods. A truck which carries 6 tons of flour—concentrated produce—will also carry nearly 6 tons of wool, the bulkiest of all merchandise except hay or straw.

47½. Now, the question of grain seems to be one which might, on plain commercial principles, be considered with a view to increased return traffic. It might fairly be expected that if we assisted the farmer by concessions to reach our coast and export markets, a large up-country return trade would result. And, as I have shown that there is a substantial profit on the differential rate, the reduction on the downward or coastward rate would be largely or more than compensated for on the increased inland trade. This is the difference between the protectionist differential rate and that which I propose—a free-trade or soundly economic rate.

48. I find that wheat can be landed from Melbourne to the Sydney wharf-side miller at about 3d. per ton; but as now the railway freight to our farmers is about 6½d. per bushel. The water-freight from Newcastle to Sydney is 2½d. to 3d. per bushel extra, while at the Darling Harbour terminus cartage is to be added. Now, what we want is not protection against the Victorian 3d. per bushel carried wheat, but extra facilities to our own farmers, and the conflict may be left to the future. Of course, in my estimate above of 6½d. per bushel, I am conceding to the Department for the moment, that the farmer is a wholesale man, and always sends in 6-ton lots. If the farmer sends anything less up go the freights, and a 4-ton consignment would cost him 10d. per bushel, and a 2-ton lot would cost him 1s. 8d. per bushel. Now, a downward or coastward run of thirteen trucks (our lines unfortunately are under the 50-foot grade), containing 78 tons of wheat, would cost the Department, roughly, £85. * At the present rate the return would be £80 12s. In point of fact, they about balance. But on the return journey the profit to the Department would be, at 2½d., about £179. Now, against this profit might be charged a 100 per cent. special reduction in the coast-bound wheat rates. This would bring the carriage rate down to about 3d. per bushel, and I propose that the rate should apply to actual weight down to ½-ton lots. All kinds of grain to be similarly treated. Potatoes, included as well, would come down from £6 for 6 tons for 350 miles to £2 18s. or £3. It is rare that a farmer sends more than half a ton of potatoes to intervening markets, in which case he would now, on ½-ton consignments, pay £27 10s. for 6 tons. Under the new arrangement he would be charged actual weight, like the man is charged who lives in Sydney. (Inward rates on mill produce, &c., I propose to charge actual cost and profit.)

49. The other propositions are that (1) with regard to hay, straw, chaff, &c., the present rate be made to apply to lots of not less than ½ ton; (2) goods under class A and B to be brought under above rates with charges on actual weight; (3) miscellaneous to remain with but slight alteration; (4) Class 1, 2, 3, and 4 of the present classification to come under a general merchandise rate, actual weight down to 56 lb.; (5) the minimum to be fixed at a low parcels rate.

50. Thus have I concluded my work. It will be seen that the whole of the proposals are to extend to the country that which the city at present enjoys, and to accommodate the system to catch in a retail way an enormous wholesale traffic which the railways up to the present have (much to inland loss and distress) never been able to secure. I suggest that special attention be at once given to our Newcastle terminus, as the outlet of a new, enormous trade certain to come from the north under the change I propose.

51. I finally urge on the Government to immediately obliterate from the system the principle of protection, with which it has through shortsighted official notions been impregnated; and I ask on behalf of the great army of toilers inland, those in our towns as well as those on the lands, to so have our railways controlled that they will assist inland development in every way, and bring to us at a near day a realisation of the grand and saving policy of decentralization.

Yours obediently,
JOHN HAYNES."

I do not see how this is shown. Mr. Haynes would lose half the revenue derived from down traffic, and make up for it by losing half the revenue derived from up traffic; but while two negatives are said to make an affirmative under some conditions, under no conditions can two losses result in a gain.

Mr. Haynes may think so, but if he means to persist in this matter he will find that he has not commenced his work yet.

No. 2.

Minute by The Commissioner for Railways.

But also with this the departmental paper *re* the abolition of differential rates and the competitive rates, and also the article in the *Herald* of 27th September, which was based on the official paper. The two documents answered in anticipation of Mr. Haynes's contentions. As I have said on other papers, Mr. Haynes's contribution to the controversy "bristling" with errors. He has one example which he continually repeats, iterates, and reiterates; nine-tenths of his paper might have been omitted had he been content with one illustration. He tries to give it a new dress with every fresh instance of treatment, but it is the same argument, and the anomaly, in charges which he seeks to establish thereby, is accounted for by the policy of granting competitive rates on the South-Western Railway and at Bourke. He further (while admitting the necessity for classification) exposes what he considers to be a gross injustice, viz., that flour (especially Victorian-grown flour) is carried on the down journey at a cheaper rate than general merchandise. He wishes to cheapen the carriage of flour on the up journey, which at present is carried at the same rate as it is on the down journey. And this freetrader, with a perfect horror of the protectionist leaning which he thinks he has discovered in the present tariff, is unaware, apparently, of any inconsistency in the proposals he makes.

As regards the principles upon which the rate-sheet is compiled, Mr. Haynes is not probably aware that in attacking them he is "couching a lance" at the universal railway practice in this respect, and that in his remedial measure he has proposed to put something in place of the tariff which, if adopted, would have the effect of paralysing the railway revenue.

The Traffic Manager may be directed to answer in detail Mr. Haynes's paper, and I shall be pleased if he will see the Traffic Auditor, and let me know what the railway revenue would be for goods traffic, based upon the tariff which he proposes should be adopted in lieu of that in operation; it will not be possible, as the statistics have not in recent years been kept, to give the present quantities under each line and the loss that would accrue on each article; but this can be approximated to by taking the quantities returned when the statistics were kept, and adding a percentage increase for existing traffic.

As Mr. Haynes will no doubt follow up his paper by some Parliamentary action, it is desirable that the information I have asked for should be got out as early as possible.

In the penultimate paragraph of his paper, Mr. Haynes says triumphantly, "Thus have I concluded my work."

I can promise the honorable Member that so far from this being the case, he will find, if he persists, that he has not yet even commenced his work. It will be my duty to resist the establishment or adoption of his crudities, and to expose his fallacies; but I shall do so with the conviction that only in the interests of the country will any sharp criticisms be defensible, for I am prepared to acknowledge that Mr. Haynes is animated by a belief (often held by others, and as frequently demolished), that the method he advocates is a true one, and ought to be established.

CH.A.G., 18/10/87.

No. 3.

Minute by Mr. Traffic-Manager Read.

A GREAT deal of the subject upon which Mr. Haynes has written at such enormous length was so fully dealt with some months ago in minutes written in answer to motions which were then on the Parliamentary business paper in the names of Mr. Teece, on the differential rate question, and of Mr. O'Sullivan, as regards live stock and agricultural produce rates that, generally, there does not, at the first glance, appear to be much more to be said. I attach copies of the minutes.

The reasons for the existence of the low rates between Sydney and the competitive districts in the southern and south-western parts of the Colony are so well known, and were so exhaustively dealt with in the reply to Mr. Teece's motion, that, as far as that part of the subject is concerned, at all events, it will not be necessary to go over the ground again, particularly as Mr. Haynes will be found to have stated those reasons in the 7th paragraph of his letter.

In the fourth paragraph of his letter, Mr. Haynes states that "the profound blunder of our railway goods system is that it is shaped to meet a wholesale rather than a retail trade"; but if I am able to judge, I should say that it is framed to meet both—the retail even more, much more, than the wholesale.

In paragraph No. 5 it is stated that it has been proposed to abolish the differential (of course Mr. Haynes means *competitive*, for we have no *differential*) rate system. Except the motion of Mr. Teece's to which I have alluded, and which was never brought before the House, I am not aware of such a proposal ever having been made. Certainly it has never come from any of the railway officers, who are but too well aware that so long as the Victorian railway authorities, who initiated the competitive rates, adhere to them, we must in self-defence adhere to ours, or make up our minds to sacrifice the traffic to and from the competitive districts altogether, in which case it would, as a matter of course, be necessary to charge higher rates upon the traffic in the non-competitive districts to compensate for the revenue so sacrificed. And here let me say, in answer to the numerous examples quoted by Mr. Haynes of exceptionally low rates from Sydney to Hay—they are the same to Wagga Wagga, 309 miles—as compared with the higher rates from Maitland to Tenterfield—which, by the way, is 361, not 334 miles as stated—that for the traffic of the Hay district we have to compete with very low water-carriage as well as greatly reduced rates on the Victorian railways, while for the Tenterfield traffic, any more than that of all stations north of Wagga Wagga or east of Narrandera or Bourke, there is no such competition.

But let Mr. Haynes take any 361 miles, or any other distance, on the Southern and Western lines *outside of the competitive districts*, and he will find that they are *precisely the same as on the Northern line*.

If that gentleman would, as he says in paragraph 6, make the low rates of the competitive districts general all over the lines—that is, take the existing rate for the longest distance, and reduce it proportionately for shorter distances, which appears to be the only way he sees out of the difficulty—I have no hesitation in telling him that he would diminish the revenue by something like £150,000 to £200,000, and, *rather than do that, I am satisfied it would be in the interests of the Department to abandon the competitive rates altogether and make Victoria a present of the traffic*. It would take much time and labour to work out the sum with accuracy, and the Traffic Auditor tells me his hands are already full of returns which have been asked for, but Mr. Haynes's proposal is so inadmissible that perhaps the estimate I have named will suffice for the present purpose.

The

The idea that the competitive rates extended all over the country might be calculated to lead to a vastly increased traffic is purely imaginary. Low rates are advisable when they are likely to foster a production which would otherwise languish; but it is useless to say that reduced rates would add vastly to the conveyance of general goods, and it is only upon such goods that competitive rates exist. *All our other rates are very low for the express purpose of fostering production.*

Paragraph 7 contains a fair statement of the reason for initiating the competitive rates; but as Mr. Haynes seems to make a point of their having been introduced to enable Sydney to compete for the trade of our southern border with Victoria, it may be as well to mention that in the latter colony they only apply from Melbourne upon general goods, and even from there, *only when the traffic comes into New South Wales.*

Mr. Haynes's reference to the rate for corrugated iron in paragraph 8 is quite correct; but he is evidently not aware that it has been decided to carry lots of 5 tons or upwards of any kind of machinery in a truck at *first-class rates*, according to which *three* tons conveyed a distance of 200 miles would be charged as 5 tons at first instead of actual weight at third-class rate, the former being the lesser charge to a small extent; so that if 6 tons (the quantity named by Mr. Haynes) were put in a truck and sent from Maitland to Tenterfield, the charge would not be £46 10s. 6d. for 334 miles, but £28 9s. for 361 miles. The amended rate was approved of since the present rate-book was issued; but it is inserted in the proof now in the hands of the Government Printer.

I cannot make out what deduction Mr. Haynes means to be drawn from paragraph No. 9, in which he implies that, as regards trainage, the trader at Orange is in a less enviable position in connection with the conveyance of his goods from Sydney than the sender in Sydney is in sending the same class and weight of goods 311 miles further (Bourke). Mr. Haynes must know that, as the sender in Sydney does not pay carriage, it is immaterial to him whether it amounts to 20s. or £20 per ton, so why he should think that the competitive rates play particularly into the hands of the Sydney merchant is somewhat of a mystery, since the goods all go from Sydney in the first instance, whether to Orange, Bourke, or Hay.

In paragraph No. 10 Mr. Haynes shows how a storekeeper at Cootamundra can save money by consigning his goods from Sydney to Wagga Wagga at the £20 truck rate, and having them re-consigned from there to Cootamundra. That has been known to us for a very long time, but we have also known that it has only been done to a small extent, and experience tells us that it is to our advantage to adhere to the present practice rather than to carry the goods direct to Cootamundra *at Wagga Wagga rates, plus the additional charge from Wagga Wagga to Cootamundra.*

And in paragraph No. 11 it is contended that the truck rate is the embodiment of the wholesale rather than the retail principle, and that, consequently, it is dead in favour of the metropolitan man, whereas it is well enough known, and a moment's reflection would have convinced him, that it was introduced purely upon economic grounds; moreover, in the very same paragraph, Mr. Haynes admits that it is not the metropolitan man at all but the country constituent who reaps the benefit, since he who does not get a truck load on his own account can get them sent through forwarding agents at a proportion of the truck rate, plus a small commission for the cost of collection and forwarding, &c. It would not pay the Department to run a truck from Sydney to Hay with 2 tons of goods for £6 13s. 4d., but it does pay when that truck, by carrying 6 tons, earns £20—although, of course, it would be very acceptable if we could get more. Mr. Haynes goes on to say that the wholesale Sydney merchant can send his 6 tons, made up of any class of merchandise, at the reduced rate of £20, and that such merchant, usually deals in large consignments which are as often over as under 6 tons. In this assertion Mr. Haynes is very greatly mistaken, but even if it were correct it does not seem to have occurred to him that *the consignments of the Sydney merchants are entirely dependent upon the orders they get from their country constituents*, who alone reap the benefit of the truck rates, while the Sydney merchants only reap the advantage of the orders for the goods which would otherwise go to Victoria, where every inducement is offered by the railway authorities to attract them.

The fact, already alluded to, that small consignments are collected by forwarding agents until a truck load is made up, and that those agents only charge a commission for their trouble, shows that the small storekeeper and farmer have their interests as well looked after as others doing a large business.

In the following paragraph, No. 12, Mr. Haynes mixes up coal, dairy produce, agricultural machinery, wool, and wheat, and seems to be astonished that we should carry coal so much cheaper than the other articles named, or why we should insist upon its being carried in wholesale quantities, *i.e.*, truck loads. As regards the coal, he has made a slight mistake in stating that we carry 6 tons of coal a distance of 96 miles for 46s.; the correct amount is 48s., and that is about 150 per cent. of its value. As we cannot put dairy produce or any other goods in a truck beside coal, it is not difficult to understand why we specify that it will only be carried at such a low rate when it is in truck loads, or that, when consigned in smaller quantities, a higher rate is charged.

Dairy produce, in lots of *one* ton and upwards, is charged 33s. per ton for the same distance, so that the trainage of 6 tons would only be £9 18s., not £12 4s. 6d., as stated by Mr. Haynes, and £9 18s. is only about 20 per cent. of its value, assuming that value to be £50 per ton, which, I think, is rather under than over the mark. For £12 4s. 6d.—the amount named by Mr. Haynes—the 6 tons can be forwarded in consignments of 1½ cwt. at a time, and it surely cannot be held to be unreasonable that we should charge more for 100 consignments distributed over a number of days and, consequently, a number of trucks, than for one consignment.

Ploughs, harrows, &c., would only cost £9 18s. if loaded in one truck, not £16 19s. 6d. as stated.

The assertion that the farmer has the wholesale principle offered to him, which he seldom uses, and that consequent upon his being oftenest a small dealer, his grain costs him for the 6 tons £34 1s. 6d. for 454 miles, is not in accordance with fact. The great bulk of agricultural produce is carried in truck loads, and the farmer gets it carried in that way a distance of 454 miles for £7 4s. 10d. for the 6 tons, while, even if he sends it in lots of 1 ton, he gets the 6 tons conveyed for £8 17s., and twelve consignments as low as 10 cwt. each would only cost him £17 14s.

It is not very long since a gentleman largely interested in the trade stated that we ought to carry live stock 100 per cent. cheaper than we do, and now we are told that the same thing might be done in respect of agricultural produce. It would be preposterous to suppose that these gentlemen are not aware that their proposals literally mean carrying the traffic *for nothing*; but so it is, and it would be interesting to know from what other source the revenue so sacrificed is to come, or why the general public should be taxed for the special benefit of the farmer or the grazier.

Mr.

Mr. Haynes admits in paragraph No. 13 that as regards hay, straw, and chaff, the farmer has got a consideration. That is, to say the least, a mild way of putting the case; for I can assure that gentleman that, owing to the weight of such traffic, which can be, and is, put upon trucks—weights which, a few years ago, were considered by farmers and others to be impossible—it is actually conveyed at considerably less than coal rates.

It is true that £2 19s. is the rate for a ton of greasy wool from Hay to Sydney, while the same weight of chaff or straw would be £4 5s., not £5 13s. 6d. as stated; but it is perfectly well known that no hay, straw, or chaff comes from Hay, or even from the district; and, even if it did, it is in the very highest degree improbable that it would come in small consignments when the truck could be loaded up to 6 tons for the same money. On the other hand, wool is the staple product of the district; and, so great are the inducements offered by low water-carriage, coupled with exceptionally low rates on the Victorian railways, that we have great difficulty in getting £2 19s. per ton for it. Still a full truck of wool would earn £17 14s., as against for a full truck load of straw or chaff. Indeed, as I have already pointed out on other papers, the inducements thus offered have attracted an unusually large quantity of Riverina wool to Melbourne this season. Mr. Haynes is mistaken again in stating that the rate for a ton of hay or chaff from Mudgee to Sydney is £3 0s. 7d., for it is only £2 12s. 9d. for hay, and £2 6s. 8d. for chaff, and in each case the farmer can put 6 tons of the same kinds of traffic on the truck for the same money.

The assertion that millers and storekeepers at Tamworth and Armidale get large lines of imported flour from Newcastle does not say much for New England farming if it be true, considering that it has to bear the cost of transit and insurance to Newcastle, whilst the lowest charge from thence to Tamworth is 13s. 9d. and to Armidale 17s. 3d. per ton.

In the 14th paragraph of his letter, Mr. Haynes says:—"We have no right to consider this or that trunk line separated from any other. . . . As portions of the general community, the Glen Innes and Maitland people have to bear the cost and the loss, if there be any, of the Southern and Western lines; and concessions granted to one portion of the public cannot be refused to another." At the first glance this seems a reasonable contention, but suppose, as I have already said, it were preferable to abandon the competitive rates altogether the certain effect would be to drive the competitive traffic to Victoria, and to compensate for the traffic so sacrificed we would have to charge increased rates in the non-competitive districts. Mr. Haynes could not call that good policy.

And he has made a slight mistake in the 15th paragraph as regards the conveyance of certain specified kinds of traffic from Maitland to Tenterfield; the half ton of flour and half ton of salt should be added together and charged as 1 ton at B rate, which would reduce the charge upon these two articles by £2 4s. 4d. It is quite true that a 6-ton consignment, such as that specified by Mr. Haynes, would be conveyed to Hay for £20 if it could be got into a truck, which I have no hesitation in saying it could not, but it would not be carried in any other direction the same distance for less than the charge from Maitland to Tenterfield. The distance on which Mr. Haynes has calculated is 330 miles. The correct distance from Newcastle to Tenterfield is 361 miles. Such a mixed consignment as Mr. Haynes mentions could not be got into one truck.

But this rather extraordinary paragraph goes on to say, "Or a coal-shipper at Newcastle, who brings flour from Melbourne almost as ballast, could send from Newcastle, 354 miles, his 6 tons of flour for £6 4s., as against the Maitland man's £41 17s. 4d." What analogy there is between a consignment of 6 tons of mixed goods from Maitland and a consignment of 6 tons of flour from Newcastle it is difficult to see, since, as regards the flour, there is no competitive rate—the charge being exactly the same on all parts of our lines.

And precisely the same argument applies to the 16th and 17th paragraphs of the letter. It is only necessary to mention that the 24 tons of goods specified in the 16th paragraph would only be charged £125 18s. from Maitland to a distance of 330 miles, not £164 4s. 4d. as stated. But the idea Mr. Haynes seems to have that we should charge as high a rate for flour as for furniture is little less than ridiculous.

In the following paragraph—the 18th—Mr. Haynes draws attention to an imaginary anomaly in the rates for limestone and lime. "The Department," he says, "will carry 6 tons of limestone 190 miles for £3 16s. 1d., but for turning the limestone into lime on the spot the company (a Mudgee company) have to pay for 3 tons, 190 miles, £9; or the limestone, 6 tons of it, may be carried 500 miles for £6 18s. 8d., while 3 tons of lime would cost just £18 18s.—a tax on the Mudgee industry of just a few hundred per cent.," and then he deprecates the fact that the minimum charge for lime is as for 4 tons at A, or actual weight at first-class rate. Now, in this, as in other instances, that gentleman has shown a want of knowledge of our rates, which I should not have expected from anyone who has undertaken to criticise them so exhaustively. The charges for 6 tons of limestone are, it is true, £3 16s. 1d. for 190 miles, and £6 18s. 8d. for 500 miles; but the charges for the lime (6 tons of it, if the company likes to put that quantity into the truck) are not £9 and £18 18s. as stated, but £4 4s. 6d. and £7 14s. respectively.

And the grievance pointed out in paragraph No. 19 is really purely imaginary. It is difficult to know why it should be regarded "as for the benefit mainly of the Sydney manufacturer, or the produce auction-mart people, or exporters," that the Mudgee tanner should be able to send his leather to Sydney for 2d. per ton per mile less than the same material can be sent from Sydney to Mudgee. One would have thought that the advantage was rather in favour of the Mudgee tanner, who is enabled to get his leather conveyed to what must undoubtedly be his best market, at a low rate of trainage. To the Department it is beneficial in every way to encourage inland manufactures, for in addition to getting the products to carry, we get the general supplies, and it is from the latter we derive our principal source of revenue.

It is simply a waste of time to talk about 6 tons of leather being sent into the competitive districts, for such a consignment never has been, nor is ever likely to be sent.

Mr. Haynes is again wrong when he states in paragraph No. 20 that the trainage of 6 tons of soap from Dubbo to Bourke, in half-ton lots, would amount to £27 2s. The correct amount is £25 5s., and if he sent it in lots of 1 ton it would only cost £20 6s. As many as 120 consignments of 1 cwt. each would not cost so much as £27 2s.

And in paragraph 21 Mr. Haynes is very much astray in his figures, although in this case the mistake is quite pardonable, as the new rates have been adopted since the existing rate-book was issued.

In

in 1885; still, as Mr. Haynes admits having visited the Lithgow Pottery Works, and conversed with the foreman (who appears to be a protectionist as far as his own business is concerned, at all events), a simple inquiry would have put him right on the rates question as well as upon others, and he would not have hazarded the assertion that the Company are punished for ignoring Sydney if they do business westwards. 6 tons of their pottery, carried a distance of 408 miles, would not be charged £31 5s. 6d., but £15 13s. It is admitted that if forwarded in half-ton lots the charges for the same distance are £31 5s. 6d. (not £38 19s., as stated); but it is useless to say that the Sydney importer can send his half-ton lots through a carrier's agency for £20 for a distance of 454 miles, because in the one case we know that the truck does earn the £20, while in the other, as there is really no loading at Eskbank beyond the half-ton of pottery for the same place, the truck would only earn £2 12s. 2d. for 408 miles.

Nearly the whole of the remainder of Mr. Haynes' letter might have been left unwritten if he had left the competitive rates alone instead of comparing them with the non-competitive rates, between which, as the terms imply, there cannot possibly be any analogy.

His reference in paragraph 23 to the Armidale tanner paying more for the conveyance of his leather to Maitland is, as I notice the Commissioner has observed, due to the fact that Newcastle is a place of export; besides, the lower rate to Newcastle only applies when the leather is forwarded in consignments of 1 ton and upwards—smaller consignments are charged the very same rate per ton per mile to both places. Still, instead of making the reduced rates apply to Sydney and Newcastle only, I think they might be made to apply to all leather carried on the up-journey.

What does it matter whether for auction sale or for export. The probability is that lots of leather submitted to auction at Maitland would ultimately find their way to Newcastle for export.

The comparison between the rates for flour and biscuits is equally uncommercial (*vide* paragraph 24). Admitted that a 6-ton consignment of flour is carried 350 miles for £6 4s., what has that to do with the fact that 6 tons of biscuits would cost £48 4s. for the same distance?

To begin with, there is admittedly a great difference in their respective values, and while it is more the rule than the exception to carry 6-ton consignments of flour, where can Mr. Haynes or any one else point to a 6-ton consignment of biscuits? To get the advantage of the £6 4s. rate for the flour it must be sent in one consignment—for £48 4s. the biscuits may be sent in nearly 250 different consignments.

Flour, about £10 per ton; biscuits, about £50 per ton.

The statement that we give the outside man an advantage over our own of about 800 per cent. is utterly at variance with facts—in each case the "outside man" pays precisely the same as our own.

In paragraph No. 26 an extraordinary comparison is made between the rates for flour, iron, and machinery, the rate for which latter is £18 9s. 6d. for 196 miles, and not £31 18s., as stated. But suppose we went so far as to reduce the rate for machinery to the same as that for flour, would it help the engineers at Newcastle in any way, or would it not mean a sacrifice of revenue which would result in putting probably a good deal more money into the pockets of the Victorian implement maker than into those of our own. It is an undoubted fact, whether Mr. Haynes knows it or not, that the bulk of the machinery used in the Colony comes from Victoria.

It is unnecessary to follow Mr. Haynes in the examples cited in the 27th, 28th, and 29th paragraphs, since the circumstances in each case are so different, and seeing that these circumstances have already been fully dealt with. If he will take the same conditions and distances outside the competitive districts all the anomalies which he has made so much of will disappear. In the 30th paragraph we find Mr. Haynes stating that half-ton orders of galvanized iron are the rule, and that if a Maitland merchant sends 6 tons in that way to Tenterfield, 361 miles, the trainage is £32 2s., while "a Victorian squatting firm down by Jerilderie or Hay can get his 6 tons for £20 on a run of 454 miles" (Hay). Now, if we take the same conditions in each case it will be found that twelve half-ton consignments from Sydney would be charged £33, while if the whole 6 tons are sent in one consignment the trainage is only £18, not £20, as stated; and if the squatter could not get the iron from Sydney for that money he would get it from Melbourne. Equally misleading is the example quoted in paragraph No. 31. It is a most extraordinary circumstance that Mr. Haynes should conceive the idea of a farmer near Armidale or Glen Innes sending his 6 tons of potatoes to Maitland in lots of 5 or 6 cwt. at a time, as he must do to cause the trainage to amount to £21 13s., and in the same breath bewail the possibility of the wholesale flour importer at Newcastle being able to send (in one consignment) 6 tons "the same distance" for £5 3s. 9d., and that, too, into a farming and comparatively thinly populated country. Put the 6 tons in one consignment in each case and the trainage is exactly the same.

From flour and potatoes we come, in the 32nd paragraph, to meat, and here we are challenged with carrying preserved meat from the country districts to the ports of shipment at Sydney and Newcastle at lower rates than to the country districts further northward, southward, and westward.

If Mr. Haynes cannot see a good reason for the concession to Sydney and Newcastle as outlets for country-killed and preserved meat, I am afraid it will be useless to point it out to him. I question whether any is sent from the country stations to places other than Sydney and Newcastle, and if there is it must be in very small quantities.

Fresh meat is charged the same rates everywhere throughout the lines.

In paragraph 33 we are told the hay, straw, and chaff rates look very liberal for the farmer, but that they are not framed to facilitate the small man or the inland trade, and then it is asserted that 2 tons of chaff from Mudgee to Sydney cost £6 1s. 2d., and that consequently three such consignments (or 6 tons in all) costs £18 3s. 6d. Mr. Haynes is very imperfectly conversant with the rate-book, otherwise he would not make such glaring mistakes. *As a matter of fact, 2 tons would only cost £2 6s. 8d., and if the chaff is well pressed and 6 tons put upon the truck it would not cost more.*

It is almost unnecessary to say that the assertions about the rates for 500 miles being £12 6s. 6d. for 2, and £36 19s. 6d. for 6 tons, are equally wrong. In each case they are really only £4 11s. 7d., and the rates are the same on all lines.

Paragraph 35 gives a very peculiar mixture. Here Mr. Haynes states that the Glen Innes farmer sending 6 tons of dairy produce, 3 tons of agricultural machinery, and 3 tons of furniture to Newcastle would have to pay £71 14s. 6d., which is quite correct; although why a farmer should send agricultural machinery and furniture to Newcastle (these can hardly be called the products of his farm), instead of flour, chaff, and potatoes, which he grows in the district, but is supposed by Mr. Haynes to get from Newcastle, it is difficult to know.

But many Northern people have been led by Mr. Haynes's mode of exposition to suppose (not having looked into the subject themselves) that as a general thing the rates on these lines are higher than on the Southern and Western, even where there is no competition, and they consequently feel aggrieved that their lines have to make up for losses on the other lines. Mr. Haynes has not told them that all within the 305 and 340 distances respectively on the other lines have also to make up for loss on differential rates—supposing there is any.

The way in which unlike cases have been paired, and in which he has compared conditions that do not exist, and never will, with natural conditions, is amazing, completely nullifying all the intended effect of his arguments.

If such irregular reasoning and arbitrary comparisons are allowable, it is competent for any person to bring euclid or the science of astronomy into ridicule.

In paragraph 40 an approach to reason is made in the admission that goods should be classified according to risk, bulk, amount of handling, fragile character (though he says nothing about values, which all over the world are an unavoidable factor in freights), but throughout the whole of his article Mr. Haynes ignores the principle. For instance, in No. 12 he speaks of the injustice of carrying Newcastle coal, run over a portion of the Coal Companies own lines, in their own waggons, millions of tons annually, at a less rate than dairy produce, carried in small quantities at a time, and in Government waggons, wholly on Government lines.

It is further stated that the use of the cranes is given free. I am afraid this imperfect knowledge pervades the whole of Mr. Haynes's article.

1. It is stated roundly that in many cases the extension of railways has affected inland farmers injuriously, "because they are almost wholly shut out from the coast markets, while on the other hand, the inland markets are reached by the cheaply-borne produce from the other Colonies." A farmer reading this would be indignant to learn that the produce from other Colonies is carried cheaper than his own. The farmer, however, is misinformed, because the implied difference in rate against him is not a fact. Paragraphs 1 and 2 are founded on this assumption, and are therefore baseless.

4. While it is accordant with "commercial principles" everywhere to charge higher, *pro rata*, for small quantities than for large ones, Mr. Haynes says it is a "profound blunder" for the New South Wales Railway Department to carry out this principle. He has admitted that cost of handling, &c., should have a part in classifying, but, although small quantities cost more, *pro rata*, than large ones for handling, and do not admit of economical loads as a rule, we must still charge the same rate as a large lot, fulfilling all conditions of economy for the Department.

8. Here Mr. Haynes gives an impossible case—one that never occurs—in speaking of 6-ton lots of fourth-class goods. Any reasoning founded on 6-ton lots of fourth-class goods is invalid, because unreal.

13. "Millers and storekeepers, say at Tamworth or Armidale, * * * get up cheaply by rail large quantities on the wholesale principle of imported flour; then when the farmer comes into the town to sell his wheat the large cheaply-carried stocks of flour are pointed out to him, and he is forced to accept any price." Tamworth is a great wheat-growing district. The farmers do not grow wheat retail. The millers, as everywhere else, sell flour wholesale as well as retail. Though it is implied that it is dearer to send a given quantity of Tamworth flour to Newcastle than to send the same quantity of Adelaide flour the other way, it is not a fact. There is here a distinct, though unintentional, impeachment of the business capacity about Tamworth. With the same chances, the Victorian or Adelaide flour is nevertheless, run in upon him, although it has to pay two railway freights and the sea-freight—at least Mr. Haynes says it is. If it be true, it is a state of affairs for which the railway tariff is not answerable.

15. Victorian flour is again compared with (among other things) furniture, although, as the articles differ so widely, there is no common ground for comparison. The admission that there should be classification is forgotten.

16. Victorian flour, irrigation pipes, and agricultural machinery compared as regards freight needs no comment.

17. Speaking of the country farmer, Mr. Haynes repeats an inaccuracy, to which I have before alluded. He says "his local market is flooded with produce carried for next to nothing." If the inward produce is carried for next to nothing, so is the country farmer's. While the inequality of differential rates is loudly complained of, so are the rates that act equally everywhere. It is hard to say whether Mr. Haynes has most objection against equal rates or against the competitive. If neither is right, what system is? A higher rate on Victorian flour, I take it.

23. Leather to Sydney or Newcastle 1st class, to other stations 2nd class. Mr. Haynes does not appear to comprehend the reason for the lower rate to the ports. It is, of course, to allow easier access to the great markets, and consequently admits of tanneries being established in the country. If the rate were higher, access to market would be retarded, and the tanneries would have to be established on the coast. Mr. Haynes favours decentralization; this rate, in the way indicated, has that tendency. The Armidale tannery (Messrs. B. A. Moses & Co.) has shipped a considerable quantity of leather from Newcastle direct to London. To give a cheap rate the other way would allow the Sydney tanner a better opportunity of competing in Armidale with the local establishment. This rate is not in favour of the Sydney merchant, as it is implied that the rates in general are.

24. A complaint that Victorian flour is carried cheaper than the Newcastle biscuits. There is no need to defend it. Gives the rate at which Newcastle biscuits are sent a given distance on the north, and imported biscuits on the south and west—like is seldom compared with like. Newcastle biscuits can be sent at same rates on all lines as other biscuits. Arnott's biscuits, as a matter of fact, are sent to the competitive districts on south and west, and get the benefit of the rates.

25. A Tamworth musical warehouse gets 6 tons musical instruments for £35.18s. 6d., and this is compared with the competitive district's rate.

26. Complains that the "Victorian foreigner" can send his fodder more cheaply than the Newcastle foundries can send irrigation pipes and machinery to the country. This is a curious kind of attack on rates.

31. Speaks of produce rotting at Guyra and Ben Lomond that can never reach a market. If a Ben Lomond farmer sends 6 tons potatoes in lots to suit purchasers "it will cost £21 13s. for 281 miles." This is a misstatement, unless the farmer sent 120 lots of 1 cwt. each to different persons at different times;

times; he would then pay £24. If he sent a truck load of 6 tons he would pay £5 8s. 6d. for the load. The unfairness of Mr. Haynes' statement lies in the fact that it is stated it will cost the Ben Lomond man £21 13s. for the same tonnage that the Newcastle importer pays £5 8s. 9d. (should be £5 8s. 6d.) for.

32. The "centralising system" of charging A rates for preserved meats to ports—the only outlet to a suitable market that these meats have—is alluded to. Mr. Haynes quite misses the point, and complains of the high rates on preserved meats to the country, where they never go, and would not go if they were carried for nothing. He does not perceive that cheap rate from the meat preserving establishments to their natural markets through the ports aids decentralization by permitting such establishments to be set up in the country. If there was not this special rate either the factories could not start or they would have to be located on the coast.

It is not worth while pursuing the investigation of this report any further. I have dealt with Mr. Haynes' illustrations and facts, which are typical of the whole. Though all varied, and the changes rung with some skill, they all apply to the one thing.

The remedy Mr. Haynes proposes is extremely crude, and would deprive the railways of the greater part of their revenue. He fails to know that rates must be made to suit particular circumstances, and that his hard and fast recommendations would not work.

Railways are about to be established in China. If that nation's producing powers be developed in anything like the ratio that railways have developed those in England, America, and other countries, China's production will, before many years, become a menace to the industries of all nations on the globe.

If, however, the Chinese could be persuaded to adopt Mr. Haynes' system the railways would before long become extinct, and the danger to other nations from China's competition be averted.

J. HIGGS,
9/11/87.

No. 5.

Minute by The Commissioner for Railways.

On the proposal for equal Mileage Rates.

NOTICE of Motion by Mr. William Teece,—That, in the opinion of this House, the differential rates charged for the carriage of goods and merchandise on the Railway Lines of New South Wales should be abolished.

THE term "differential" used in connection with our rates will probably convey an incorrect impression; it will to many persons imply the existence of a practice of charging different rates to different persons for the carriage of the same class of goods conveyed under similar conditions, whereas on our lines all persons are charged alike where the conditions are similar. The meaning of the term "differential."

I assume that Mr. Teece's motion refers to the *competitive* rates which exist in respect of the carriage of general merchandise from Sydney to the southern and south-western districts of the Colony—rates that were forced upon the Department in this Colony by the aggressive policy of the Victorian Railway Department, which, while charging full mileage rates upon all traffic in Victorian territory, has granted, for many years past, exceedingly low rates for the conveyance of traffic going from or coming to this Colony. Scope of Mr. Teece's motion.

Long before our railways had penetrated to any great extent southwards, Victoria had completed her Railways to the border, and so secured, with but little effort, a hold upon the trade of the more southern and the whole of the south-western districts of New South Wales. Measures taken to secure Riverina trade.

But about seven or eight years ago, when our railways were being rapidly extended southwards, the Sydney market was made as readily accessible, at our ordinary mileage rates, as the Melbourne market had been; the Victorian Railway Department began to foresee that if that Colony were to retain the trade which it had become accustomed to regard as its own, special inducements would have to be offered, and that was done in the shape of a considerable reduction of railway rates.

A competitive policy followed—our Railway authorities felt it to be their duty to secure as far as they possibly could, the traffic of the districts through which our lines passed, and as the reduced rates on the Victorian lines were turning the stream of traffic towards Melbourne, while its natural channel was towards Sydney, the only course available was to reduce the rates on our lines between the metropolis and those districts of the Colony affected by the concessions given on the Victorian lines, and to raise the carriage-rates on goods between Albury and Wagga.

The success of this arrangement became so apparent, that after a time (in 1882) the Victorian Railway Department, in order to regain the trade, which it had to a large extent lost, offered to convey it over their lines at even lower rates still, and these rates have been in existence ever since.

For a brief, but only a very brief, time, this concession had the effect desired; it was met, however by our Railway authorities introducing a truck-rate, which, while it offered a lower average rate per ton than formerly, had also the effect of securing full loads for the waggons, and so yielded about as much revenue per waggon as had been realized previously, thereby securing the traffic without loss.

Since the time in question, with the exception of a little modification, in regard to the rate for the carriage of wool, no further effort has been made by Victoria to regain the trade; indeed, it is difficult to imagine what further concession they could give, unless they carried the traffic for nothing.

To show, however, the extent of the endeavour made by the Victorian Railway Department to obtain the trade of this Colony, two illustrations are given (one as regards general goods from Melbourne, and the other as regards wool to Melbourne).

First illustration.—Fourth class traffic (comprising furniture, liquors, glassware, and numerous other articles), conveyed from Melbourne to Wodonga (187 miles) for use in Victoria is charged at the rate of 106s. per ton; if the same traffic crosses the border to Albury (190 miles) the charge is reduced to 63s. 6d., and if it is consigned to any part of this Colony north of Gerojery (20 miles from the border) the rate as far as Albury is only 32s. 6d. per ton.

It will be at once apparent that if, as Mr. Teece's resolution proposes, our competitive rates are abandoned, whilst those of Victoria are retained, that Colony will be enabled to regain not only all she has lost but the whole of the trade of this Colony for a distance of 50 to 60 miles further north—as far indeed as *Cootamundra*, which is 253 miles from Sydney, and 323 from Melbourne—as the respective rates for general traffic would then be 126s. per ton from Sydney, and 108s. from Melbourne. The whole of the Riverina traffic as well as that of the Tumut district would be lost to us. Effect of Mr. Teece's proposal.

Second

Second illustration.—The Victorian rate for wool grown in its own territory, is 7s. 6d. per bale, not exceeding 4 cwt., from Wodonga to Melbourne, but if grown in any part of New South Wales, bounded by the Murrumbidgee on the south, and longitude 144° west, the charges are only 3s. per bale, not exceeding 300 lb., and 3s. 6d. per bale exceeding 300 lb.

It is therefore very certain that the abandonment of our competitive rates, even if it does not prejudicially affect the traffic as far north as Cootamundra, which I have shown to be not only a possible but a probable result, will have the effect of depriving Sydney of the whole of the trade from June southwards and from the south-western district.

The policy we have adopted to secure this trade has had the effect of causing not only an enormous increase of business to the old-established mercantile firms and others of Sydney, but has also resulted in bringing over a number of the largest Melbourne firms to retain the connection which no other course would accomplish. Amongst the firms referred to may be named Goldsbrough & Co. (Limited), Bright Bros. & Co., Cunningham & Co. (Limited), &c., &c.

Although this has been the result, and that the public in the districts referred to have obtained the benefit of very low rates of carriage, it is, nevertheless, to be regretted that such keen competition as I have described should ever have existed. The position, however, was forced upon, not initiated by, the railway authorities of this Colony. And to abandon what we have secured would be uncommercial and suicidal. It may be, however, that Mr. Teece's motion is not intended to affect this competitive traffic, but is confined to asking Parliament to resolve that the rates throughout the lines shall be fixed upon uniform rates per ton per mile according to distance.

To anyone conversant with the principles which govern the conveyance of traffic, either by land or water, it must be apparent that there would be as little reason in such a system as there would be in charging the same rate for the carriage of coal as for silks.

Charges for carriage should, with other consideration, be proportioned to the cost of the service; it costs the Department more per mile for the carriage of goods 100 miles than it does for carrying them 200 miles, and the public who require the goods carried the longer distance should reap the benefit of this decreased cost by being charged a proportionately decreased price. Not only is such a system of charging fair in its incidence, but a contrary practice would most probably drive from Sydney the whole of the trade of the Colony from *Murrumburrah* southwards, because the conveyance of a ton of general merchandise between Sydney and Murrumburrah would cost £6 13s., while from Melbourne, *via* Wodonga, the charge would be £6 0s. 6d., notwithstanding the distance is 120 miles greater. Most certainly such a system would divert from Sydney all traffic from *Cootamundra* southwards since a ton of goods from Sydney to that station would cost £7 7s. 7d., while from Melbourne, a greater distance by 70 miles, the cost would be only £5 10s. 1d.

The introduction of uniform mileage-rates would, as regards the carriage of agricultural produce, have the contrary effect to that which the producers have been contending for, *viz.*, a *pro rata* reduction for distance. This has been granted to them, but they want it to a larger degree. The adoption of Mr. Teece's proposal would increase the rates as follows:—

For a distance of 100 miles, from 9s. 9d. to 10s. 5d. per ton.
" " 200 " 16s. 10d. to 20s. 10d. "
" " 300 " 21s. 10d. to 31s. 3d. "
" " 400 " 26s. 10d. to 41s. 8d. "

and so on. Uniform mileage-rates would be the means of closing all the agricultural country beyond 200 miles from its market, whereas by the adoption of the sliding scale of rates proportioned to distance, agricultural country within 500 miles of its market can be made available for the profitable cultivation of produce.

An exhaustive inquiry, which extended over several months towards the end of 1881, was made into the question of rates on our railway lines by a Board of three gentlemen, entirely unconnected not only with the Railway Department but with the Civil Service; and these gentlemen, in submitting their report to the Minister of the day (and here it may be stated that at that time the competitive rates were in existence), the Board stated that they had commenced the inquiry "fully impressed with the importance of the subject, and the influence the policy of the Railway Department, in regard to the rates charged for the conveyance of goods, has upon the progress and development of the Colony."

The Board examined seventy-seven (77) witnesses, "who were fairly representative of the various interests in the Colony," and obtained the written evidence of four gentlemen, who were unable to attend personally; and perhaps I cannot do better than quote from the report of the Board the conclusions they arrived at. They said—

"The rates relating to the pastoral interests have not drawn forth much criticism, the principal matters complained of being the difference between the mileage rates for the carriage of stock and wool for long distances in comparison with the rates for short distances. The charges are, however, defended on commercial grounds and on the score of exigency. We do not see that any alteration can judiciously be made so as to equalize the rates, and we believe the effect of such an alteration would be, in the first place, to divert to other Colonies a considerable portion of the traffic that now comes to our metropolis; and, secondly, to cause much of the cattle now sent by railway to be travelled by road.

"The principal complaints tendered on behalf of the commercial interests are made by the country storekeepers, who state that their trade is practically limited to their own particular district by the differential rates, to remedy which an equal and uniform mileage rate is proposed. We have considered the feasibility of the adoption of a uniform rate, but cannot recommend it. It is against the practice, we believe of any railway company in the world; it is against the common practice of carriers, who will convey goods for a long distance at a cheaper proportionate rate than they will for a short distance; and in this Colony the concession would simply benefit the storekeepers, who must obtain their goods from the terminal station; and the uniform rate, while an advantage to them, would be a disadvantage to the people in the interior, who require the greatest consideration.

"Taken as a whole, the opinions of the various witnesses we have examined are very diverse, and evidently based upon mere local experience derived from the business in which each is most interested—in many cases diametrically opposed to each other—and in no instance offering any comprehensive or practical suggestions for the revision on the rate-sheet, but admitting generally that the present rates are fair and equitable.

"Taking

Result of measure to secure trade.

Wider scope of Mr. Teece's motion.

Considerations which govern the fixing of rates.

Effect of uniform mileage-rates on agricultural produce.

Inquiry made by Rates Board in 1881.

Conclusions arrived at by Board.

"Taking the evidence tendered to the Board, together with the Commissioner's able and exhaustive comments and explanations thereon, we are constrained to accept his assurance that the officers of the Railway Department have studied the question of the freight of charges from every point of view, with the object of affording to all interests concerned fair and equitable rates, and to agree with him that it is not desirable that any hard and fast rule from which departure is inadmissible should be laid down, because changes must be made from time to time to meet the variable conditions of trade, as well as the traffic, and the effect upon the traffic, brought about by the rates charged."

While these conclusions have been arrived at by our own authorities after careful investigation, it may be as well to know what authorities in other parts of the world have to say on the subject.

Opinions of other authorities.

Mr. Farrar, Secretary to the Board of Trade in England, says, with reference to the rates question:—

"As to equal mileage rates, they would put an end to competition. The result would probably be 'levelling up' and not 'levelling down.' Parliament would never consent to take the lowest profit which a company now makes by its cheapest traffic as a standard, and fix maximum rates accordingly for all their traffic. The endeavour would be to fix a medium or average rate, and in the struggle over this, the companies must inevitably have the advantage of the public. But, supposing such a standard fixed, what would be the result? The traffic, which was now carried at a low rate, in competition with a sea route, would be driven from the railway to the competing route; while the railway, if it was to make as much aggregate profit as before, must charge a higher rate than is now charged on the traffic which remained to it. If, for instance, Parliament were to take from the South-Eastern Railway Company the power of charging on fruit and hops from Boulogne the low rate they now charged, the result would be that French fruit and hops would reach London by water, and that the Railway Company, to recoup themselves for the loss of the French traffic, would probably charge more on Kent fruit and hops. This charge the Kent fruit and hops would be able to bear, because the price would be raised in the London market. It was probable, therefore, that *most of the inequalities of charges complained of were to the advantage rather than the disadvantage of the public.*"

Applying to our circumstances the principle underlying these remarks, we should find as I have endeavoured to show, that the adoption of an uniform mileage rate for all distances would offer no advantage to the distant producer to send his produce to market; and that for those goods which must under any circumstances go into the interior for the requirements of the people there, water-carriage by rivers, wherever available, and the competing rates of the neighbouring colonies, would reduce our traffic to a minimum. To compensate for this it would be necessary to charge very much higher rates than are at the present time charged for the carriage of goods for short distances, or to places from whence the traffic could not be diverted by competitive routes.

Effect of loss of traffic on distant parts of line.

Writing on the same subject, in reply to a communication which I addressed to him, Mr. Swarbrick, the General Manager of the Great Eastern Railway in England, says:—

Mr. Swarbrick's opinion.

"You cannot, in my opinion, lay down any very hard and fast line for fixing rates. As a general rule, our home experience is that it is better to foster large quantities and longer distances by means of relatively lower rates, than to try by means of smaller quantities and shorter runs to secure a higher percentage of profit over a smaller area. We also, where there is an exceptionally large industry, or where necessary to foster any export or import trade, make special rates to meet the case, and thus our rate-books are full of anomalies and apparent contradictions to the benefit, as we think, both of ourselves and customers."

And as the result of an inquiry held in England some years ago, by a Select Committee appointed by the House of Commons, on the question, the Committee reported that:—

Conclusions arrived at by Committee of House of Commons

"There is no question as to the existence of these 'preferential' or 'exceptional' special rates, the latter epithet being the term used by representatives of the railway. The evidence given under this head comes almost entirely either from persons engaged in production, who are being charged proportionately higher rates than producers resident in other parts of the country, or from towns or places through which traffic passes, who, as engaged in the business of carrying or distribution, complain that it is diverted from them by the lower rates charged on other routes. But for the competition introduced by the low rates given by railway companies, trade would be much more local, and the trader who was nearest the market would probably make a large profit; but, on the other hand, this competition cannot but be advantageous to the public; that Greenock sugar refiners should be in the same market as the sugar refiners of London, while it may be a grievance to London refiners, must be an advantage to Greenock refiners, and cannot be a disadvantage to buyers of sugar. It may be worth while to follow this as a typical case:—Thirty-nine towns in England to which sugar is sent are at an average distance of 292 miles from Greenock, and the same towns are at an average distance from London of only 150 miles. The rates for these distances, from London and Greenock respectively, are about the same * * *. In other words, sugar from Greenock is for the same sum carried double the distance as sugar from London. This enables Greenock to compete at these thirty-nine towns, and this is what the refiners of London object to. The demand from London, therefore, is that either the rates for the longer distance should be raised, or those for the shorter distance reduced. The effect of compliance with this demand would be to close some of these markets against Greenock sugar, to deprive the northern lines of a considerable portion of their trade, handing it over to the southern lines, and to give a practical monopoly to the London refiners of sugar, who would be real gainers by the transaction. It does not appear to your Committee that such a result would be either just or reasonable.

"Although 'equal mileage' rates, that is to say, rates proportioned exactly to the number of miles run, have not been advocated on this occasion as before former Committees; still, ideas have been put forward so closely resembling such as would naturally support the mileage system, that it may be worth while to recall the words of the Committee of 1872:—

"(a) It would prevent railway companies from lowering their fares and rates so as to compete with traffic by sea, by canal, or by a shorter or otherwise cheaper railway, and would thus deprive the public of the benefit of competition, and the company of a legitimate source of profit.

"(b) It would prevent railway companies from making perfectly fair arrangements for carrying at a lower rate than usual, goods bought in large and constant quantities, or for carrying for long distances at a lower rate than for short distances.

"In

In short, to impose equal mileage on the companies would be to deprive the public of much of the competition which now exists, or has existed, to raise the charges on the public in many cases where the companies now find it to their interest to lower them, and to perpetuate monopolies in carriage, trade, and manufacture, in favour of those rates or places which are nearest or least expensive, where the varying charges of the companies now create competition. And it will be found that the supporters of equal mileage when pressed often really mean, not that the rates they pay themselves are too high, but that the rates that others pay are too low.

"Pressed by the difficulties, the proposers of equal mileage have admitted that there must be numerous exceptions, *e.g.*, where there is sea competition (*i.e.*, at about three-fifths of the Railway Stations of the United Kingdom), *where low rates for long distances will bring a profit*; or where the article now carried at low rates is a necessary, such as coal. It is scarcely necessary to observe that such exceptions as these, whilst inadequate to meet all the various cases, destroy the value of equal mileage as a principle, or the possibility of applying it as a general rule.

"Any fixed standard of rates would materially interfere with competition; supposing such a standard fixed, the result would be that the traffic which is now carried at a low rate in competition with a sea route would be driven from the Railway to the competing sea route, whilst the Railway, if it is to make, as much aggregate profit as before, must charge a higher rate than it now charges on the traffic which remains to it.

"It may therefore be assumed that some of the inequalities of charges complained of are to the advantage, rather than to the disadvantage of the public. A preference to be illegal, and to furnish a reasonable cause for complaint, must be unjust. It is not unjust so long as it is the result of fair competition, and so long as equal rates are given for like services under like circumstances, and for like quantities of merchandise."

It is gratifying to find that the principle upon which the railway rate-sheets of this Colony have been compiled are supported by such unimpeachable authorities as I have quoted; but as railway management is a progressive science, it may be as well to know what the authorities say to the latest date.

The following extracts are taken from a book written in the end of last year (it is in fact, dated December, 1886), by Mr. Grierson, the eminent General Manager of the Great Western Railway in England, on "Railway Rates, English and Foreign." He says:—

Page 21. While shrinking from advocating equal mileage rates, many persons take up an intermediate position. They object to rates being much out of proportion to distance; they do so, although the traffic may not be carried over the same parts or sections of a railway. The rates to which objection is taken are of several kinds—transit or through rates, special rates generally, special rates for long distances as distinguished from short distances or intermediate traffic.

Such differential rates exist in all countries in which railways have been developed; and it will be found that here as elsewhere they have been adopted not solely or even chiefly with a view to benefit railway companies, but mainly to meet the not unreasonable demands of traders and consumers.

23. Special lower rates enable the manufacturers of exported goods, such as manufactured cottons from Manchester, and hardware from Birmingham, to send them to London, and to avail themselves of lines of steamers sailing from several ports. But for such facilities exporters would be confined to one, and that the nearest port, and they would lose the benefit of the competition in facilities and sea freights.

The railway company which happened to own the route to the nearest port would possess a monopoly of the traffic, and might charge their full rates instead of the present reduced rates.

31. Many apparent anomalies arise from competition of the railways with the sea; others are the results of comparison of the rates charged by railway companies, which must carry, if they are to carry the traffic at all, at the same rates as a company having a shorter route. Inasmuch as competition between railway companies is carried on extensively, many such disparities exist.

Tin plates are carried from South Wales *via* Stockport for Liverpool at lower rates than to Manchester, because the Midland Railway Company has to compete with two shorter routes between these places. This (apparent) anomaly would be entirely removed by the Midland Company ceasing to compete for the Liverpool traffic; but the consumers of tin plates in Manchester would not in any respect be benefited by the change.

32. One more illustration: Steamboats ply between Liverpool and Bristol. Goods carried by railway between these two places by one or other of the three available routes must pass through some one of the following places—Birmingham, Worcester, Hereford, Shrewsbury, Chester, or Warrington.

The local rates to all these intermediate towns may appear disproportionate to those charged between the extreme points, but is there any real injustice done?

What injustice is done to those whose goods are carried to and from intermediate inland places by the fact that their rates are higher, or higher in proportion, than the competitive rates, provided the rates to intermediate places are in themselves fair and within the Company's legal maximum?

33. A third source of complaint of disproportionate rates arises from the competition between ports. Assume, for instance, port A to be 51 miles, port B 72 miles, and port C a greater distance from D, one of the great seats of manufacture and commerce.

The merchants and shipowners at C and B desire to compete with A, and they induce the Railway Company to carry from all three at the same rates.

The result is that the rates are lower for the throughout distance than to and from some of the intermediate places. The grounds of grievance would be removed by the Railway Company ceasing to carry from C and B at the same rates as from A.

34. The chief explanations of differential rates have been mentioned; another cause less important is in operation.

Of the various kinds of outlay on the part of a Railway Company, a large portion remains fixed, whether the distance run by a train is 10 miles or 100. Such, for example, are the cost of terminal accommodation, loading and unloading, clerical work, and, broadly speaking, such are the interest on construction cost, maintenance, &c. Another kind of expenditure increases directly with the mileage run; for example, the provision and wear and tear of locomotives, rolling-stock, and permanent way, and liability for loss of or damage to goods in transit.

Certain kinds of expenditure increase with the distance run, but not in the same ratio.

34, 35. Obviously, wages, cost of locomotive power, and cost of haulage generally, are not four times as much in the case of a train which has run a hundred miles as in one which has run twenty-five. With the progress of railways, with improved economy in the use of machinery, and in other ways, this tendency—recognized to some extent by the Legislature in the rates for short-distance traffic—in expenditure not to increase in the same ratio as mileage distance, becomes an important element. The result of all this is to make mileage less a criterion of cost, and tends to place large towns at a greater distance at an advantage as compared with intermediate towns, and to give rise to differential rates. It is also obvious that from many intermediate towns the quantities forwarded are not so large and regular as from terminal towns, and that from the former there is not a constant traffic to and fro.

Differential rates have arisen in no small degree out of the same causes as have necessitated a classification of goods. Goods of small intrinsic value will not be conveyed at all unless at low rates; only on special terms can such goods produced at a great distance be brought to market.

36. Sometimes it is urged as an objection to differential rates that by reason of them companies sustain, on long-distance traffic, a loss which is made up by charges on short-distance traffic; but though producing, no doubt, a lower percentage of profits than the latter, the former *yields some* profit, unless where undue competition exists. If a company be deprived of this long-distance traffic will it not be forced to raise rates on other traffic to maintain its revenue?

But,

Rates charges made in New South Wales upheld by authorities.

Mr. Grierson's opinions, latest published authority on subject of equal mileage rates.

But, it is also objected, differential rates deprive the inhabitants of certain towns of the natural advantages of their geographical position.

This argument would be more persuasive than it is if it were not generally expressed in the very language of protectionists—if it were not so often a claim of an exclusive right to supply certain markets, and a scarcely concealed dislike to the intrusion of competition.

Preserving the natural advantages of one town means preventing the removal of the natural disadvantages of others.

I could quote from other railway authorities to the same effect, but while it would lengthen it would not materially strengthen the case.

Summary showing effect of proposal.

To put the matter very briefly, the points to be considered are :—

- “1st. That the abolition of competitive rates would mean the diversion from Sydney to Melbourne of the trade of that part of the Colony from Junee southwards, and the whole of the trade of Riverina, which is now conveyed on the South-western line ; and
- “2nd. That the adoption of uniform rates per ton per mile will either involve the loss of an enormous amount of revenue on the short-journey traffic if the ‘levelling down’ process is adopted—that is to say, taking the longest-journey rates as a basis, and fixing all those for shorter distances in proportion, or otherwise divert to Melbourne the whole of the trade of the Colony from Cootamundra southwards.”

I may perhaps be pardoned for saying that, after the success that has attended the efforts of the Department to secure, against keen competition, the trade of our Colony, any action that may be taken to alienate it will be greatly to be deplored, not only in the interests of the Railway Department and its revenue, but of the Colony generally, the commerce of which will be, in a material degree, prejudicially affected.

Alternative Proposal by the Commissioner.

From inquiries I have made on the subject I am led to believe that the agitation for equal mileage rates derives its existence from the representations of country storekeepers that their trade under present system of charging is practically limited to their own particular districts.

Agitation for equal mileage rates promoted by country storekeepers.

They contend that they should be allowed to break journey with their goods, and be charged no more than the through rate, beyond a small terminal charge for unloading and loading at the intermediate stations. A trader at Goulburn, for instance, pays £3 16s. 5d. per ton for goods from Sydney for that place, but he wishes, subsequently, to send a portion of them to Cootamundra, and the charge from Goulburn to Cootamundra is £3 8s. 7d., in all £7 5s.

The storekeeper, however, at Cootamundra can obtain goods from Sydney direct, on the reduced sliding scale for distance, for £6 6s. 9d., and practically the Goulburn storekeeper is shut out from trading with Cootamundra and the district surrounding it.

The Traffic Manager, in a report on the proposal to grant this concession, has given some excellent reasons against it—a copy of his report is appended ; but on the whole I fail to see that the objections are insuperable. The Traffic Manager is in error as regards the statement that the Rates Board dealt with this aspect of the case. I think I am right in saying that this particular phase of it was not before them, the Board deprecated the introduction of equal mileage rates in the interests of local storekeepers to the disadvantage of settlers in the more distant part of the Colony, but the proposal to overcome the admitted disability of country storekeepers trading beyond their immediate district with goods brought from Sydney by the introduction of a “break-journey” rate was not discussed by the Board beyond its application to wheat stopped *in transitu* to be ground into flour, and this principle of charging they found to be in active operation, and approved of it.

Traffic Manager's report reviewed.

There are, it is admitted, difficulties and perils in the way of the application to goods generally of this principle of charging, especially in cases where there are manufactories at the intermediate towns ; but if there be no abuse of the concession I do not see how the Railway revenue can suffer. Country storekeepers are not now supplying such goods to districts beyond their immediate neighbourhood ; they are supplied direct by metropolitan tradesmen and merchandisers ; the adoption of the proposal will have the effect of disseminating trade, and as regards the more distant storekeepers, decentralizing it. The revenue (if there be no malpractices) would obtain a benefit, inasmuch as the terminal charges for break of journey can be made sufficiently high to show, not only a return for the service rendered, but a profit upon it.

Break-of-journey rate.

It is only the comparative absence of local manufactories which makes the introduction of this system of charging possible ; it has no parallel in any other country, and I would not willingly introduce it here, I only submit it for consideration because I fear that, unless this concession be made to country storekeepers, they will have sufficient influence to induce Parliament to sanction the scheme of equal mileage rates, which will result disastrously, not alone to the Railway revenue, but to the general commerce of the Colony.

Alternative proposal recommended and why.

12 May, 1887.

CHAS. A. GOODCHAP,

Commissioner for Railways.

Report of Traffic Manager to Commissioner for Railways on proposal to introduce a rate for goods which break journey at intermediate towns.

I HAVE carefully considered the proposal to give traders, at intermediate towns, the benefit of the reduced rates to the competitive districts proportionate to the distance they are situated from those districts, and would respectfully point out that a powerful argument against the introduction of the principle is that, if adopted in the case of traffic forwarded from Goulburn or other station on the Southern line to the competitive districts, it is all but a certainty that a similar demand will be made throughout the lines even where no competition exists ; indeed the Commissioner will remember that this very matter was pressed upon the Board, which inquired into the rates some years ago, by some storekeepers in Orange who thought they should be able to reconsign goods (which had originally come from Sydney) to Dubbo at a through rate, plus a small charge for the break of the journey at Orange.

The effect of the adoption of such a principle would mean that the nearer a storekeeper lives to Sydney the better his position to compete for the trade of the districts lying near to a town many miles further into the interior.

For example, let it be assumed for the moment that competitive rates do not exist, but that ordinary mileage rates are charged throughout the lines. A storekeeper in a large business in Goulburn pays trainage from Sydney at the rate of £3 16s. 5d. per ton upon third-class goods, while the through rate to Bomen is £7 4s. 7d. His contention is that we should allow him to reconsign goods (originally received from Sydney) to a small store at Bomen at the latter rate, plus (we shall say) 7s. 6d. per ton, = £7 12s. 1d. altogether. But if the Wagga Wagga storekeeper, under precisely the same conditions, desires to supply the same small store at Bomen, he must pay:—

From Sydney to Wagga Wagga	... ..	£7 6 4 per ton, and
„ Wagga Wagga to Bomen	... ..	0 9 0 „
Total	... ..	£7 15 4 per ton.

So that, in the matter of railway carriage, he is beaten at his own door by a competitor living 170 miles away.

I would respectfully submit that the competitive rates do not affect the principle; moreover, these rates were forced upon us. We did not adopt them from choice, and it would seem judicious that they should not extend beyond the limits suggested by the Commissioner.*

There is another aspect of the case which has, perhaps, been overlooked, and that is that the adoption of the suggestion will necessitate a very largely increased staff at country stations, if adopted generally; and there is a further fear that it would open the door to frauds, the opportunity of which, in the light of past experience, should be avoided.

Take the case of a storekeeper at Orange, who, for every ton of leather he gets from Sydney, gets ten in the district. He sends a ton to Dubbo, and asserts that it came from Sydney and should be charged the through rate, plus the small charge alluded to. Who is to say that this particular ton of leather did not originally go from Sydney, and yet there may be strong presumptive evidence that it did not? The door would certainly be open to a dishonest clerk to defraud the Department by acting in collusion with the sender without much, if any, chance of ever being found out.

It is solicitude for the welfare of the Department which induces me to make these observations. I believe the introduction of this system of charging, while it might please storekeepers who live nearest to Sydney, it would give dissatisfaction to those living far in the interior, and, in my opinion, the latter deserve the most consideration.

W.V.R.,
4/5/87.

No. 5.

Extract.

From *S. M. Herald*, September 27, 1887.

DIFFERENTIAL RAILWAY RATES.

THE four eastern colonies of Australia have long been looking forward to the time when railway extension, in spite of all breaks of gauge, should draw them together in common interests and friendly neighbourhood. But now that the last link is almost completed, at the Queensland border, instead of the first notes of harmonious jubilation, we hear ominous threatenings of railway war, of fresh barriers to be built over the metals, of sharp practices in the matter of traffic rates, and of determined reprisals. Instead of the universal handshaking expected amongst the railway authorities, we find Mr. Speight, the Victorian Chief Commissioner, rushing over to Adelaide, not to congratulate Mr. Pendleton on the opening of a highway of intercolonial friendship, but to warn him, at the peril of his Colony's railway capital, not to attempt any poaching on Victorian trade; whilst the Queensland Minister for Works takes up the strain in the North against New South Wales, and threatens to lay such an impost on everything, whether living or dead, that dares to cross the border, that there shall be no dealings between the Southern Jews and the Northern Samaritans—threatens, in fact, to cut off Queensland's nose to spite the older Colony's face. Handshaking, indeed there is plenty, but the railway authorities, who are, of course, to the front in this matter, are shaking their own hands in their neighbours' faces.

If the spirit of provincialism underlying this steadily thickening railway war were not so pitiable, and the tricks resorted to so paltry, there would be a good deal of amusement in it to the lookers on. Of course it goes without saying that the lion's share of the blame for this state of things is rightly charged to the colony who struck the first blow; and it is equally superfluous to say that the arch-enemy is none other than our clever—too clever—neighbour to the south. The boundary between this Colony and Victoria was amicably, though perhaps not over scientifically, fixed in 1851, when the younger colony began to do for herself. It was not long, however, before Victoria began, whether out of benevolence or covetousness, to desire to do for a part of New South Wales as well. Probably both motives were discriminatingly mingled, and so she coquetted with Riverina partly because she thought it would do Riverina good, but chiefly because she was sure it would benefit herself. With these benevolent and politic objects in view, Victoria pushed on her railway system to tap the rich border land at no fewer than six points—Echuca, Wodonga, Wahgunyah, Rutherglen, Chiltern, and Kerang. Nor did she fail in her reward. Riverina, finding the Sydney market not only twice as far off, but immeasurably more difficult to reach than the port of Melbourne, fell in largely with the Victorian wishes, despite the counter-hampering of protectionist duties. But, meanwhile, New South Wales was not unmindful of her own. In her slower, but surer, methods she pushed her railways on till at length, some seven or eight years ago, she began to draw the trade of Riverina to Sydney. Then Melbourne became alarmed. This turning of the tables would never do. If Riverina trade, which she had spent so much to secure, slipped away, a great deal more would go with it—prestige for the colony and her opportunist policy, and, possibly, some of the Melbourne firms that had fattened on trade from New South Wales. It was then that Victoria resorted to what has become so notorious as the differential rate system, but which ought more correctly to be called a “competitive” system. Victoria, in

*The suggestion first made by the Commissioner was that traders at intermediate towns should be allowed to have the benefit of the competitive rates that Sydney traders were allowed.

in effect, determined to extend special favours to Riverina in the shape of heavy rebates on over-border traffic; and thus was exhibited the altogether novel spectacle of a colony loving its neighbour, or rather, a part of its neighbour, better than itself. The weak point about it was that one colony should so openly throw down the gage for a contest which could only end in humiliation, to prevent a neighbouring colony trading with its own territory. Competition was thus forced upon the Railway Department of New South Wales, and, as a measure of purest self-defence, special rates on our lines were conceded within the Riverina districts. The counter-move was so successful that in 1882 Victoria made still further concessions, which she has maintained ever since. For a time the trade again inclined to the Southern port, but our Railway Department, by a very simple arrangement of truck-rates, offered a lower rate per ton, without losing revenue, since the fuller loads secured compensated for the reduction. Victoria had already gone as far as she could without loss, and the outcome of the contest is that the Riverina trade has largely come to Sydney; and not only so, but a number of Victorian firms have followed it, and established branches of their business in this city.

But the extension of our railway system through our south and south-western districts brought us into contact with much of our own trade, and a fair share of Queensland trade, that had previously gone down the Darling and Murray; and we thus came somewhat innocently into collision with some of the interests of some of our other neighbours. Queensland has discovered that not only do her south-western squatters send us a good deal of wool, but that contrary to all the ethics of protectionism, they take back with them flour and other supplies, thus conferring a double benefit on our colony, partly to the loss of Charleville and Brisbane, and partly to that of South Australia; and the Brisbane merchants are very angry. But it must be admitted that Adelaide has taken the matter more philosophically; and the secret of it is that nature is largely on the side of the south-western colony. Taking a leaf out of Victoria's book, she, too has her special rates for border and over-border traffic. Not only has she a line skirting the Victorian border for a considerable distance, on which she is inclined to manifest her neighbourliness by a system of liberal rebates; but she hold out similar inducements to our Darling River trade. It is difficult to believe, indeed, that Adelaide has not indulged in many a laugh in her sleeve at the unexampled liberality of our Government over our costly railway to Bourke. Before we carried out that bountiful piece of kindness to the Darling squatters, most of the wool went down the river to South Australian ports whenever the seasons permitted, whilst in the dry seasons it had to be carried at double or treble cost overland to meet our railways, or to the Victorian border. In response to the urgent appeals of these squatters, we constructed the railway at immense cost. But, instead of getting all the trade, and a great deal of gratitude, we only get the dry season trade; for, when the river is high enough, water carriage is cheaper than even our very low rates, and the Darling squatters take a two-fold benefit at the country's cost. They are able to get their land carriage for a mere fraction of what it used to cost, and to beat the old water-carriage rates lower still by pointing to our railway competition. Surely, the most pronounced opponent of differential rates would hold it fair for the Railway Department to say to these grateful squatters: Since we have provided you with a railway at your urgent request, you must either use it regularly, or pay higher for the privilege of intermittent use.

The tide seems, however, to be turning against differential rates, and the most striking feature of the reaction is that Mr. Speight should to a certain extent champion the counter-movement. It would be a mistake to count much on this hopeful sign. It is not so much against the principle of intercolonial competition that Mr. Speight has begun to protest, as against the particular application of it as between South Australia and Victoria. He is firm and emphatic enough in his warnings to Mr. Pendleton against any poaching on Victorian trade, but there is nothing on record to show any objection on his part to the expedients of his own Railway Department to secure advantages over New South Wales. This is how the Melbourne *Argus* thinks it necessary to help him over the stile:—"We are glad to see Mr. Speight does not favour a railway war. His appeal or remonstrance is a request to the Adelaide Government to charge the ordinary prices, coupled with a promise, as we understand, that Victoria will in that case charge ordinary rates also. If the trade then shows a tendency to flow to Adelaide or Kingston it should be left to flow there. . . . Mr. Speight is not answerable for the ridiculous state of things in connection with Riverina, by virtue of which the further the goods are carried the less the Department gets, so that where a Victorian customer pay £1 the more remote customer in New South Wales pays only 10s. The Commissioner inherited this system, and he has no choice but continue it." This apology for Mr. Speight reads well up to the last clause. Wherein lies any necessity for continuing the war with New South Wales, any more than for commencing it with South Australia does not exactly appear. At all events, if necessity there be, it rests with the Victorian Government. This Colony has only acted reluctantly in self-defence, and would no doubt gladly meet any penitent overtures from the colony which opened the contest.

It is time now to look a little more closely into the real bearing of this railway competition by which both the friendly relationships and commercial interests of the four colonies are so directly affected. In one aspect of it this is essentially an intercolonial question; but, as we shall see, this is by no means the whole of the matter. If an amicable settlement were arrived at by all the colonies concerned, differences would still remain as between places within colonial boundaries and classes and quantities of goods. As a matter of fact, it is against these subtler forms of differentiation that agitation has already commenced in this Colony, and may be expected to cause more or less discussion in Parliament.

Early in March last, an influential meeting at Goulburn resolved that the system of differential rates was "unequal, unjust, and detrimental to the interests of Goulburn and surrounding districts." This led to the tabling of the following notice of motion by Mr. Teece, the member for Goulburn:—"That in the opinion of this House the differential rates charged for the carriage of goods and merchandise on the railway lines of this Colony should be abolished." Still more recently the business men of Maitland were startled by revelations as to injuries said to be inflicted upon them by this system, and they resolved to follow the Goulburn example. Considering how sensational were the figures submitted at these two meetings, it is easy to understand a momentary shock to the people of those terribly victimised districts. But second thoughts should at least have brought some relief. The very outrageousness of their alleged sufferings ought to have suggested a doubt as to whether the officers of the Railway Department, with their special knowledge of their duties, and the absolute impartiality of their position, would have been likely either knowingly to tolerate such injustice, or unwittingly to blunder and have to wait for some new light to come forward with a revelation.

The

The position taken by the Railway Department is that as far as the intercolonial competitions, and the measure of differentiation within this Colony resulting from these competitions, are concerned, this Colony has only acted in self-defence. And that as regards the deeper question of a certain degree of differentiation within the Colony, apart altogether from such competitions, the thing is inevitable, and must exist wherever carrying has to be done.

As to the defensive attitude of this Colony, the goods rate-sheet of the Victorian Railway Department is a sufficient witness. As already mentioned, the manipulation of traffic charges began some seven or eight years ago, when our railways first reached the Riverina District, and after a number of modifications, the rate-sheet assumed its present form. A glance suffices to show the deliberate and determined stand made to hold the trade of Riverina. After all ordinary Victoria traffic has been scheduled, there appear two special headings—"Rebate on Goods for Riverina," and "Albury Rates." Under the first there is a list of rebates, ranging up to £3 16s. per ton on goods carried to any of the Victorian border stations for further conveyance to New South Wales territory. Under the second there is a still further refinement of benevolence. The rebates before mentioned are to reward the sending of Victorian goods even a foot across the border line; but under these special Albury rates, the further the goods are sent into New South Wales the more cheaply will they be carried to the border. This is a specimen of how the system works: Fourth-class traffic (consisting of furniture, liquors, glassware, and numerous other articles) conveyed from Melbourne to Wodonga (187 miles) for use in Victoria, is charged at the rate of £5 6s. per ton. If the same goods are carried across the border to Albury (190 miles), the charge is reduced to £3 3s. 6d. per ton; and if they are consigned to any part of this Colony north of Gerogery (20 miles from the border), the rate from Melbourne to Albury is only £1 12s. 6. per ton. It is clear from this illustration, that if Mr. Teece's resolution had been carried out, and acted upon by our Railway Department, in the absence of any similar action in Victoria, the southern colony would be able to carry her competition for our trade at least one-third of the way from the border to Sydney. Riverina wool is, of course, the most important item in this unneighbourly competition, and the absolute necessity of defensive measures by our Railway Department may be seen from the following figures:—The Victorian rate for wool grown in its own territory is 7s. 6. per bale not exceeding 4 cwt., from Wodonga to Melbourne; but for wool grown in any part of New South Wales, bounded by the Murrumbidgee on the south, and long. 144° on the west, the charges are only 3s. per bale not exceeding 300 lb., and 3s. 6d. per bale over that weight. These rates, in the absence of the counter-acting measures taken by our own Railway Department, would simply deprive us of the whole trade of our wool from Junee southwards, and from the south-western districts. It is little wonder, therefore, we find our railway authorities contending that, in the absence of simultaneous action on the part of Victoria, for us to abolish competitive rates, and thus give up this important part of our own legitimate trade, would be "uncommercial and suicidal." Now that Victoria is confronted with a further development of her own policy by South Australia, possibly she may be disposed to face the logical issues, and make a virtue of swiftly-coming necessity. Her very limits of area would ensure her the advantage still. Her port would be the nearest one for a large share of this Colony's trade, and she has therefore the least reason of all the colonies to fight against natural channels of commerce. When she comes to see this she will no doubt repudiate her provincial and opportunist policy, for it is doubly pleasant to pose as peacemaker, and retain an advantage. It will certainly be the duty of the other three colonies to bury past strifes when that time comes, and agree to fix the rates for competitive districts on the same scale as for other districts equally distant from their terminal ports.

When the intercolonial and purely competitive aspects of the question of differential rates are thus dealt with, the greatest anomalies will, of course, be removed. But our Railway Department takes somewhat strong ground, and argues that so long as the most distant traffic is not carried on at a loss it is to the interest of the carrier to make the basis of his trade as large as possible, and that whilst the addition of the distant and barely paying trade is in no sense an injury to the nearer and better paying districts, its loss would tend to raise the rates over the narrower range of traffic. Furthermore, they argue that, apart altogether from intercolonial competitions, the principle of differentiation must be maintained. However much it may scandalize Mr. Teece, Mr. Haynes, and the heavily-wronged people of Goulburn and Maitland, who categorically demand the abolition of differential rates, there is no doubt but that the position thus taken is amply borne out by railway experiences in all other countries, and in fact by carriers of all sorts all over the world. A great number of considerations have to be weighed by the carrier, and all tend to differentiate the charges. In connection with our railways, a large part of the various items of cost remains fixed, whether the distance is 20 miles or 200. Terminal accommodation, loading and unloading, clerical work, and in fact nearly all the expenses of management came under this head; and therefore, as a necessity of justice, the principle of uniform mileage breaks down at the very first test. In the next place, a carrier has to choose between stopping his traffic at a circumscribed distance, or lowering his mileage the further he goes. Above a certain rate it simply would not pay the producer to have his goods carried at all; and since it is better to carry at diminished profits than not at all, every carrier charges less mileage as the miles increase. Further differentiation comes in on grounds of quantities and of values. The carrier would be thought to be going mad who would charge as high a rate for bringing the output of a Lithgow coal-mine to Sydney as for sending a few bags of coal from Sydney to sundry consumers even as near as Parramatta; he would be considered hopelessly mad if he charged no more for a parcel of silks than for a bag of potatoes to a Goulburn or Maitland business man. Differences, discrepancies, and apparent absurdities even, may therefore be looked for in our railway rate-sheets; and to deny the Department the power to put and keep them there would be to deny it the indispensable discretion of the most ordinary carrier.

But our Railway Department is more than a mere commercial carrier. It is charged, as an impartial steward, with the administration of a great public service in the interests of the whole Colony. The differentiation introduced by an ordinary carrier may with all propriety be extended still further in such a service. As a matter of fact, it is the deliberate and frequently endorsed purpose of the people as a whole that this should be done. The authorization of every section of railway extension in new country means that, for the sake of the general expansion of the country's settlement and business, capital will be sunk without expectation of immediate returns. The very idea of uniform mileage, or in fact any rigid system of rating, would simply stultify the fundamental principles of the service. On the other hand there would be just cause for complaint if different rates were charged to different persons for the carriage of the same class of goods conveyed under similar conditions. But it is a fixed rule of our Railway Department to charge all persons alike where the conditions are similar. The

The principle of differential rates is not, however, so new or so easy to deal with as a resolution like that tabled by the Member for Goulburn might lead many people to suppose. It has been the subject of investigation by two Select Committees of the House of Commons within the last fifteen years. The Committee of 1872 reported that uniform mileage would "deprive the public of the benefit of competition," would "raise prices," and "prevent concession to large customers." The latter investigation, some years ago, resulted in an expression of opinion that differential rates tended to "delocalize trade, and benefit the public by the consequent competition"; and that the equalizing of rates would not be either just or reasonable. The position taken by our Railway Department is further strengthened by the greatest traffic experts in England. Mr. Farrar, Secretary of the Board of Trade, holds that "equal mileage rates would level up and not down. A medium rate would have to be selected for fixing, and the companies would get the better of the public. . . . Uniform rates would mean the loss of much traffic, and raising the prices on all the remainder to make the railways pay." Mr. Swarbrick, general manager of the Great Eastern Railway, says: "Our home experience is that it is better to foster larger quantities, and longer distances, large industries, &c. . . . Our rate-books are full of anomalies and apparent contradictions, to the benefit, as we think, of ourselves and our customers." Equally strong is the evidence of Mr. Grierson, general manager of the Great Western Railway, in a book he published last December on "Railway Rates, English and Foreign." He says:—"While shrinking from advocating equal mileage rates, many persons take up an intermediate position. They object to rates being much out of proportion to distance; and they do so although the traffic may not be carried over the same parts or sections of a railway. The rates to which objections are taken are of several kinds—transit or through rates, special rates generally, and special rates for long distances or intermediate traffic. Such differential rates exist in all countries in which railways have been developed, and it will be found that here as elsewhere they have been adopted not solely or even chiefly with a view to benefit railway companies, but mainly to meet the not unreasonable demands of traders and consumers. Differential rates have arisen in no small degree out of the same causes as have necessitated a classification of goods—goods of small value would not be carried at all unless at low rates. Only on special terms can such goods, produced at a great distance, be brought to market." In answer to the argument that this benevolent assistance by the railway to backward towns overrides the natural advantages of other towns, Mr. Grierson remarks that under certain conditions "preserving the natural advantages of one town means preventing the removal of the natural disadvantages of the others."

It may not be generally remembered that in 1881, after the commencement of the competitive struggle with Victoria, an investigation was made, under the auspices of our Railway Department, into the whole question of differential rates by three gentlemen unconnected with the Department, or with the Civil Service in any way. The evidence of eighty witnesses, representing all the interests concerned, was taken. It was found, as might naturally have been expected, that the chief objections came from country storekeepers in the intermediate districts along the railway lines. The conclusions of the board were that the Department had fairly studied the question from every point of view; and that no hard-and-fast rule must prevent changes to meet the variable conditions of trade. It is understood that the case of the business men in the intermediate districts, such as Maitland, Goulburn, &c., has been since considered, to see whether a break-journey rate could not be arranged, with a slight addition on the through rate for stoppage charge. As the rates now stand, a Goulburn storekeeper pays £3 16s. 5d. for a ton of goods from Sydney, and if he wants to send the goods on to Cootamundra he has to pay £3 8s. 7d. additional, or a total sum of £7 5s.; whereas the charge direct from Sydney to Cootamundra would have been only £6 6s. 9d. The only serious difficulty in the way of such a concession is that it would open the door to fraud in manufacturing towns, since there would be strong temptations to send on local manufactures at break-journey rates. The propriety of giving business people in intermediate districts a share in the advantages now limited to Sydney merchants, of trading with those districts over which competitive rates prevail, has also been under the consideration of the Department; and whilst such a concession would be regarded as a substantial benefit by certain of the business men of inland towns, it seems free from any great objection either on the ground of complication of rate-sheets or of liability to abuse.

A careful review of the whole subject shows that the discoveries and surprises with which certain Members of Parliament and country storekeepers have been working up the enthusiasm of reformers are mere items of the complicated subject of the railway goods traffic. That they have each been carefully weighed in relation to the whole subject by the railway officials, and that, whilst certain modifications are likely to be made, the competitive rates can only be abolished as the outcome of an intercolonial compact; and the introduction of uniform rates per ton per mile, which seems a simple and desirable piece of reform to many people, would mean either immense loss on the shorter distance traffic, or the diversion to Melbourne of the whole of our southern and south-western trade.

Resubmit with other letters on the subject. Do not specially report.—A.R., 27/9. Seen.—D.V., 1/10/87. The Commissioner asked to see these papers.—D.C.M.L., 17/10/87.

This article is an adaptation of the official paper (printed) which will be found with these papers.

The paper written by Mr. Haynes to the Hon. the Colonial Secretary, which appears in the *Evening News* of the 15th instant, should be put with these papers. This article on "Differential Railway Rates" answers Mr. Haynes' crudities, and it has the advantage of having preceded Mr. Haynes' paper.

Mr. Haynes' paper is bristling with errors; he has one example which he repeats *da capo da capo*. He tries to give it a new dress with every fresh instance of treatment, but it is the same old argument, viz., that there is an anomaly between the charges to the competitive districts and the charges to the non-competitive districts. In attacking the New South Wales Railways for its practices in this respect, Mr. Haynes is couching a lance—although he does not know it—at the universal railway practice, and he has proposed to put something in lieu of it which would have the effect of paralysing the railway revenue.

I will deal with his proposals, expose his errors and fallacies in another paper, and convince, I trust, all those who are interested that it is better to follow the advice, in this respect, of the railway officials, who have been trained to their duties, rather than that of this new expert (!) who is without railway experience, and has only blundering enthusiasm to guide him. C.H.A.G., 17/10/87.

1900

1888-9.

LEGISLATIVE ASSEMBLY.

NEW SOUTH WALES.

MR. W. M. FEHON, RAILWAY COMMISSIONER.

(CORRESPONDENCE REGARDING CHARGES MADE IN THE LEGISLATIVE ASSEMBLY AGAINST.)

Ordered by the Legislative Assembly to be printed, 8 January, 1889.

Telegram from W. M'Culloch, Esq., to W. M. Fehon, Esq.

Market-street, Melbourne, 8 December, 1888.

CONGRATULATE you on splendid opportunity given of clearing your character from foul lies uttered Parliament yesterday, and justifying Government appointing you. Insist Board making most searching inquiry previous joining me, for my sake as well as yours. The fuller and more searching inquiry the better for you.

W. M'CULLOCH.

For Sir Henry Parkes' information.—W. M. FEHON.

The Principal Under Secretary to W. M. Fehon, Esq.

Sir,

Colonial Secretary's Office, Sydney, 10 December, 1888.

I am directed by the Colonial Secretary to call your attention to the accompanying copy of the official report of the proceedings of the Legislative Assembly on the 7th instant.

You will observe that Mr. Want, the Attorney-General in the late administration, made a statement that he, as law adviser of the Crown at the time, had it in contemplation to prosecute you for being concerned in the railway frauds for which others were prosecuted in 1886, and that he further alleged that you were guilty of gross misconduct as an officer of the Victorian Railway Service in favouring some private carrying firm, presumably for your own advantage. These imputations against you by a person in Mr. Want's public position assume so serious a complexion that only one course is open to the Government, and you are now called upon to offer any explanation and evidence which you may deem necessary in vindication of your character. It is not doubted that you will be able to clear yourself of the aspersions cast upon you, and render any further proceedings unnecessary.

I have, &c.,

CRITCHETT WALKER,

Principal Under Secretary.

W. M. Fehon, Esq., to The Principal Under Secretary.

Sir,

Department of Railways, Sydney, 11 December, 1888.

I have the honor to acknowledge receipt of your letter of yesterday's date, directing my attention to the official report of last Friday's proceedings in the Legislative Assembly, and particularly to the remarks made by Mr. Want, the late Attorney-General, wherein he stated "that when he was Law Adviser of the Crown he had it in contemplation to prosecute me for being concerned in the railway frauds, for which others were prosecuted in 1886, and further, that I had been guilty of gross misconduct as an officer of the Victorian Railway Service in favouring some private carrying firm, presumably for my own advantage."

In reply, I will place before you, for the information of the Colonial Secretary, such facts as will, I trust, prove clearly to the Government, the Assembly, and the country, that the statements made were utterly groundless, and should never have been uttered, except the person making them was in possession of some reliable information, which in this case was impossible, as there does not exist one atom of truth on which to hang the ingeniously arranged statement of the Member for Gundagai.

I will first reply to the charge affecting my position as Traffic Manager of the Victorian Railways.

A statement of a somewhat similar nature was circulated some sixteen years ago, by a man long since dead, and who occupied a position in the Victorian Legislature.

By good fortune I have preserved a letter written by me to the editor of the Melbourne *Argus* in 1872, which I attach hereto, and which is the best evidence I can offer as to the untruthfulness of the charge. It effectually silenced the man who invented the falsehood, and I have never heard a word on the subject since, until my appointment as one of the Railway Commissioners of New South Wales.

As a fact the Government of the day very unwillingly accepted my resignation. I was presented with a handsome service of plate and an address by the citizens of Melbourne. The presentation was made in the Town Hall by the Mayor, and the address is signed by the Mayor and the three Mayors preceding him. I was also the recipient of a handsome testimonial from the staff of the Victorian Railways, and in my thirty years' experience in Melbourne I cannot call to mind a single public officer who left the Service with such flattering marks of official and public esteem.

Mr. Longmore was the political head of the Railways when I resigned. I have not seen him for some years, but I believe his address is Upper Tarwin, Gippsland. Should you communicate with him I am sure he will give Mr. Want's statement a most emphatic denial, as would also the Hon. Wm. Wilson, who resides in Melbourne, and was, I think, twice Minister for Railways during the time I held the office of Traffic Manager.

Any inquiry the Government chose to make can only confirm my statement.

The other charge is one Mr. Want should know something about, but here also he is equally at fault. The history of my connection with Wright, Heaton, & Co. is as follows:—

Shortly after I joined the firm of Wm. McCulloch & Co. we thought it desirable to establish a branch of our business in Sydney, and for which purpose we took a fresh partner, who was to reside in Sydney and conduct the business. It was up-hill work, and resulted in overtures being made which ended in an amalgamation of our Sydney business with that of Wright, Heaton, & Co.; the partners in that firm managing the business without any control from the Melbourne partners.

Wm. McCulloch & Co. was then a limited company, and we did not like holding a share in Wright, Heaton, & Co.'s business, where our liability was unlimited. Consequently they were induced to put their business also into a limited liability company. Twelve thousand shares were issued, of which Wm. McCulloch & Co. (limited) had 4,000. For the purpose of securing a full voting power at half-yearly meetings the 4,000 shares were divided amongst eight shareholders in Wm. McCulloch & Co. (limited), each having 500 placed in his name in trust for the company. I was one of the eight. Messrs. Wright and Heaton were the managing directors, and Wm. McCulloch & Co. took no part directly or indirectly in the management of the business.

I paid occasional visits to Sydney to attend the meetings of the company, to ascertain in general its position, but beyond that I knew nothing of its internal working.

The business was extended to Queensland and the capital was increased, resulting in some more shares being placed in the names of the Melbourne trustees.

In 1882 I gradually sold out my interest in Wm. McCulloch & Co.'s, and in March, 1883, I started on a trip to Europe. Just prior to leaving I sold the last of my shares, and since that date I have not had one penny interest in any carrying business. Whilst in Wright, Heaton, & Co. (limited) I never at any time, held a share in my own right. When dividends were paid it was to Wm. McCulloch & Co. (limited) and calls were also paid by the cheque of that company, although the shares were placed, as a matter of convenience, in individual names.

It was some two years after my return from Europe that Wright, Heaton, & Co. were charged with irregularities in connection with their wool consignments, and to no person was it a greater surprise than to myself, so that by no process of reasoning can I in the slightest degree connect myself with what Mr. Want so intimately associates me.

My statement is capable of proof, and I defy Mr. Want or any other person to prove that I had the slightest knowledge of or that I was directly or indirectly associated with any irregularity.

I can do no more than give a most complete denial to every statement made to my discredit, and should the Government or the Opposition Members of the Assembly be able to prove to the contrary, I will at once return to the Government the Commission with which I have been honored.

I have made considerable sacrifice to accept the office conferred on me, but I should most certainly have declined it had I known that its possession would have entailed my name being dragged before the public, in connection with dishonorable transactions in which I had no part.

I have, &c.,

W. M. FEHON,
Railway Commissioner.

[Enclosure.]

MR. ORR, M.L.A., AND MR. FEHON:
To the Editor of the Argus.

Sir,—I seek the favour of your columns to reply to an attack made on my public and private character in the House of Assembly on Thursday last by Mr. Orr, M.L.A. for the Murray district. The purport of his statement is, that I was connected with the firm of Wm. McCulloch & Co. before I left the Railway department, and that I was in the habit of showing that firm special partiality.

I first heard of such a rumour being circulated after I left the railway, and at once saw the Commissioner on the subject, and asked him to make an appointment with Mr. Orr, allowing me to be present, so that I might ascertain how far he had authorised such a report, and that Mr. Longmore might ascertain its truth or otherwise.

Whilst we were talking, Mr. Orr happened to call about other business, and after transacting same was leaving the office, when I told him I wished to have a few words with him, in Mr. Longmore's presence relative to a false rumour which had been circulated about myself, and of which I believed he was the author. I repeated the substance of the statement, when he replied that he had not spread the report as a fact, but had remarked that he thought such might be the case. Feeling indignant at his reply, I told him that he had concocted and spread the report knowing it to be untrue. Finding that he was cornered up, he said if he had made any statement which was not true he was sorry for it. I then accepted his apology; we shook hands, and I considered the matter ended.

After he left the office Mr. Longmore remarked to Mr. Fyfe, of the Railway department, who was present through the interview, that Mr. Orr had lowered himself very much in his estimation.

I thought that Mr. Orr, seeing he had done me a gross injustice, would at least have refrained from making any further remarks on the subject; but, on the contrary, I was informed a short time afterwards, when on his election tour, he remarked in conversation with a friend of mine, "That he had a great dislike to me, and that if he got in the House he did not care so much for the £300 per annum as for the opportunity it would give him of slating me." This threat he has taken the first opportunity of carrying into effect.

The fact is, Mr. Orr was and is a carrier, and seems to be so blinded by jealousy at my joining a firm in the same line of business that he allows no opportunity to pass of attempting to injure me.

In conclusion I may say that whilst traffic manager my conduct towards McCulloch and Co. and all other firms doing business with the department is open to the strictest investigation, and I have now reason to know that to my efficient and straightforward conduct alone I am indebted for the offer of an interest in McCulloch and Co.'s business, which my meagre salary and great responsibility as traffic manager alone induced me to accept.

I much regret having to trouble you with so long and unpleasant a communication; but as Mr. Orr in making his statement is protected by the privileges of the House, I have no other means of laying the facts of the case before the public.

Melbourne, 30th November, 1872.

I am, &c.,

W. M. FEHON.

W.

W. M. Fehon, Esq., to The Colonial Secretary.

Dear Sir Henry,

Moss Vale, 12 December, 1888.

I meant yesterday to have written you a note respecting an interjection made by Mr. Lyne on last Friday night, when the Railway Commissioners were being discussed in the Assembly, but I was busy in the office up till the time we left by the mail train. The remark I allude to was to the effect that I applied to Mr. Lyne when he was Minister for Works for one of the Commissionerships of Railways. The interview he refers to was the first and only time I ever met him officially, and it occurred as follows:

About two years since I noticed in the papers that the Jennings Government were thinking of putting the Railways of New South Wales under a Board of Commissioners, a short while after I was in Sydney, and it occurred to me that, as I had recently returned from England, where I was asked by Mr. Murray Smith, the Agent-General, to assist him in the selection of a chairman for the Victorian Board, that I might give Sir Patrick Jennings, whom I had known for some years, the benefit of my experience in London, where I interviewed a large number of gentlemen in connection with that appointment.

I called on him at his office, and he was much pleased with the information I gave him, and he asked me if I would call on Mr. Lyne and have a talk with him on the subject, and as I did not know that gentleman he gave me a note of introduction. I went to his office and saw him, and we had a general talk over the subject, but as he was busy the interview was short. My only object in seeing Sir Patrick Jennings and Mr. Lyne was the idea that I might be able to give them some useful information. At that time I had not the slightest idea that I would have accepted such a position had it been offered. If Mr. Lyne will tax his memory I feel sure he will do me the justice to say the above is exactly what took place.

I am, &c.,

W. M. FEHON.

The Principal Under Secretary to W. M. Fehon, Esq.

Sir,

Colonial Secretary's Office, Sydney, 12 December, 1888.

With reference to my letter of the 10th instant, I am now directed by the Colonial Secretary to transmit to you a further report of the proceedings of the Legislative Assembly, by which you will see that Mr. J. H. Want, M.P., makes charges against you in a clear and definite form. [11 Dec., 1888.]

I am to request that you will kindly furnish me with such further explanation as you may desire to make.

I have, &c.,

CRITCHETT WALKER,

Principal Under Secretary.

W. M. Fehon, Esq., to The Principal Under Secretary.

Sir,

Department of Railways, Sydney, 13 December, 1888.

I have the honor to acknowledge receipt of your letter of yesterday's date, forwarding for my information a further report of the proceedings of the Legislative Assembly, wherein Mr. Want repeated his charges against me but in a clearer and more definite form.

This is the first instance in my long official and commercial experience, extending over thirty years in Australia, that my honor and honesty has been impugned; and it is very humiliating to me to be, as it were, put on my trial to answer charges for which, as I stated in my previous communication, there is no foundation; but in deference to the wish expressed in your letter I will, for the information of the Colonial Secretary, give replies as concise as possible to what I gather from *Hansard* report to be Mr. Want's points.

It appears to me that he based his statement (first) on the information supplied by two persons whom he terms informers, and (secondly) from returns he has perused in the Registrar-General's Office, and upon this information he builds up his case, wherein he charges me with being the arch-rogue who invented what he terms the wool frauds, and he does not hesitate to call me a thief and everything else that is dishonest and dishonorable, and not only myself, but the firm, and afterwards company, of Wm. M'Culloch & Co. (limited).

It is not my intention now, nor am I required to defend others who are equally able to defend themselves from such baseless insinuations, but I may state that all the gentlemen whose names appear as shareholders in Wm. M'Culloch & Co. (limited) on Wright, Heaton, & Co.'s prospectus are highly honorable men, and are esteemed as such by all who know them.

I can understand the stories of the informers proving true in regard to what may have come under their individual notice, but as I never did one act, or gave the slightest advice in respect to the manner in which Wright, Heaton, & Co.'s business should be carried on, I fail to see how the informers could give Mr. Want any information regarding myself.

In my previous communication I gave as nearly as possible the date of my severance from Wm. M'Culloch & Co., and the history of my connection with Wright, Heaton, & Co., but I may repeat that I sold my last shares in Wm. M'Culloch & Co. (limited), in February, 1883, and as Wright, Heaton, & Co. shares were an asset in Wm. M'Culloch & Co.'s business, I consequently ceased to have the slightest interest in that company also.

I find that I only attended six meetings of Wright, Heaton, & Co. (limited), during the whole time I had any association with the company, and the last one was in August, 1882. The minute book of the company can prove this.

Although I ceased to have any interest in Wm. M'Culloch & Co. (limited), in February, 1883, I find the Wright, Heaton, & Co. shares were not taken out of my name till September, 1884, and 650 shares, which Mr. Wright had placed in my name, I find to my surprise they were not transferred from my name till June last, although I had signed a blank transfer at the time they were so placed in my name; however the 650 shares never belonged to me in any shape or form, which is easy of proof, so that Mr. Want's two charges, first, that "I am even now a shareholder in Wm. M'Culloch & Co. (limited)," and second, by that "on the day I was appointed I held a large number of shares in a company, some members of which having been prosecuted on two different occasions" fall to the ground.

I believe I am justified in saying that the books of Wm. M'Culloch & Co. (limited) and Wright Heaton, & Co. (limited) are open to the inspection of any person the Government may appoint to prove the truth or otherwise of my statement. My

My removal from the Railway Department of Victoria to a partnership in the firm of Wm. M'Culloch & Co. I need not again touch. I have made my statement, which the Government can verify by reference to Crown Ministers in Victoria, who know all about the circumstances, and who can vouch for my probity and honorable conduct during a long series of years.

In conclusion, as I feel deeply aggrieved, I may be excused for saying that nothing can justify a man being attacked as I have been, and that no privilege should shield one whose words might blast the future of an innocent man. It is very well for Mr. Want to say he bears me no ill-feeling, but his language nevertheless has the same effect as if he did, and if he only knew me better I believe he would have been the last to become the mouthpiece of such a gross injustice.

I have, &c.,
W. M. FEHON,
Commissioner for Railways.

The Colonial Secretary, New South Wales, to The Honorable Duncan Gillies, M.P.,
Victoria.

Sir, Colonial Secretary's Office, Sydney, 13 December, 1888.

I have the honor to enclose copies of the Official Reports of the Debates in the Legislative Assembly of this Colony, on Friday and Tuesday last, in which it will be seen that Mr. J. H. Want, late Attorney-General in the Jennings administration, made a strong attack upon the character of Mr. W. M. Fehon, who was lately appointed by this Government to the office of Railway Commissioner.

I shall feel much obliged if you will cause such strict inquiries to be made as will place beyond doubt the question of Mr. Fehon's character and conduct as an officer in the Railway Service of Victoria.

If any other information can be afforded respecting Mr. Fehon's character as a citizen of your Colony, I shall feel much indebted to you for any such information being supplied to this Government.

I have, &c.,
HENRY PARKES.

The Colonial Secretary, New South Wales, to The Honorable William Wilson,
Melbourne.

Sir, Colonial Secretary's Office, Sydney, 13 December, 1888.

I have the honor to transmit herewith copies of the official reports of Debates in the Legislative Assembly of this Colony in which attacks were made upon the character of Mr. W. M. Fehon, lately appointed by this Government to the office of Railway Commissioner. I shall feel much obliged if you will inform me of any knowledge you may possess bearing upon the misconduct imputed to or insinuated against Mr. Fehon, either in his capacity as an officer of the Railway Service of Victoria, or in any other capacity.

I have, &c.,
HENRY PARKES.

[Similar letters were addressed to the Honorable Francis Longmore, Melbourne; the Honorable James Service, Melbourne.]

W. M. Fehon, Esq., to The Colonial Secretary.

Dear Sir Henry, Department of Railways, Sydney, 17 December, 1888.

In compliance with your request, I forward herewith a short memorandum as to dates, &c., bearing on the charges made against me by Mr. Want, and in addition I forward two letters received by me, which also bear on the same subject—one from Mr. Harold Selwyn Smith, respecting my standing in the Victorian Railway Service, and the other from Mr. F. A. Wright, regarding my association with the Company of Wright, Heaton, & Co.

I also enclose a copy of Wright, Heaton, & Co.'s prospectus, wherein you will see the dealing was between Wm. M'Culloch & Co. (limited) and Wright, Heaton, & Co., and not between individuals and that company.

As these three documents are all in corroboration of my previous communication, I trust you will have them so dealt with that they may have the same publicity as the charges it has pleased Mr. Want to make against me.

I am, &c.,
W. M. FEHON.

[Enclosures.]

MR. FEHON'S CASE.

JOINED Wm. M'Culloch & Co. in March, 1872.

Ceased his connection with them in February, 1883.

Has held no interest in any carrying company since February, 1883.

Wright, Heaton, & Co.'s business was put into a company in March, 1880, when Wm. M'Culloch & Co. (Limited) had 4,000 shares, which, for convenience of voting, were divided amongst eight of Wm. M'Culloch & Co.'s shareholders, Fehon having 500 placed in his name.

In August, 1882, the capital of W. H. & Co. was increased, and 800 more shares were placed in Fehon's name until March, 1883, when Fehon sold out of Wm. M'Culloch, and consequently ceased to be a shareholder, when the interest which stood in his name, in Wright, Heaton, & Co., was transferred to John Jackson, who was also a shareholder in Wm. M'Culloch & Co.

In 1885 F. A. Wright, without Fehon's knowledge, placed 650 of his shares into Fehon's name, and 1,835 into the names of other persons. After doing so he wrote Fehon, and asked him to sign a blank transfer. These shares Wright allowed to remain in Fehon's name till June last, but these shares Fehon never had the slightest interest in.

Fehon never saw one of Wright, Heaton's business books, and never gave the slightest order or advice in connection with working Wright, Heaton's business; neither did he ever have any conversation with any member of the staff as to the way they should conduct their business.

Wright, Heaton's prospectus does not even mention Fehon's name as a trustee for Wm. M'Culloch & Co.'s interest—the names being Hon. C. J. Jenner (late Chairman of Committees in the Legislative Council of Victoria) and Mr. Jenkin Collier, the well known contractor.

As a fact, Fehon never had a single shilling in Wright, Heaton's business, except that as a shareholder in Wm. M'Culloch & Co.; he was interested in all the assets of that company, and of which the shares (M'Culloch's) held in Wright, Heaton, & Co. formed a portion.

Mr. Want stated he could find nothing against Fehon when getting up the case against Wright and Heaton.

All his statements are based on the word of two informers who could know nothing of Fehon.

W. M. Fehon, Esq., Commissioner for Railways, Moss Vale,—

Ellenboro Chambers, 97, Castlereagh-street, 13 December, 1888.

Dear Sir,

I deem it only courteous to you to annex copy of a note I addressed to Mr. J. H. Want yesterday, and which is self explanatory.

Yours, &c.,
H. SELWYN SMITH.

Sydney, 12 December, 1888.

My dear Mr. Want,

If the *Herald* correctly reports your reference in the House last night to Mr. Fehon in connection with the inquiry I conducted relating to the Victorian Railway Department in 1862, you must have misapprehended my reply to your request that I would tell you whether I had held an inquiry into Mr. Fehon's conduct while he was in the service of the Government.

I told you distinctly that I had not, and I explained further to you. In the year 1862 the Governor in Council appointed me under commission to investigate and report upon every Department of the Victorian Railways, excepting only that of the Engineer-in-Chief.

In the course of my duties I became acquainted with Mr. Fehon, who was then in charge or sub-charge of the goods-sheds. I formed a high opinion of his special abilities for the discharge of the duties assigned to him, and to this effect commended him to the Commissioner of Railways—the late Sir W. H. F. Mitchell, and to the Traffic Superintendent, the late Mr. John Carruthers. He was, I think, immediately thereafter appointed to the full charge, a position he held up to the time he resigned the service.

My report to the Government is a Parliamentary document in Victoria, and a reference to it will show that Mr. Fehon's Department was commended, and he certainly was not the subject of any special inquiry by me. It seems to me to be due to Mr. Fehon to write what I have done.

Yours, &c.,
H. SELWYN SMITH.

J. H. Want, Esq., M.P., &c., &c.

Wright, Heaton, & Co. (limited), 241, Pitt-street, Sydney, 13 December, 1888.

My dear Mr. Fehon,—

It was with great pain that I read the very unfair and in some respects untruthful statements made on Tuesday night in the Assembly by Mr. J. H. Want reflecting on you.

It is the worst possible form of attack, because to those unacquainted with the facts of the case it bears the semblance of truth; and I have no doubt that Mr. Want has the fullest belief in his statement and was actuated by a sense of duty in making the charges.

I shall be very pleased, if called upon, to give evidence upon oath, which can be confirmed by others if necessary, that will convince every fair-minded man in the community that you are entirely guiltless of the charges brought against you, so far as your connection with Wright, Heaton, & Co. is concerned.

The facts I can prove are as follows:—

- 1st. That you never held a share in Wright, Heaton, & Co., other than as a trustee.
- 2nd. That you ceased to have any business transactions (as a director) with the firm since August, 1882, that being the date of your last attendance at any meeting of the directors of which up to that time you had been one from 1880. Your total attendance at meetings were seven, four of which were formal for the initiation of the company; and in September, 1884, the interest in our firm which stood in your name, viz., 1,300 shares, were transferred to Mr. John Jackson, who had succeeded you as a director to represent the Melbourne interest,
- 3rd. That you never looked into or examined in any way any business books of the firm, and that no person other than the employees and the Managing Directors, Mr. Heaton and myself, have ever done so; in fact no details of the business or any books, other than the minute, bank, or transfer books, have been before a board meeting, or been looked at by any director other than those entrusted with the management.
- 4th. Dealing with that part of Mr. Want's speech in which he says you were recently, and he believes still, a shareholder of my company, it has arisen from the fact that in October, 1885, just about the time I went out of office and Parliament, I transferred, as a matter of convenience to myself, 650 of my shares to your name, and, at the same time, 750 to C. B. Lowe, of Sydney; 508 to Tunmouth F. Dye, of Brisbane; and 577 to John Jackson, of Melbourne. This transfer took place at my request, and without the knowledge of yourself or the other gentlemen named, neither of whom were considered as shareholders, or acted as such, the shares being retransferred to me in blank within a week from the date of issue. The transfer in our books took place in June last.

This is the only portion of Mr. Want's charge *re* W., H., & Co. that can be considered serious against you; and the facts I have stated can be proved by numbers of reliable witnesses. I have shown this to Mr. Heaton, who entirely approves of it, and, like myself, is perfectly willing to submit himself to any examination in relation to this matter.

I remain, &c.,
F. A. WRIGHT.

W. M. Fehon, Esq.

MEMORANDUM OF ASSOCIATION OF WRIGHT, HEATON, & CO. (LIMITED).

3.—The objects for which the Company is established are the carrying on and in such place or places as the company may from time to time determine, and for the purchase of (in all its branches) the business heretofore carried on by Francis Augustus Wright, Edward Heaton, Edward Bell Barber, and Jenkin Collier, with Caleb Joshua Jenner, as Trustees for William M'Culloch & Co. (limited), under the style or firm of "Wright, Heaton, Barber, & Co.," as agents to the Railways of New South Wales, contracting and general carriers, express agents, Customs, shipping, insurance, general and forwarding agents, merchants and traders, and the goodwill thereof; and all the property (real and personal) of and belonging to or used in or about or in connection with the said business, whether in the name of the firm or in that of individual partners, and to undertake all or any part of the liabilities of the said Wright, Heaton, Barber, & Co. in relation thereto, as and from the first day of February, one thousand eight hundred and eighty.

We, the several persons whose names and addresses are hereunto subscribed, are desirous of being formed into a company in pursuance of this memorandum of association, and we respectively agree to take the number of shares in the capital of the company set opposite our respective names.

Names.	Addresses and description of Shareholders.	Number of Shares held by each Shareholder.
W. M'Culloch	Gentleman, 123 Collins-street, Melbourne	Five hundred shares.
James M'Culloch	Gentleman, 123 Collins-street, Melbourne	Five hundred shares.
C. J. Jenner	Importer, 18 Market-street, Melbourne.....	Five hundred shares.
Jenkin Collier.....	Contractor, George-street, East Melbourne ...	Five hundred shares.
W. M. Fehon	Carrier, 123 Collins-street, Melbourne	Five hundred shares.
W. G. Sprigg	Accountant, 18 Market-street, Melbourne ...	Five hundred shares.
William Cain	Contractor, South Yarra, Melbourne.....	Five hundred shares.
L. Munro.....	Gentleman, Sydney	Five hundred shares.
F. A. Wright	Carrier, 485 George-street, Sydney.....	Two thousand six hundred and seventy-seven shares.
David M'Neil.....	Carrier, Tamworth, New South Wales	Two thousand shares.
Edward Heaton	Carrier, Orange, New South Wales	Two thousand six hundred and seventy-seven shares.
John Woods	Contractor, Manly Beach, New South Wales..	Six hundred and forty-six shares.

INCREASE OF CAPITAL.

Memorandum of Resolution carried at an adjourned Extraordinary General Meeting of Shareholders, held at the Company's Offices on Friday, 4th August, 1882.

That the capital of the Company be increased to £80,000, by the issue of 4,000 new shares at £5 each; and that the new shares be offered to William McCulloch & Co. (limited), on the following terms, viz.:—That they purchase them at six pounds five shillings (£6 5s.) per share, viz., £3 5s. paid up, and that the bonus of £12,000 be added to the present value of existing shares, and further, that the six thousand pounds (£6,000), at present written off goodwill account, and the six thousand pounds (£6,000) brought forward on the last year's balance-sheet be used to further write up the value of the 12,000 existing shares, another £1 per share making them paid up, £4 5s. per share, but all shares participate equally in dividends irrespective of amount paid up.

* * * * *

The Honorable Duncan Gillies, M.P., Victoria, to The Colonial Secretary, New South Wales.

Sir,

Premier's Office, Melbourne, 20 December, 1888.

I have the honor to acknowledge the receipt of your letter of the 13th instant, requesting to be furnished with some information respecting the character of Mr. W. M. Fehon, recently appointed to be a Railway Commissioner in New South Wales.

As I mentioned in my previous note to you on this subject, Mr. Fehon resigned his position as Traffic Manager in the Victorian Railway Department previous to my becoming the Minister at the head of that Department in 1872.

The date of his retirement was the 31st March, 1872. It was entirely voluntary on his part, and, as was well known at the time, it was with the intention of joining the carrying firm of McCulloch and Co.

I may state that some months after Mr. Fehon's retirement he made an application to me for a retiring allowance, on the special ground, that while he was in the Railway Department, he had rendered exceptional service to the Government. No retiring allowance was, however, granted to him, because he left the Service voluntarily, in order to benefit himself.

I know nothing, and have not heard of anything, detrimental to Mr. Fehon's character and conduct as an officer in the Railway Service of Victoria. As regards his reputation as a citizen, I take the liberty of forwarding to you a printed report of a farewell luncheon given to Mr. Fehon previous to his departure from Melbourne to assume the responsibility of his office as one of your Railway Commissioners. It will be noticed that a number of well-known public men were present and took part in the proceedings. This circumstance may well be allowed to speak for itself.

I have, &c.,
D. GILLIES,
Premier.

[Enclosure.]

"The Argus," 3 November, 1888.

FAREWELL LUNCHEON.

MR. W. M. FEHON, who was recently appointed a Commissioner of Railways in New South Wales, was entertained at luncheon yesterday, in the supper-room at the Town Hall, by a large number of Melbourne citizens. The chair was occupied by Mr. James Service, M.L.C., and amongst those present were Mr. Deakin (the Chief Secretary), Mr. Simon Fraser, M.L.C., Mr. R. Ford (Railway-Commissioner), Mr. R. Speight, Mr. D. M. Davies, M.L.A., Mr. C. W. Langtree, and Mr. C. H. James, M.L.C.

The CHAIRMAN, after the usual loyal toasts had been honoured, and also that of His Excellency the Governor, stated that he had been requested to apologise for the absence of Mr. Gillies. However, there were two or three members of the Ministry present, and he proposed the health of the Government, in order that Mr. Deakin might be able to add his testimony to the value of their guest.

The toast was drunk with enthusiasm.

Mr. Deakin, replying, said he proposed to say nothing about the Government, except that it and past Governments had been under great obligations to Mr. Fehon, both in connection with the Central Board of Health, and also with the railway service of the Colony. Mr. Fehon, in the high and honourable position he was going to occupy, could do much to cement the relations of the two Colonies. Although he was partially parting from friends in Melbourne, he was passing to other friends of theirs, and would assist them in making this one of the freest, most progressive, populous, and most powerful continents in the world. (Cheers.)

The Chairman rose to propose the health of the guest. He said that Mr. Fehon had been amongst them for many years in a variety of capacities, but whether as a public servant or as a private citizen his ideas and time were always at the disposal of the public. Mr. Fehon deserved that respect which the meeting manifested towards him in so high a degree. Mr. Deakin had referred to his connection with the Central Board of Health. In that capacity, if in no other, he had rendered valuable aid, but he had done much in the movement to have the city extended westward. (Hear, hear.) If he did not get all his own way, he submitted a scheme which was practicable, and which it would have been wise to adopt. (Hear, hear.) They all regretted losing him, but whilst he was being lost from Melbourne he was being gained in Sydney, and both were equally Australian cities. It was a satisfaction to them all to know that the railways in New South Wales would be under the direction of a gentleman, who, if he had not served his apprenticeship on our railways, was for a long time connected with them. He was very gratified to think that New South Wales had seen fit to select a gentleman from Victoria. The feeling in Sydney towards Melbourne was one of kindness in the highest degree, although there were a good many persons who believed that no good thing could come out of Nazareth, but they came to Nazareth to get a good thing for their railways. Mr. Fehon would prove in a very short period that he was the right man in the right place. Whilst he was a man of personal ability, and capable of working a huge machine, he was a man of kindly feeling, generous disposition, and had a knowledge of how to work a system in which a large number of persons were engaged. They could look forward to seeing the new system of railway management in New South Wales, which was adapted from Victoria, working as smoothly with Mr. Fehon as one of the Commissioners, as it did here under the presidency of Mr. Speight and his worthy coadjutors.

The toast was drunk amid cheers.

Mr. Fehon said that he was overcome by the flattering manner in which he had been entertained, and by the words of Mr. Service and Mr. Deakin. He looked back upon his career and could not think that he deserved it. There were some gentlemen present whom he had known for over 30 years, and when men could be friends for that length of time there could not be much the matter with any of them. Twelve months ago he would not have accepted the appointment, because he was not dissatisfied with this Colony, in which he had carried on his business, but he felt that Mrs. Fehon required a change, and the position offered to him was a high and honourable one. The work to which he was going was congenial, for besides being a railway man, he was well acquainted with the other Colonies. He was, in his opinion, a man after Mr. Service's heart—a federalist. One fact which gave him great satisfaction was that the New South Wales Government had appointed as his colleagues

colleagues two gentlemen with whom he could work for the good of the Colony. A person could take a train at Adelaide to-day and go through to Brisbane in a few hours, a trip which five years ago was regarded as impossible. He would try to justify the confidence which the New South Wales Government had reposed in him, and to give satisfaction to the large number of friends who would watch his career with interest.

Mr. G. Coppin, M.L.A., proposed the health of the Chairman, who, he said, was the father of our foreign policy. Since that policy was created the Colony had progressed more than it had ever done previously in the same space of time, for we had attracted attention from all parts of the world through our own and other exhibits. It was to be regretted that Mr. Service had taken his departure in peace from the scene of the storms and broils in the Legislative Assembly. He (Mr. Coppin) would far sooner see him back there again. (Hear, hear.)

The Chairman said that he was pleased, in his old age, to think that during the thirty-five years he had lived here he had secured, to a certain extent, the kindly feeling of his neighbours and fellow men. That was a goal worth aiming at, although he confessed that it was not the goal he aimed at at first. After all the old political disturbances, and fights, and other troubles they had been engaged in, the successes they had accomplished, the difficulties they had overcome, and were to overcome, welded them together and gave them a kindly feeling towards one another which would last while life did. Mr. Coppin had been good enough to refer to the future. No one could tell what would happen. He could repose at his ease in the other chamber; and had no desire to go down to the Assembly so long as nights were passed in doing worse than nothing. (Hear, hear.) Nothing was more pleasing to him than a good stand-up fight, when it was conducted in a friendly and amiable spirit, but it was a monstrous state of things when public affairs could not be conducted without personal bitterness. (Hear, hear.) The public business could only be conducted when the constitutional practice was adhered to. Some people said that it was the province of the Opposition to oppose. He denied that utterly. It was the duty of the Opposition to criticise thoroughly and heartily, but without personal abuse, such as we have had too much of in the Australian Colonies. He could say, as one who had visited the old country, that nothing made the blood fly to his face more than to read telegrams in the papers there about scenes in the Australian Parliaments. The blood was brought to the face of every Australian in England on reading such telegrams. It depended upon the constituencies whether the country should have those scenes or not. The duty of every constituency was to see at the ensuing general election that the men who disgraced Parliament should no longer be sent there. (Cheers.)

Mr. W. Wilson proposed the health of Mr. Speight and the other Railway Commissioners.

Mr. Speight, responding, said that he was glad that the selection of the Victorian Railway Commissioners met with the approbation of the Colony. (Cheers.) If it were not that they felt they were strongly backed up in whatever course they took by public opinion, their duties would be too much for them to carry out. Mr. Fehon would do well to be careful of public opinion, and see that no friction existed in his department. He would ensure success if he preserved unanimity amongst the Commissioners. Discord was bad enough outside, but it was ten times worse inside. He was glad to have had the opportunity of wishing Mr. Fehon God-speed.

The gathering then broke-up.

The Honorable William Wilson, Melbourne, to The Colonial Secretary,
New South Wales.

Sir,

Australian Club, Melbourne, 17 December, 1888.

I have the honor to acknowledge receipt of your favour of 13th instant, and in reply thereto beg to state that Mr. Wm. M. Fehon was Traffic Manager of the Victorian Railways during 1869 and portion of 1870, when I received my appointment as Commissioner of said Railways.

The late Mr. Thos. Higinbotham was then Engineer-in-Chief, and head of all the Departments. I found this arrangement very awkward, and therefore deemed it advisable that a change should be made in the responsibilities of the several offices, and in carrying out the new arrangements I obtained most valuable assistance from Mr. Fehon.

I appointed him Traffic Manager as head of the Department, and during all the time I held office as Commissioner of Railways, I had every reason to be more than satisfied with his general knowledge of the duties to be performed, and his tact in managing that branch of the Service, and looked upon him as a most valuable, capable, and efficient officer, and in recognition of the ability displayed by him I was instrumental in securing an increase in salary.

I may further state that privately I have known him ever since, and can confidently say that in my opinion a more honourable or upright gentleman does not exist, and one incapable of doing a mean or dishonourable action.

I have, &c.,

WILLIAM WILSON.

The Honorable James Service, Melbourne, to The Colonial Secretary,
New South Wales.

Sir,

119 Collins-street, West Melbourne, 17 December, 1888.

I have the honor to acknowledge receipt of yours of 13th instant, and have read your enclosed Hansard in the matter of Mr. Fehon.

In reply, I beg to say first, that I have no knowledge whatever of the things charged against that gentleman, and second, that I do not know of anything in Mr. Fehon's career which renders him unfit to hold any office or post in which the strictest honour and probity are essential qualifications.

I am, &c.,

JAMES SERVICE.

The Honorable Francis Longmore to The Colonial Secretary.

Sir,

"Tullaree," Tarwin Lower, 21 December, 1888:

I have the honor to acknowledge receipt of your letter of the 13th instant, also official reports of debates in the Legislative Assembly of your Colony, in which attacks were made upon the character of Mr. W. M. Fehon, lately appointed by your Colony to the office of Railway Commissioner.

In your letter you ask me to inform you of any knowledge I may possess "bearing upon the misconduct imputed to or insinuated against Mr. Fehon, either in his capacity as an officer of the Railway Service of Victoria or in any other capacity."

In reply, I beg to say that Mr. Fehon was Traffic Manager of the Victorian railways when I had charge of them in the years '69 and '71, and I never heard any "misconduct imputed or insinuated against him." I looked upon him as a very able officer.

He resigned his position voluntarily for reasons that I sympathised with at the time.

I know nothing whatever of his dealings since he became connected with M'Culloch & Co.

I have, &c.,

FRANCIS LONGMORE.

The

W. M. Fehon, Esq., to The Colonial Secretary.

Dear Sir Henry,

Railway Commissioners' Office, 28 December, 1888.

I have much pleasure in handing herewith for your perusal and information an address signed by the Mayor and Councillors of the City of Melbourne, as well as by the principal merchants and others of that City, wherein they express their sympathy with me in the charges recently brought against me by Mr. J. H. Want, and their confidence in my integrity and honor.

I am, &c.,
W. M. FEHON.

[Enclosure.]

To William M. Fehon, Esq.

HAVING noticed that an unwarranted attack has been made upon your character by some persons who have either allowed their feelings to blind their sense of honor and of justice, or who have some ulterior object in view, we, who have personally known you for many years, desire to assure you of our unshaken faith in your probity and honor, and of our thorough belief that you could never have given cause for the aspersions so wantonly cast upon you.

John K. Smyth, Managing Director, Australasian Mortgage and Agency Co. (Limited).

David Elder.

Stratford, Strettle, & Co., Bourke-street West.

Campbell & Sons, Kirk's Bazaar.

D. R. M'Gregor, J.P., 56, Queen-street, Melbourne.

Ryan Hammond, 57, Bourke-street West, Melbourne.

Richard Feehan, Brunswick.

J. M. Peck & Son, Bourke-street West.

John M. Highett, M.L.A., Melbourne.

Arthur S. King & Co., 67 Bourke-street West, Melbourne.

Richard Gibson & Co., Queen-street, Melbourne.

Parsons Bros. & Co., Merchants, Collins-street West, Melbourne.

James Craig & Co., 15, Queen-street.

D. Whitley & Co., Grain Merchants, 24, Queen-street.

Wm. Peterson & Co., Merchants, 6, Queen-street.

Jh. F. McKenzie & Co., Merchants, Queen-street.

G. Geo. Cuspin, Managing Director, Greig & Murray (Limited).

McClure, Valantine, & Co., 5, Queen-street.

Connell, Hogarth, & Co., Flinders-street.

M. Glassford, Flinders-street.

Chris. Geo. Turner, Flinders-street West.

Geo. Horace Hayes, Managing Director, Water and Kerang United Roller Mill Co.

Robert Chamberlain, Hay Market.

William C. Yuille & Co., Bourke-street West.

Geo. Glasscock, Bourke-street West.

James McRae, Managing Director, Dalgety & Co., Melbourne.

Johnson & Appleton, Queen-street, Melbourne.

W. Siddeley, Collins-street West.

Wm. Adamson, 474, Collins-street West.

Jno. Wilkinson, 123, Collins-street West.

James Service & Co., 119, Collins-street West.

Pigott Brothers & Co., Market Buildings, Melbourne.

M'Lean, Brothers, and Rigg (Limited), Elizabeth-street.

H. Jennings, 37, Queen-street.

H. Creswick, Hawthorn.

R. H. Blackwell, Market Buildings, Melbourne.

John G. Dougharty, Elwood, Melbourne.

Henry Ricketson, Barratta Station, Deniliquin.

D. E. M'Bryde, Brighton.

Todd & M'Bryde, Melbourne.

Robert Laidlaw, Heidelberg.

Wroggs & Hearn, Restdown Station.

Edward Agar Wynne, Balaclava.

H. Butler, Melbourne.

Angus Robertson, Yarrabee Park; N.S.W.

Frank Madden, Mooroolbeck, Studley Park.

Geo. Robertson, 33, Little Collins-street West.

Wm. Dean & Co., 91, Flinders-lane East.

W. Greenlaw, General Manager, Col. Bank of Australasia.

Simon Fraser, M.L.C.

J. Vin. Macmurtrie, General Manager, Land Mortgage Bank of Victoria.

Rolfe & Co., 98, Bourke-street West.

W. H. Dodd, Flinders-lane West.

Hy. Wilson, Kilmore, Victoria.

Jno. S. Horsfall, Director, Goldsbrough, Mort, & Co. (Limited).

Lawrence & Adam, Merchants, Melbourne.

W. W. Couche, Merchant, Melbourne.

Couche, Calder, & Co., Merchants, Melbourne.

William T. Raleigh, Melbourne.

Joseph Raleigh, Melbourne.

Felton, Grimwade, & Co., Melbourne.

John McGee & Co., Melbourne.

Alfred E. Clarke, Melbourne.

Robert Wallen, Melbourne.

John Currie, Melbourne.

Jno. Morris, Melbourne.

Thomas Alston, Melbourne.

Thompson, Moore, & Son, Melbourne.

Pegton, Dowling, & Co., Melbourne.

Ettershank, Eaglestone, & Mann, Melbourne.

Bell, Bruce, & Co., Melbourne.

John Blyth & Co., Melbourne.

Nicholson & Co., Melbourne.

Thomas Brunton, Melbourne.

B. Benjamin, Mayor of Melbourne.

Councillor John Zevemboom.

Councillor W. Howard Lane.

Councillor John Walker.

Councillor James Garton, J.P., Melbourne

John Mills, Melbourne.

Councillor James W. Peirce, M.L.A.

Councillor James T. Buxton.

Alderman Thomas O'Grady.

Councillor William Jevers, jun., Melbourne.

Andrew Gratley, Melbourne.

Alderman Wm. Hughes.

R. Bowen.

Councillor Joseph M. Pratt, J.P.

Alderman Charles Smith, M.L.A.

Geo. Godfrey, Solicitor, Melbourne.

Councillor Benjamin Lee, Melbourne.

Lorimer, Rome, & Co., Melbourne.

J. W. Young, Manager, London Chartered Bank, Melbourne.

Thos. F. Cumming, Collins-street, Melbourne.

John Robb, Collins-street, Melbourne.

James W. Tod, City Road, Melbourne.

The Colonial Secretary to W. M. Fehon, Esq.

Sir,

Colonial Secretary's Office, Sydney, 22 December, 1888.

In reference to the statements made in the Legislative Assembly by Mr. J. H. Want, impugning your character in connection with the important office you hold in the Civil Service of this Colony, I have read your several letters of explanation, and have received and carefully considered the replies to inquiries made in Victoria, copies of which I forward herewith for your information.

On behalf of the Government I have pleasure in informing you that it is considered that the aspersions cast upon your character have been fully and satisfactorily met.

I have, &c.,
HENRY PARKES.

1888.

LEGISLATIVE ASSEMBLY.

NEW SOUTH WALES.

RAILWAYS.

(CORRESPONDENCE, &c., RESPECTING APPOINTMENT OF RAILWAY INSPECTORS.)

*Ordered by the Legislative Assembly to be printed, 12 December, 1888.***Mr. James Angus—Salary, £600.****Minute Paper by The Chief Commissioner for Railways.***Subject:—Mr. James Angus—Salary, £600.*

MR. JAMES ANGUS, the civil engineer, whose services have been obtained through Mr. G. Findlay, the general manager of the London and North-Western Railway of England, is an engineer of great experience and ability, and has had a long training as engineer for a contractor in making new lines, and for the last ten or twelve years has had charge of the maintenance of the permanent-way works of two of the heaviest sections of the London and North-Western Railway; the first part of the time having controlled the Birmingham and South Staffordshire section, and for the last seven or eight years having been in charge of the southern section, including the London District.

E. M. G. EDDY.

Mr. D. H. Neale—Salary, £550.**D. H. Neale, Esq., to E. M. G. Eddy, Esq.**

Dear Sir,

73, Broadway, New York, 24 August, 1888.

I hear from Mr. Barattoni that you are leaving the Caledonian for Australia. I am sorry that I shall miss seeing you in Glasgow, which I hope to visit shortly; but I can, at any rate congratulate you on the wonderful run of the Scotch express from Carlisle to Edinburgh, which has caused quite a sensation here.

I hope if you are in want of an intelligent and experienced officer in the locomotive, carriage, and wagon department that you will bear me in mind. I have had twenty-one years' railway experience in Great Britain, the Cape of Good Hope; and the United States; and have held a great variety of positions, and met railroad men from, I think, every country in the globe, from Russia to Venezuela.

I have sent you copies of testimonials, &c., addressed to New South Wales; but Mr. Drummond, Mr. W. Adams, and Mr. George Macellan, works manager at Stratford (Great Eastern Railway), can speak as to my abilities. Mr. Massey Bromley, under whom I served for nearly four years, is dead; but Mr. Adams can tell you what Mr. Bromley thought of my services.

Wishing you a pleasant voyage, and hoping that you will find your new position satisfactory and pleasant,—

I remain, &c.,

D. H. NEALE.

THIS letter overtook the Chief Commissioner at Naples; and from Port Said he wrote a letter to Mr. Neale, stating that he did not know what the requirements of the New South Wales railways were, but that it would be better if he wrote a further letter, giving more particulars of his experience in controlling locomotive, &c., works; and the following is an extract from the reply received under date of 13th October, 1888:—

"In regard to your inquiry concerning my experience in actual charge, I had charge of the shops of the Cape Railways, near Cape Town, for some time, nearly a year, and enlarged them, and infused more life into the workmen. When I went the repairs were greatly in arrears. We had only five broad gauge engines, two were running with known defects and the other three were in the shops, and had been there for months. I got all five in working order, and the old Locomotive Superintendent told me that he never recollected all being fit to run at any one time before. I sent you a copy of my testimonial from the General Manager, addressed to you at Sydney.

"As regards salary, I have been getting \$3,000, say £600 here, and they have offered me \$3,600, say £720, to stop. I understand, however, that rent, &c., is far cheaper in Sydney, and therefore I would be willing to take less. Prices are enormous here, and as I should much like a change I should be willing to take £550. I got £400 when I first joined the Cape Railways, and it was raised to £450 after I had been with them six months.

"I should mention that the shops were the largest in the Colony. I had nearly 100 locomotives when I left, and over twenty in steam daily at my works. I had for a short time charge of the entire Locomotive Department."

Mr.

D. H. Neale, Esq., to E. M. G. Eddy, Esq.

[Private.]

Dear Sir,

Railroad Gazette, 73 Broadway, New York, U.S.A., 23 August, 1888.

I am sorry that your departure for Australia will prevent my seeing you on my approaching visit to England, but I trust that your new appointment will prove satisfactory to you in every respect.

I hope that if you want a man in the Locomotive Department you will bear me in mind. I have had a good deal of experience under Mr. Adams on the North London, then under Mr. Drummond on the North British, and afterwards as Chief Draughtsman on the Great Eastern. I was also on the Cape Railways as Assistant Locomotive Superintendent, and had charge of the shops, and effected a good many reforms, putting the men on piece-work and materially increasing the amount of work turned out.

I inspected locomotives, water-cranes, &c., for the South Indian Railway, of which Sir Charles Douglas Fox is engineer. The engines (83 in all) were built at Sharp Stewart's, and at Neilson's, so that I had a good opportunity of seeing the best locomotive builders practise.

I had a good deal of experience with different forms of brakes while in England and the Cape, and was appointed one of the Committee to conduct trials and choose the best freight brake for this country. I enclose a copy of our final report which I drafted, and copies of some testimonials.

I am nearly forty-one, and have had twenty-one years railway experience. My salary in the Cape at starting was £400, and it was increased to £450 after I had been there six months.

I have held my present post nearly five years, but my salary \$3,000 (say) £600 is not sufficient, in my opinion, in such an expensive place as New York; and I feel sure this trying climate would not suit the English lady to whom I hope to be shortly married. I therefore should be glad to get a post in the Colony, for which I believe I am well fitted, both by age, disposition, and experience.

Any letter or cable addressed either 73 Broadway, New York, or Neale, Dartmouth, England, will reach me.

I remain, &c.,

D. H. NEALE.

[Enclosures.]

Dear Sir,

South Indian Railway, Engineer's Office, 5 Delahay-street, Westminster, S.W., London, 9 May, 1876.

I am in receipt of your letter of the 5th instant, and can only say that I have been perfectly satisfied with the manner in which you have discharged your duties as Locomotive Inspector, and shall be always glad to give you a recommendation.

D. H. Neale, Esq., 1 Holywood Crescent, Great Western Road, Glasgow.

I am, &c.,

CHARLES DOUGLAS FOX.

London and South-Western Railway, Locomotive Engineers' Office, Nine Elms Works,

London, S.W., 2 September, 1881.

My dear Sir,

This will be handed to you by Mr. Neale, an old pupil of mine, now Chief Draughtsman at the Stratford Works of Great Eastern Railway.

Mr. Neale is desirous of obtaining employment on the Cape Railways, and, as I consider him a thoroughly practical man, and qualified for any leading position in the Locomotive or Carriage Departments of a Railway, I have much pleasure in recommending him to you.

C. H. Gregory, Esq.

I am, &c.,

W. ADAMS.

My dear Sir,

I am informed by the bearer, Mr. D. H. O'Neale Neale, that there is some little difficulty in his obtaining a certificate from you as to his service under the Great Eastern Railway Company owing to a change of Locomotive Superintendents.

I have much pleasure in stating that Mr. Neale was employed by your Company, under me, from February, 1878, until August, 1881, as Chief Draughtsman in the Locomotive, Carriage, and Waggon Departments, and during that time his brains, capabilities, and attention to business always gave me complete satisfaction.

Hoping that the above may be of use to Mr. Neale in his application for another position; and, with kind regards,

W. Birt, Esq., General Manager.

I remain, &c.,

MASSEY BROMLEY.

Office of the General Manager of Railways, Capetown, 26 December, 1882.

MR. D. H. O'N. NEALE has been in the Cape Government Railway Service as Assistant Locomotive Superintendent, Great Western System, for about fourteen months, during which he has acted as Locomotive Superintendent of the Western System for about six weeks.

Mr. Neale is an engineer of considerable ability, has proved his efficiency, and I am informed that he has given the Locomotive Superintendent of the Western System general satisfaction in the performance of his duties.

He leaves the Service at his own instance on personal grounds.

C. B. JELLIOT,

General Manager.

The Manchester Ship Canal, 68B Market-street, Manchester, 30 January, 1883.
I HAVE much pleasure in stating that during the time I was in command at the Cape I had the very highest opinion of your capabilities in the Locomotive, Carriage, and Waggon Department; and I consider that, in spite of the difficulties you met with, you accomplished wonders in the reduction of expenses and the increase of efficiency. If the Government had adopted my recommendation, and pensioned off the Locomotive Superintendent, you would have been put in this place.

I never can speak in terms sufficiently warm of the painstaking way in which you evolved order from chaos, and reduced inefficiency and extravagance within proper bounds.

To D. H. O'Neale Neale, Esq.

J. LAWRENCE,

General Manager.

[3d.]

1888.

LEGISLATIVE ASSEMBLY.

NEW SOUTH WALES.

CITY RAILWAY EXTENSION.

(PETITION FROM CERTAIN RESIDENTS OF CITY AND SUBURBS IN FAVOUR OF.)

Received by the Legislative Assembly, 28 November, 1888.

To the Honorable the Legislative Assembly of New South Wales, in Parliament assembled.

The humble Petition of the undersigned residents of the City of Sydney and Suburban Towns and Boroughs, as well as of the Country Districts of New South Wales,—

RESPECTFULLY SHOWETH:—

(1.) That urgent need exists for the extension of the main line of Railway to the deep waters of Port Jackson, at Circular Quay, and that such extension has been repeatedly promised by successive Governments.

(2.) That nearly four years ago your Honorable House passed the vote for such extension, and two years later plans and book of reference were approved, but nevertheless, and notwithstanding the promises above referred to, the work has never yet been carried out, a work required not only for the benefit of the metropolis but to meet the travelling and commercial requirements of the inhabitants of the whole Colony.

(3.) That, according to the railway returns for last year the suburban railways were the only lines paying more than interest on cost of construction. The returns for these lines would be considerably increased if the traffic were carried to the heart of the city, instead of stopping short at its southern extremity.

(4.) That a large sum of money is annually expended by the Railway Department for the delivery of wool by drays and lorries, within the city, causing a loss to the Department of nearly £10,000 a year, and an incalculable amount is also lost to the public by reason of the distance that goods, intended for transmission by rail to the country, have to be carried from the wharves and other parts of the city.

(5.) That the estimated cost of the work will be materially increased, by being longer delayed, owing to the rapid advance in the value of city lands.

Your Petitioners therefore pray that precedence over all other new lines be given to this most necessary work, and that it be commenced and completed forthwith.

And your Petitioners, as in duty bound, will ever pray.

[Here follow 64,029 signatures.]

1888-9.

LEGISLATIVE ASSEMBLY.

NEW SOUTH WALES.

RAILWAY LOCOMOTIVES.

(FURTHER PAPERS RESPECTING FIFTY COLONIAL MADE.)

Ordered by the Legislative Assembly to be printed, 11 January, 1889.

[Laid upon the Table of the Legislative Assembly by the Secretary for Public Works on 11th January, 1889, Minutes and Reports in connection with the Manufacture in the Colony of Locomotives for the Railway Department.]

Minute by The Secretary for Railways to The Under Secretary for Public Works.

I AM instructed by the Railway Commissioners to forward the report of Mr. Midelton, regarding the manufacture of locomotives, asked for by the Minister for Public Works; but they desire me to state that, in forwarding the report asked for, it will not be considered that they are expressing any opinion upon the subject under review.

B.C., 9/1/89.

D. VERNON.

Submitted.—J.B., 10/1/89.

With reference to the latter portion of the minute of the Secretary for Railways, I desire to state that, in sending the papers to the Railway Commissioners, I advisedly omitted asking for their opinion on the subject, as I am well aware that in this matter I was the Minister responsible for the action taken. My only desire in obtaining the report of Mr. Midelton on the subject, was to show upon what grounds I based my action, Mr. Midelton being the officer responsible to me in the matter.—JOHN SUTHERLAND.

Minute by Mr. Superintendent Midelton.

Report upon Mr. Dalton's speech in Parliament on the 28th November, 1888. [See *Hansard*, 28/11/88.]
In accordance with the instructions contained in Commissioners' 88-22,434 herewith, I have the honor to report as follows:—

Mr. Dalton does not appear to have read the Parliamentary papers on the locomotive question, which were printed on the 13th October, 1887, so assiduously as he has the *Indian, Colonial, and Foreign Engineer and Builder*. On page 2 of the former he could have seen that "twelve copies of each specification for colonial-built engines, and ten copies of each specification for engines to be manufactured in England or elsewhere," were forwarded to the Commissioner by the late Locomotive Engineer, Mr. Scott, on the 31/8/86, so that is quite true "there was one specification for the foreign, and another for the local manufacturer" for his engines only. Steel fire-boxes, shells, and tubes were introduced, because they are best, and lessen the first cost of the engines, and it is "all nonsense to say that this has been done in the interest of freetrade."

Speaking generally, those persons who have had no actual experience of a thing are the most emphatic in their opinions, and Mr. Dalton tells us the author of the article "is a scientific gentleman, who understands what he is writing about"; but I question whether he ever had a day's experience of steel fire-boxes. He, like others, seems to think that copper boxes give no trouble, never *crack*, or want *repairing*, and are perfect. He makes use of the orthodox statement about the value of the old metal, the conductivity, &c., &c., but he says nothing about the *thickness* of *plate* (copper being $\frac{1}{2}$ " and steel $\frac{1}{8}$ " and $\frac{3}{8}$ "). Now, as the conductivity of silver is 100, copper 74, and steel 60, one would think that silver fire-boxes would be best, but they are not yet spoken of, although the old metal would sell well, no doubt, when worn out. Neither do we hear of marine, portable, or stationary engine builders proposing to use copper fire-boxes. It is left almost exclusively to the English locomotive engineers to use that metal, and they do not forget to ride their hobby well. They have lately ventured to use steel plates for shells of locomotive boilers, and perhaps, in the course of a century, they may adopt steel for inside boxes too. Their American brethren, with their 150,000 miles of railway, use steel, I may say, exclusively, as Mr. Dalton could see, if he would peruse the American engineering papers, a book entitled "Recent Locomotives," "The Proceedings of the Institute of Civil Engineers," and other papers. The

The Government Analytical Chemist, Mr. Hamlet, would perhaps kindly tell us which is the most scientific and perfect boiler, *one made of steel or iron throughout*, or one made of *copper, brass, and wrought iron*, metals having different ratios of expansion and considerable galvanic action, when made up into a locomotive boiler.

Mr. J. N. Paxman says his firm began to manufacture steel fire-boxes in 1879, and up to 1883 had made 230 with very fair results. Sir Fred. Branwell, Bart., said in 1883, the steel fire-boxes, under a lengthened inspection which he made on the Grand Trunk Railway of Canada, "appeared to be perfectly satisfactory." That company continues to make steel fire-boxes.

Mr. B. Connor, late Locomotive Superintendent of the Caledonian Railway, stated that the steel fire-boxes which were put in between 1860 and 1863 were still working in 1871, and only two out of ten had been slightly repaired.

Mr. Worsdell, now Locomotive Superintendent of the North-eastern Railway (England), formerly of the G. E. R., L. & N. W. R., and the Pennsylvania Railway, stated in 1883, "he was so satisfied with the quality of the material (steel) that before he left Altoona, he had put in 250 to 300 steel fire-boxes, and he did not remember a single failure due to steel.

Sir John Hawkshaw, C.E., said in 1883, "he had been twice to America during the last four or five years, and finding that such a thing as a copper fire-box was unknown there, he naturally inquired *into the reasons for the use of steel.*" He said also "the Americans did several things better than Englishmen"—an opinion I cordially endorse.

In 1877, Mr. Stirling, Locomotive Engineer, of the G. N. R., said a copper fire-box lasted for three to five years, and Mr. Kirtley, Locomotive Superintendent of the L. C. & D. Railway, also spoke about copper boxes. These two authorities gave 100,000 miles as the average life of a copper box; and if so, American steel boxes were doing twice the duty of English at one-sixth the cost.

Mr. D. Adamson, the most eminent boilermaker in England, said last year, "in 3,000 steel boilers of his construction, there had not been *one* accident in the subsequent working, at pressures from 50 to 250 lb. per square inch. This was about the best testimony he could furnish in favour of steel, namely, its enormous endurance and its increased trustworthiness, as the heat was raised to about 400° F.

Mr. Tomlinson speaks of a copper fire-box lasting twenty-three years on the Metropolitan Railway, and would lead some people to think that it had never been repaired, and he does not tell us that *hot feed* water is used on that line, and that when those engines were made in 1864, copper was copper. If he would turn to the "N. C. and Locomotive Builder," of November, 1888, page 164, he will see that an engine has run continually on the Old Colony Railroad with a steel fire-box for twenty-five years. She was built in 1863, cost 27,500 dollars, and is now in the shops for the *first time* to receive a new box. We have engines on our own lines, which have steel fire-boxes, and have now run the following mileage:—

					miles.
Engine 105	began to run	October, 1877	...	...	150 179
" 130	"	April, 1879	...	...	171 221
" 131	"	"	...	...	228 294
" 132	"	"	...	...	148 794
" 133	"	September, 1879	...	...	151 287
" 134	"	"	...	...	234 444
" 135	"	August, 1879	...	...	178 245
" 136	"	September, 1879	...	...	141 493
" 137	"	"	...	...	242 383
" 138	"	"	...	...	231 132
" 139	"	August, 1879	...	...	198 037
" 140	"	September, 1879	...	...	154 592
" 141	"	"	...	...	173 807

I think I cannot do better than quote the following from a letter by an eminent locomotive engineer in America to me, dated New York, 3rd November, 1888:—

"I have been watching the progress of your struggle as closely as possible, and from the fury of . . . I concluded that you were getting the best of the battle, and it pleases me very much to learn that the inference was correct. It appeared to me from the first, that you were working to put on your lines the machinery *best adapted for the work to be done*, while your opponents were striving to make machinery designed for entirely different conditions, and to perform the service through *force of traditions*. Your railways must be similar in many respects to those in this country, and that being the case, the rolling-stock best adapted for our roads is certain to be better for you than that of British design. In that tiresome controversy about the relative merits of English and American locomotives, the English writers generally assumed that American engineers had made an arbitrary design of a locomotive, and improved it to suit the conditions of operating; and I do not think any people are less wedded to their own traditional habit than Americans. They have had good opportunities of judging how English locomotives compare with those of American design, from the experience of Canadian Railways. If there was any reason at all to believe that English engines would do the work as well, and at less expense than those of their own type, I feel sure that American railroad men would soon put the matter to a practical test." With this I concur.

"In districts where the water is not badly charged with lime salts, the life of a steel fire-box is about 500,000 miles. I was for some years in charge of the running locomotives of a Western Railway, where the water was rather bad, and the average service of a fire-box was about 180,000 miles. As a measure of economy, copper fire-boxes were recommended (through the prejudice of a Scotch . . .) I favoured the experiment, and we got four engines with fire-boxes of that material. They did not prove any more durable than the steel fire-boxes. My experience then led me to prefer good soft steel for fire-boxes, and charcoal iron for tubes.

"You appear to be leading the railway officials in New South Wales in the same line of progress as other engineers at an earlier day led Canadian railway men, after the latter had made prolonged efforts to run their business to accord with English interests and ideas, and their zeal and labour had proved futile. You are not only going to give your lines better machinery, but you are going to aid materially in the development of the natural resources of the Colony by helping the people into a way of manufacturing their own machinery. You need, however, expect to have nothing but hard words from our British contemporaries."

I am sorry that Mr. Dalton and others do not seem to think it worth while to see facts within a few yards of their own doors, instead of preferring to pay so much attention to what is said by irresponsible writers 16,000 miles away. If he would come to Eveleigh works, I should be glad to show him steel fire-boxes which have been in use ten years, and new copper plates which have cost the Government £99 15s. per ton, which will not stand flangeing. It breaks like cardboard when it is worked in the heated state. He could also see the trouble we have with copper fire-boxes and copper stays.

THOS. MIDELTON.

Minute by the Under Secretary for Public Works.

Subject :—Manufacture of Locomotives.

THE Secretary for Public Works would be glad if the Board of Railway Commissioners would kindly instruct the Locomotive Engineer, Mr. Midelton, to report upon the statements made in the enclosed speech, delivered by Mr. Dalton in Parliament on the 28th ultimo.

J.B

Urgent. B.C., 31/12/88. Secretary Railways. The Commissioners approve.—A. R. Loco. Engineer, B.C., 2/1/89. Report herewith.—T.M., 7/1/89.

[EXTRACT from *Hansard* of 28th November, 1888.]

MR. DALTON: A great deal has been said with reference to the unfortunate fifty locomotives, for the construction of which the Government have let contracts in the Colony. I hold in my hand a paper published in London called the *Indian, Colonial, and Foreign Engineer and Builder*, an acknowledged authority upon engineering matters, from a recent issue of which—15th October last—I will read a few extracts on the subject :—

The course pursued by the authorities in New South Wales in respect to the new locomotives ordered from local firms, raises several questions of very general interest, apart from that of localizing the contract by altering the specification of the machines.

There can be no doubt that the specifications were altered. There was one specification for the foreigner and another for the local manufacturer.

The engines to be made in the Colony are fitted with steel fire-boxes and tubes instead of copper fire-boxes and brass tubes. By thus varying the material it is estimated that £300 per engine will be saved in raw material, and there will be a further saving of £68 in items as between best Yorkshire iron and steel. Setting aside the question of favouritism, the point of practical interest is whether the substitution of steel for the materials hitherto used does affect a genuine economy.

The first cost cannot be considered in this connection without reference to the durability and efficiency of the different materials, and also their possible value when worn out. The answers to questions put in the Legislative Assembly on these subjects have been vague. It is "assumed" that the life of copper fire-boxes, "with repairs and partial renewals more or less costly," may be taken as averaging seven years, and that of steel fire-boxes five and a half years. Let us, however, turn to the teachings of actual practice. In the discussion of a paper "On the Construction of Canadian Locomotives," read last year before the Institution of Mechanical Engineers, Mr. Tomlinson, late Locomotive Engineer of the Metropolitan Railway, London, said: "There are engines now running on the Metropolitan Railway, with copper fire-boxes and brass tubes and wrought-iron boilers, which have run over 650,000 miles, and are still in good working order, and carrying the original steam pressure of 130 lb. per square inch, that they had when they started new in 1864," that is, twenty-three years previously. "They have run on an average 30,000 miles a year, from 1864 to the present time." This shows a very different term of life from that assumed by the New South Wales authorities, and exhibits a very great advantage in favour of copper-boxes. In regard to the tubes, it is admitted that the life of the brass tube is three times as long as that of the steel.

A matter that is entirely ignored in the official reply is the fact, at the end of their time, both old copper fire-box plates and brass tubes are of considerable value—one-third to one-half of their original cost—while old steel plates and tubes are scarcely worth the labour of cutting up; and furthermore, the repairs and renewals required with steel as the material, are more frequently necessary, so that there is a greater loss of service; and in addition to all this, steel being inferior as a conductor of heat to both copper and brass, the steaming qualities of the engines are reduced.

Some attempt has been made to support the adoption of steel on account of its superior strength as compared with copper and brass; but it should be borne in mind that fire-boxes and tubes do not fail by yielding to direct pressure, as a rule, but by corrosion and cracking, induced by unequal internal strain from heating and expansion, and these causes of injury have a far greater effect on steel than on copper.

From all these considerations it is obvious that the advantages are entirely on the side of copper fire-boxes and brass tubes, both as to ultimate cost and convenience in running, and the sophistries raised to indicate the contrary are worthless; but, even if this were otherwise, it would not alter the injustice of comparing the prices of different manufacturers when they do not tender to the same specification.

The concluding words of the article are as follows :—

If it was intended by the Government that the local manufacturers should have the work, it would have been better not to invite tenders from foreign makers, and then there would have been no occasion to adopt an inferior article, and so risk impairing the efficiency of the Railway Service.

That is an article which bears the stamp of truth on the face of it. It is written by a scientific gentleman who understands what he is writing about. It has been stated here this evening that the contractors for the locomotives are providing copper fire-boxes and steel tubes instead. If that be so, and the cost in the old country would be equal to £368 per engine, it would be interesting to know what the cost will be here. It is all nonsense to say that this has been done in the interests of free-trade; it is protection of the most pronounced kind.

EXTRACT from *Engineering*, Friday, 6th July, 1888.

LOCOMOTIVES FOR NEW SOUTH WALES.

AT length a settlement of this question, so far as the manufacturing of locomotives in the Colony is concerned, has, after a fashion, been arrived at by the New South Wales Government, by the letting of twenty-five passenger and twenty-five goods engines to manufacturers in Sydney, at £2,987 and £3,000 per engine respectively, although the means of meeting the immediate demand of the Railway Department for additional engines had not been disposed of at the date of the latest newspapers to hand from the Colony.

As the lowest tenders received from this country for the passenger and goods engines specified by the Locomotive Engineer, delivered in steam in the Colony (even under the unfavourable conditions imposed) were £2,375 and £2,245 respectively, or an average of £2,310 per engine, it will be seen that

Government

Government which climbed to office on the ladder of free-trade, in avowed contrast to the policy of its predecessors, has not scrupled to "protect" the local manufacturing interests by granting them a bonus, which on the very face of the transaction stands at 30 per cent. advance on import prices. This fact in itself would call for some remarks; but, in addition thereto, the course which the New South Wales Government has thought fit to pursue in arriving at their decision is so entirely opposed to that fair and honorable treatment which those manufacturers outside the Colony who submitted tenders on the invitation of the previous Government had a right to expect at their hands, that we cannot refrain from commenting at some length on the matter.

The earlier steps taken in this business by the Minister for Public Works, in his individual capacity, are already known to our readers, and need only therefore be briefly referred to. Suffice it to say that it having been found that the tenders of the colonial firms to the original specifications were 60 per cent. in excess of the English tenders—an amount obviously too high for any Government, whether free-trade or protectionist, to pay, by way of premium, for "fostering local industries"—the difficulty, as it will be remembered, was attempted to be met by the Minister inviting fresh tenders from the local firms to pattern engines of entirely different design, and constructed of cheaper materials. This was done under the far-fetched excuse that the specifications of the Locomotive Engineer (to which the original tenders had been invited) "provided for a different type of engines to any the Department had then running." This attempt on the Minister's part to balance colonial and foreign prices in favour of local firms proved, however, an entire failure—the new tenders being found to be over 50 per cent. in excess of the English quotations. The Minister having thus far failed in his endeavour, and public discontent having been expressed at the protracted delay that had been allowed to take place in deciding the question, the Cabinet was forced to take the matter in hand, with the result that the Minister was authorized to make the local firms an offer of £3,000 per engine. This offer, amounting to 30 per cent. in advance of the English tenders for engines of a superior class, was, however, declined by the local firms. In these circumstances it would have been supposed that the question would have been brought to a close, as far as the local manufacturers were concerned, by the Government recognizing that they had gone quite far enough in their attempt to reconcile free-trade theory with protectionist practice, and forthwith leaving the local manufacturing interests to their fate. The political morality of the members of the present New South Wales Government seems, however, to partake somewhat of the free-and-easy character of the financial morality of the father who, in sending his son out into the world said: "My son, make money—honestly if you can; but make money." In this instance they have apparently acted on the precept: "Make political capital—by the exercise of free trade if you can; but make political capital." Having failed to adjust the political situation in unison with their free-trade professions, the Government forthwith threw free-trade and its principles to the winds, and authorized the Minister for Works to introduce such changes in the *structural details* of the locomotives as would enable the local manufacturers to submit new tenders at, or within, the limit they had fixed of £3,000 per engine, with the result, as before stated, that twenty-five locomotives of each class have been let in the Colony at £2,987 and £3,000 per engine, respectively.

It has not yet been made clear what the full extent of these alterations are, although sufficient may be gathered as to their nature from an answer given on behalf of the Minister for Works in the Legislative Assembly, as reported in the local press. We quote from the *Sydney Morning Herald* of May 16th, as follows: "Mr. Roberts (for the Minister) said that alterations had been made in the plans and specifications of the locomotives proposed to be manufactured in the Colony. The main frames in the pattern engines" (of American make, it may be noted in passing) "were very heavy and costly forgings, necessitating much smith's and steam hammer work; but the altered frames were made of bar iron in pieces, which will be much simpler and less costly to make, and yet be interchangeable with the present frames. Steel would be used instead of copper for fire-boxes, and steel tubes instead of brass. Steel was considered to be equally adapted for the work, and it was cheaper. The boilers would be of steel throughout, and built with fewer parts, joints, and plates than the pattern engines, and yet would be interchangeable. Cast-iron would be used instead of brass for slide valves, because they were cheaper and lasted very much longer. Copper chimney tops and brass dome covers would be abolished, and cast-iron used instead. Brass or Dalziel's metal would be used for bearings where required, but in much less quantities than in other engines, and a cheap and effective engine would be obtained. These alterations should cheapen the cost of construction, but the actual figures could not be obtained until the tenders were received. Some of the locomotives imported by the Government had been constructed (*sic*) and similar material had been used as was now proposed under the new specifications. They had been as lasting and had done as much work, with as little cost for repairs, as the type of engine imported from the best makers in England and America."

It is needless to say that nothing is easier than to "cheapen" the manufacture of any article or machine, provided one is only sufficiently indifferent as to the quality of the material used, or the substantiality of the machine when constructed; and so far as the above quoted paragraph throws light on the subject, it is evident that the cheapening of the locomotives in question has, in the main, and with the exception of a few minor details, been effected at the expense of their substantiality and durability, notwithstanding all that was said in the Legislative Assembly to the contrary.

But assuming, for the sake of argument, that the make of engines substituted for those specified by the Locomotive Engineer are all that their advocates have said in their favour as regards quality combined with cheapness in first cost, and that the subsequent modifications in designs and materials in nowise detract from their efficiency, while further reducing the cost of construction, by what process of reasoning, we should like to know, have the New South Wales Government persuaded themselves, or hope to persuade the public at large, that they have acted in accordance with free-trade principles in limiting the competition for these modified and "cheapened" locomotives to the colonial firms? For it cannot be questioned for one moment that, if tenders had been invited for them in this country, it would have been found—in view of the difference in the rates of wages alone—that the price at which the engines have been let to the colonial firms are, at the lowest estimate, from 50 to 60 per cent. in excess of the prices at which they could be imported.

No reasons consistent with free-trade that would stand a moment's consideration can be advanced by the New South Wales Government—as is obvious to any one—to justify their decision in this matter, while they have made it clear that it is hopeless for manufacturers outside the Colony to expect either fair treatment or ordinary courtesy at their hands.

EXTRACT from *Engineering*, Friday, 30th March, 1888.

LOCOMOTIVES FOR NEW SOUTH WALES.

IN a recent article (*vide Engineering*, page 193 *ante*) we incidentally alluded to a matter in connection with this subject as affording further evidence of the partisan spirit that seems to have guided the action of the New South Wales railway authorities in this affair since the accession to office of the present Government. We allude to the so-called "trial" of the engines advocated, respectively, by the Locomotive Engineer and the Tramway Superintendent, the latter of whom, it will be remembered, was called in by the Minister for Public Works to advise in the matter over the head of the Locomotive Engineer, notwithstanding the latter being retained in his position as responsible head of the Locomotive Department.

In proceeding to give particulars, we would preface our remarks by saying that, as far as the main point of the case we are about to deal with is concerned, the relative merits of the locomotives advocated by each is of no more importance than was the personal matter between the Locomotive Engineer and his late subordinate, touched upon in our previous article. The point in the case has reference to the unfairness that marked the conditions under which, by the authority of the Minister, the trial was made, and which, in our judgment, indicated a preconceived desire to make out a case in favour of the engines advocated by the Tramway Superintendent, to the prejudice of those specified by the Locomotive Engineer, whereby an excuse might be afforded for ignoring the tenders received from this country, and diverting the orders for locomotives into other channels.

It will, perhaps, serve to elucidate the case if we give, in the first instance, a brief description of the engines recommended by the Locomotive Engineer, on the one hand, and by the Tramway Superintendent on the other. Those specified by the Locomotive Engineer for goods traffic were outside-cylinder six-coupled engines, with a two-wheeled bogie in front, having a fixed wheel base 11 feet long, the driving wheels being 4 feet in diameter, and the cylinders 19 inches, with a stroke of 24 inches, the grate area 20.8 square feet, the total heating surface 1,143 square feet, the weight on the coupled wheels 35½ tons, and the tractive power of the engine 180 lb. per pound of effective pressure in the cylinders. The engines specified by the Locomotive Engineer for passenger traffic were also outside-cylinder engines, but with four coupled wheels and a four-wheeled bogie in front, the fixed base being 8 feet 3 inches long, the driving wheels 5 feet 6 inches in diameter, and the cylinders 19 inches, with a stroke of 26 inches, the grate area 20 square feet, the heating surface 1,214 square feet, the weight on the coupled wheels 30 tons, and the tractive power 142. It is with the latter engines we have at present more especially to deal, as having been the subject of trial with those advocated by the Tramway Superintendent.

The engines recommended by the last-named for passenger traffic were of the make illustrated on page 194 of the *New York Railroad Gazette* of 27th March, 1885, to which we alluded in our former article, these having outside cylinders, six coupled driving wheels, with a two-wheeled bogie in front, and a fixed wheel base 15 feet long, the driving wheels being 5 feet in diameter, the cylinders 18 inches, with a stroke of 26 inches, the grate area 17 square feet, the heating surface 1,306 square feet, the weight on the coupled wheels 35 tons 5 cwt., and the tractive power 140. The engines recommended for goods traffic were of the American "consolidation" type, with eight coupled wheels, 4 feet in diameter, and a two-wheeled bogie, the cylinders being 20 inches in diameter, with a stroke of 24 inches, the fire-box 9 feet 10 inches long inside and 2 feet 9½ inches wide, and the total weight of the engine and tender in working order 72 tons.

It will be observed, on comparing the passenger engines, that the essential difference (apart from any differences in detail) is in the size of the driving wheels, and in the distribution and amount of the adhesion weight, the engines specified by the Locomotive Engineer having four coupled wheels, loaded to 30 tons, while those recommended by the Tramway Superintendent have six coupled wheels loaded to 35 tons 5 cwt. It is clear, therefore, that to the latter the advantage would fall on the steeper gradients, while the advantage would be with the former on the more level portions of the line. The papers laid on the Table of the Legislative Assembly show that the purpose for which the Locomotive Engineer intended the engines in question was that of running passenger trains from Sydney to Bathurst, on the Western main line, a distance of 144 miles, on which the gradients for the greater length do not exceed what are regarded in New South Wales as normal and moderate, namely, short though frequently recurring lengths, varying from the level up to 1 in 60, and occasionally 1 in 50; but on a portion of the length, commencing 36 miles from Sydney, the line, in crossing the dividing range of mountains, ascends on gradients of 1 in 30 for 2½ miles, succeeded by long and frequently recurring gradients of 1 in 33 on a length of about 27 miles to the summit of the line. Thence, after a run of some 22 miles over gradients varying up to 1 in 55, the line descends rapidly by gradients of 1 in 40 for about 5 miles, until it reaches a way-side station at Eskbank, 94½ miles from (and 2,990 feet above the level of) Sydney, whence the distance to Bathurst is 50 miles, over the more easy gradients we before referred to, the total fall in that distance being 890 feet. It is no part of our business to express an opinion as to which of the two types of engines in question was the more suitable on the whole for the purpose intended. Our object, as we have already said, is to criticise the spirit in which at times locomotive questions are determined by the authorities in New South Wales, and which has formed so marked a feature throughout the whole of this transaction.

The proposal to go through the form of a trial to determine the question between the Locomotive Engineer and the Tramway Superintendent, appears to have followed a reply by the former to the report of the latter, which, it will be remembered, was withheld from the knowledge of the Locomotive Engineer until after its publication in the press. On this point, in addressing his reply to the Minister, the Locomotive Engineer wrote: "It would only have been an act of justice if, before such documents had been made public, the Honorable Minister had submitted such to me, and requested that I would reply to them. Such reply could then have been considered in conjunction with the strictures on my recommendations made by the Superintendent of Tramway Rolling Stock and such a course would, if the Minister had seen fit still to maintain the action he has taken, at least have given him an opportunity of judging of the correctness or otherwise of my opinions and actions. The first intimation I had concerning this matter was from the columns of the public press; and a consideration of the Minister's action, without reference in any form to me, forces the conclusion that any explanation I may have to offer will not in any way have the effect of altering his decision." In the concluding opinion the Locomotive Engineer was entirely correct, as subsequent events proved.

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At this stage the Commissioner for Railways seems to have come on the scenes as a supporter of the Ministerial action against the Locomotive Engineer, and in a minute dated 20th May, 1887, he requested the latter to furnish him with the "proposed conditions of test" under which the engines advocated by him should be tried against those recommended by the Tramway Superintendent. The reply of the Locomotive Engineer was a fair and reasonable one. He suggested "that each class of engine should be put to run the day passenger trains between Sydney and Bathurst, and an accurate account kept of load hauled and stores consumed." In the mean time the Commissioner appears to have requested the Tramway Superintendent also to name conditions, who, in reply, laid down a number, which, as was perhaps natural in the circumstances, were entirely in favour of the engine recommended by himself. The more notable of these were: "That the trial trips should be from Sydney to Eskbank and back"; that the train should consist of a definite number of carriages, viz., "eight of the double bogie type"; that water should be taken only at stations specially selected by him; and last, but not least, that "neither engine should have any sand in the sand-boxes," and that the "brake-blocks, hangers, and rods should be taken off each engine." One condition he proposed to which we may refer, not as being unreasonable, but as one which, in contrast with the others, seems to us reasonable and practical and for which we are only too pleased to give the author full credit. The proposal was that the trial trains should be "run to a time-table made out by the Traffic Manager, time the same as the Western mail on the up and down journey." At the foot of these extraordinary conditions the Commissioner wrote a minute, which, coming from a non-professional man on a matter of locomotive practice, is probably only equalled in its absurdity by the various Ministerial minutes on the subject. It was as follows: "The tests proposed by the Superintendent of Tramway Rolling Stock are preferable. Will the Locomotive Engineer say if he has any observation to make or any suggestion in connection with them?" The Locomotive Engineer had, reasonably enough, several important observations to make on them, as being, he said, "at variance with the work" for which his engines "were designed, and intended to perform." He pointed out that "about two-thirds of the journey proposed was over the mountains, where fast running was not possible with any engine," and that, in order to give a fair result, the trials "should be made to extend to Bathurst, where the engines had to run with the trains, or from Sydney to Goulburn" (a similar length of railway on the Southern main line), "and, if possible, a clear run of about 30 miles between stopping places arranged for, so that the speed might be ascertained." With regard to the load proposed by the Tramway Superintendent, he pointed out that it was equal to sixteen ordinary carriages, whereas the train load in regular service was twelve carriages, adding: "I therefore consider that what is proposed is simply a test of power, where a goods engine will, of course, give better results than a passenger engine, particularly over the portion of the line proposed by the Tramway Superintendent, chiefly mountain grades, where the running is slow. I consider the "service load" should be adhered to in the trials." As regarded the watering of the engines he considered that "water should be taken when each considered it necessary, but that time lost in taking it should be calculated." He objected to "dispensing with anything provided for the more efficient working of the engines." On that account he "protested against the sanding arrangements not being availed of, if necessary," as well as to the removal of the brake arrangement. He further stated that, "if it were decided to have the engines tested as to their relative merits under all circumstances," he thought "such tests should be conducted under the direction and supervision of properly qualified locomotive experts outside the Department, who could have no interest in the result," and he concluded with the very apt remark that the Tramway Superintendent "appeared to be stipulating for conditions to suit as nearly as possible the type of engine he recommended," while "the conditions laid down should approximate as closely as possible to those under which the traffic had to be worked, and which a locomotive engineer would be guided by in ordering his type of engine."

Regardless, however, of the opinion of the Government Locomotive Engineer, the conditions laid down by the Tramway Superintendent were, on the recommendation of the Commissioner, approved by the Minister for Works, and ordered to be adhered to, the only concession granted therefrom being that "if, in the judgment of the experts, the rails were greasy, sand might be used," although "if the day was fine and dry no sand was to be placed in the boxes." It was also conceded that water should be taken as required. Further it was agreed that the "testing" of the engines should be made "under the supervision of two locomotive experts." The Minister, however, reserved to himself the nomination of the experts, while, at the same time, the testing was directed to be confined to a single trip by each engine in each direction on separate days, and to the limited portion of the line between Sydney and Eskbank. That there might be no departure therefrom, the experts were supplied by the Commissioner for Railways with copies of the conditions laid down. The minute by the Commissioner giving the reason for the above limitations is, we have no hesitation in saying, entitled to prominence amongst the many minutes written in connection with this matter. It is as follows:—"If the trials be made beyond Lithgow" (*i.e.*, Eskbank Station) "it will mean four days instead of two will be consumed in the trials. The trials will not commence till Wednesday morning. On Friday we shall require all our rolling stock to meet the requirements of the excursion traffic of Jubilee. I must, therefore, decide that the test be made between Sydney and Lithgow, and be concluded on Thursday night." It is thus, after months of needless delay, that locomotive questions, involving the expenditure of hundreds of thousands of pounds, and in dealing with which both the Minister and the Commissioner must needs leave their proper duties to assume the rôle of amateur engineers and meddle in technical details, are summarily disposed of in New South Wales.

Where are the papers? If they have been printed, please attach copy.—CH.A.G., 4/6/88.

It has now (7/1/89) been proved, over and over again in actual practice, that the engines recommended by Mr. Scott cannot do the mail service to time between Sydney and Bathurst, neither can they haul the loads he stipulated without the use of sand. Both types of engine have now been tested on the Goulburn and Western lines, and it is admitted that my engines are the best in every respect; indeed, the proof of the correctness of my words in my report of the 19th April, 1887, that "I have gone very carefully into the merits of the design of these engines, and must express my conviction that their unsuitability will be established on trial; they cannot be successful unless they are ruinously overloaded on the coupled wheels"; indeed, it is well known that on the trial day that if the engine had no sand she would never have mounted the 1 in 30 grade at 36 miles west, and I do not think any engineer could justify the use of sand on a bright clear fine day such as that was.—T.M., 7/1/89.

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Yes; but this was the absurdity: the service load was too small; we wanted greater power.—CH.A.G.

The English critic does not understand the case. His strictures, therefore, may be taken for what they are worth. They have little but their impudence to recommend them; and the author, who is well known, had nothing else to recommend him when he was engaged in and discharged from our Service. Mr. Scott's conditions were as absurd and extraordinary as Mr. Midelton's conditions were said to have been. In view, however, of what was required—an engine to take an adequate passenger load over the mountains (instead of employing an assistant engine)—Mr. Midelton's conditions, while they were those to which his engines could respond, were exactly what was wanted. If the service load only were taken, both engines would be found efficient; but the service load was altogether inadequate, and the proposal that the load should be confined to that load was simply a piece of childishness, which, since our critic approves of the conditions proposed, he is to be credited with. The day is gone by when so-called "engineers" can claim exclusive knowledge. The locomotive is a machine easily understood, and we do not need to speak of it with "bated breath," as if it were some occult thing which high priests only should be allowed to talk about. These "high priests," or, as they are pleased to call themselves, locomotive engineers, are (the best of them) good mechanics, for the most part uneducated, and knowing little or nothing beyond their trade. They choose to call it "engineering," and claim it as a profession; but they have no diplomas, they can produce no certificates, and they become professional men merely by calling themselves so. It is not so with any other profession, except that in which the experts practise sleight of hand. Professor Jacob and other conjurers have this advantage, that while we do not know their tricks, we know and can expose the tricks practised by our would-be critic and his confrères.—CH. A. G.

EXTRACT from *S. M. Herald*, 13th April, 1888.

WITH regard to the locomotive tenders, a great deal has been heard from our own point of view. But there is another point of view, that of the English tenderer, or foreign manufacturer, as he is called by our protectionist friends, and the case as it appears to him is ably stated in articles which have recently appeared in *Engineering* and the *Glasgow Herald*. Our contemporaries seem to be well informed as to the facts of the case, with which we in Sydney are of course familiar. Early in 1887 tenders for forty-four engines were invited simultaneously from locomotive makers in Europe, America, and this Colony. A number were sent in, but none were accepted. The Sydney tenders were about 60 per cent. above the offers from Home, and were therefore out of the question; but the English tenders were laid on one side because, in the first place, it was desired to give the local manufacturer another chance, and in the second place, because the Minister for Works disapproved of the type of engine which had been tendered for under the specifications sanctioned by his predecessor.

Engineering represents that the English manufacturers have been unfairly treated from first to last. It refers first of all to the unusual conditions which were imposed in the case of manufacturers outside the Colony. They were required to provide themselves with workshop accommodation for the erection of the engines on landing, and payment was deferred until a certificate that the engines had been delivered and had run a stipulated number of miles had been granted. These conditions, our contemporary says, "were justly regarded as operating prejudicially to the manufacturers outside the Colony, and had the effect of limiting the number of tenders, as well as of considerably enhancing the amounts quoted in those sent in." According to this, we have not yet had the true measure of the difference between the cost of constructing locomotives in the Colony and the cost of constructing them in England. *Engineering* deals severely with the Minister for Works for setting aside the specifications of the Locomotive Engineer in favour of those proposed by the Superintendent of Tramway Rolling Stock, who had nothing whatever to do with the Railway Department. With regard to these specifications, Mr. Sutherland, it will be remembered, wrote a minute to the effect that "they provide for a different type of engines to any we have now running, and their adoption would, in my opinion, be a serious mistake." The minute went on to say that a report on the subject was desired from the Tramway Superintendent, with regard to whom the Minister said:—"He has already designed ten locomotives, which, after two years' service, have proved to be the most economical in working that we have." To call in some one outside of the Department to reverse the recommendations of the responsible officer is regarded by *Engineering* as extraordinary conduct on the part of the Minister. Our contemporary fails to see how the Tramway Superintendent can be regarded as an authority on the question, and it disputes the originality of the design for which he is praised by the Minister. "As regards the ten locomotives, with the design of which the Tramway Superintendent is credited by the Minister, we may mention," says the paper from which we quote, "that an illustration of them is to be found at page 194 of the *New York Railroad Gazette* of March 27, 1885." It is asserted that the engines illustrated are "practically identical in general features with the ordinary American 'Mogul' engine, as made by the Baldwin Company, who supplied them, 5-foot coupled wheels having simply been substituted for the usual 4-foot wheels, the steam dome being dispensed with, single slide bars substituted for double bars, and the connecting rods, in common with the coupling rods, fitted with solid bushes at both ends, in place of being provided with straps and cotters, as is usual in ordinary practice." Having shown that the engines said to have been designed by the Tramway Superintendent were only modifications of the Mogul type, *Engineering* offers some pertinent comments upon the remarkable conduct of the Minister in setting aside the specifications of Mr. Scott and calling upon Mr. Midelton to draw up new ones as the basis of fresh tenders. We quote a couple of sentences. "The action of the Minister in this matter was, as will have been seen, of the most arbitrary kind. Although, no doubt, entirely within his powers as Ministerial head of the Department, we venture to say, in view of the fact that the Locomotive Engineer was retained in his position as responsible head of the Locomotive Department, that the action of the Minister was not only unjust to that officer, but subversive of all discipline and responsibility." This is exactly the view that was taken here at the time; it is scarcely possible, in fact, to arrive at any other conclusion. The so-called trial of locomotives of the types recommended by the Locomotive Engineer and Tramway Superintendent respectively, is condemned as unfair both to Mr. Scott and the engines which he recommended. Here, again, we find an impartial observer in London taking much the same view as that which found expression at the time on the spot.

But what the Home papers chiefly complain of is the cavalier manner in which the New South Wales Government has treated the British manufacturers, who have been made a convenience of, and have been denied even ordinary courtesy. The whole proceeding, which is regarded as a breach of faith, has

excited

The impartial observer, in all probability, is Mr. Bennett, the late Locomotive Engineer, whose services were dispensed with. Get the article from *Engineering* and put with this.—CH. A. G., 14/4/88.

excited, the *Glasgow Herald* says, great indignation amongst the engineers of England and Scotland, who have determined, we are told, to send a remonstrance to the New South Wales Government. It is pointed out that engineers at Home would never have gone to the expense of tendering for these contracts if they had known that the work was to be reserved for the Colony. "If," says the Glasgow paper, "the sole object in inviting tenders from this country is to check the prices of Home competitors, then firms here will cease to enter the lists." But this is not all. *Engineering*, in concluding a lengthy article on the subject, remarks, that to the unwarrantable treatment which tenderers outside the Colony have experienced at the hands of the New South Wales Government has been added the discourtesy of withholding from them official notification either of the rejection or acceptance of their tenders. It must be admitted that the Home manufacturers have grounds for complaint. They have been made conveniences of, and they have not been treated with common civility. It is right, of course, for Ministers to do the best they can for the Colony, but in protecting the interests of the Colony it is not necessary to bring us into disrepute at Home. Tenders should not have been called for in Great Britain unless we were prepared to deal with them on their merits; but when it was determined to set them on one side, and not to deal with them at all, those who were concerned should not have been left in the dark.

EXTRACT from *Engineering*, Friday, 24th February, 1888.

LOCOMOTIVES FOR NEW SOUTH WALES.

THE locomotive question in New South Wales, to which we referred at some length in our issue of March 18 last, and which has been dragging its weary length along ever since, has now arrived at a stage which gives occasion for some additional remarks.

It may be well, in the first instance, to recall to mind the main points bearing on this vexed question. It will be remembered that early in 1887 tenders were invited from locomotive makers in Europe and America, simultaneously with like invitations to manufacturers in the Colony, for sixteen passenger and twenty-eight goods engines. Scarcely, however, had the invitations been issued by the Agent-General than a change of Government took place, when instructions were received from the Colony, to alter the conditions of tender for manufacturers outside the Colony. These alterations consisted in requiring them to provide themselves with workshop accommodation for the erection of the engines on landing, and in postponing inspection and payment until delivery of the engines in the Colony, payment being made contingent on the granting of a certificate from an inspector in the Colony that the engines had been delivered and had run the stipulated number of miles. These new conditions were justly regarded as operating prejudicially to the manufacturers outside the Colony, and had the effect of limiting the number of tenders, as well as considerably enhancing the amounts quoted in those sent in.

Yet, notwithstanding the disadvantage at which the "foreign" manufacturer was thus placed, a comparison of the prices quoted by the local and foreign manufacturers showed that the lowest prices tendered by the former were no less than 60 per cent. in excess of the lowest prices quoted by makers in this country, who beat all other competitors, both Continental and American, in lowness of price. Under these circumstances it was at once seen by the railway authorities that it would be impossible for the New South Wales Government, with any regard to the free-trade principles on which the majority of the Legislative Assembly had been returned at the general elections, to place the orders with the local firms. In view of this, and pending a decision of the matter by the Cabinet, currency was given to a proposal by the Minister for Public Works that the locomotives should be made in the Government workshops, the proposal being based on an estimate furnished to him by a former subordinate officer in the Locomotive Department, whom the Minister appears to have called in to advise in opposition to the Locomotive Engineer in charge of the Department, that locomotives could be built in the Government workshops at an advance in price of only 10 per cent. on the English tenders.

The inherent absurdity of this estimate, seeing that the rate of wages in the Colony is double that paid in this country, is obvious. But apart from this, the proposal was condemned by the Cabinet as vicious in principle, the Prime Minister stating in Parliament that he would rather resign his position than give his consent to a proposal that would inevitably lead to "corruption and jobbery." In the awkward position in which the Minister for Works had placed himself, and with the latent desire, doubtless, on the part of the Ministry not too ruthlessly to disappoint the hopes that had been raised in the breasts of manufacturers and workmen possessed of votes, the Government acceded to the Minister's desire to make a final struggle to retain the manufacture of the engines in the Colony, and authorized his inviting fresh tenders from the local manufacturers, to enable them to come, if possible, within such a distance of the English prices as should warrant the Government in placing the work in their hands. The fresh tenders were opened by the Tender Board on December 20. But, notwithstanding some reduction on the prices previously quoted, the tenders are, as we learn by the Sydney Press, still so high as to be regarded even by the Protectionist Minister for Works as rendering it impossible for the Government to place the order with the colonial firms. Up to the date, however, of the latest advices from the Colony, nothing had apparently been done by the Government in settlement of the matter.

Already there has been an amount of unnecessary delay attending this question, which is strangely inconsistent with the pressing need under which the Railway Department stands, and has stood for a long time past, for additional locomotive power, and which gives support to the general belief that influences are at work to divert the orders for locomotives—which, it is clear, must go outside the Colony—into channels to which they could not possibly go if matters were allowed to run a free and unfettered course. The urgency of the question may be seen by the following paragraph which appears in the report of the Commissioners for Railways for 1886, under date of July 20 last:—"The Locomotive Engineer renews his statement that more engines are required for the economical working of the traffic." The Locomotive Engineer's reference to the matter is even stronger. He says—"The drought having broken up, there is every probability of increased traffic on our lines during the present year (1887), and as in the past great difficulty was experienced in supplying the motive power for the traffic, I would again urge upon the Commissioner the necessity for increasing the number of passenger and goods engines with as little delay as possible." Yet, notwithstanding the difficulty in which the Department stands, the official papers recently laid on the Table of the Legislative Assembly disclose an apparent disregard of everything but the promotion of Ministerial hobbies or of political and party interests.

The date fixed for the delivery of the tenders advertised for in the early part of last year, to which we made reference in our opening remarks, was April 12 (1887). On April 14 the result of the tenders received in this country was communicated to the Government by the Agent-General, showing, as we have already stated, a difference in favour of the manufacturers in this country of 60 per cent. Significantly enough, this result was followed in the course of a few days by a remarkable minute by the Minister for Works. On April 18 the Minister wrote as follows:—"With reference to the specification for twenty-eight goods and sixteen passenger engines, it seems to me, from a perusal of them, that they provide for a different type of engines to any we have now running, and their adoption would, in my opinion, be a serious mistake." Coming from the political head of the Department, who is, we believe, without any technical training or experience whatever, this expression of opinion on the specifications of the Government Locomotive Engineer is not a little suggestive. Further on in the minute, the Minister entered on a review of the character of the lines, the nature and tendency of the traffic, and the speed at which, in his opinion, the trains should be run, and concluded with the following extraordinary proposal:—"For the purpose of obtaining opinions as to the best class of engines for this purpose, I wish an early report from the Superintendent of Tramway Rolling Stock, he having had a large engineering experience both in England and the colonies, and has already shown evidence of his ability with regard to his plans for the Goulburn running-sheds, and in regard to his advice in connection with the Eveleigh workshops. He has already designed ten locomotives which, after two years' service, have proved to be the most economical in working that we have; and for these, and other reasons, although he is not now in the Railway Locomotive Branch, I should like his opinions on this question."

Here we may remark that we are not concerned about the personal aspect of this matter as between the Locomotive Engineer and his late subordinate, and under ordinary circumstances we should not have thought it necessary even to refer to it. But when the Government of an important Colony like New South Wales treats with something more than discourtesy manufacturers in this country, from whom their predecessors in office had thought fit to invite tenders, and when the Minister for Public Works thinks proper to base on the report of an irresponsible officer, whom he has called to his aid over the head of the responsible officer of the Department, a justification or excuse for setting aside the tenders, it becomes necessary to examine a little closely the grounds on which the Minister seeks to justify his selection of the individual chosen. As will have been observed, the Minister had "other reasons" than those he enumerates for his selection of the Tramway Superintendent, feeling conscious, doubtless, that those named by him were far from adequate. What the reasons were which he thought fit to suppress may well be left to the imagination of the reader to determine. As regards those he vouchsafes to give, we can only say they seem to us to be, on the one hand, far-fetched and irrelevant, and, on the other hand, where relevant, to be of little weight. What bearing the giving of advice, or even the submission of plans, in connection with workshops and running-sheds, has on the question of locomotive practice we are at a loss to perceive; while, as regards the ten locomotives with the design of which the Tramway Superintendent is credited by the Minister, we may mention that an illustration of them is to be found at page 194 of the New York *Railroad Gazette* of March 27, 1885.

Those of our readers who are interested in the matter have thus the means of satisfying themselves how far the engines in question indicate any special ability or fitness on the part of the Tramway Superintendent for the position for which the Minister selected him. As far as we can judge, the engines illustrated are practically identical in general features with the ordinary American "Mogul" engine as made by the Baldwin Company, who supplied them, 5-ft. coupled wheels having simply been substituted for the usual 4-ft. wheels, the steam dome dispensed with, single slide bars substituted for double bars, and the connecting-rods, in common with the coupling-rods, fitted with solid bushes at both ends, in place of being provided with straps and cotters, as is usual in ordinary practice. The circumstances which led to the placing of this lot of engines with an American firm have already been commented on by us in *Engineering* of March 5, 1886. As was explained by the Minister at the time, the order was given to meet an emergent case. Makers in this country being unable by pressure of other orders to supply the engines in the short time available, a telegram was sent to the Baldwin Company, who, the Minister said, "offered to supply the whole of the engines within eight months, and six of them within two months." On that account the offer was accepted, although the cost to the Department of the ten engines in question was, as given by the Minister, no less than £3,000 each. So much as regards the engines with which the Tramway Superintendent is credited by the Minister for Works.

Encouraged by the minute of the Minister, the late subordinate of the Locomotive Engineer was not long in sending in a lengthy report. It was perhaps more than could have been expected of human nature as developed in the atmosphere of political intrigue that prevails in some of the Australian Government Departments, for the Tramway Superintendent to have declined the invitation of the Minister for Works. Its acceptance, however, placed him in a somewhat invidious position, requiring no little self-restraint to discharge it faithfully. As was perhaps to be looked for in the circumstances, the report did not spare either the Locomotive Engineer or his specification, but proved to the satisfaction, we doubt not, of the author, and not less so, we presume, to the gratification of the Minister, the utter incapacity both of the Locomotive Engineer and his engines for their respective duties. The report, however, to our thinking, shows a shallowness and superficiality in its treatment of an important subject that is only equalled by its needless personalities, and it will, we feel sure, have little weight with any one competent to form an opinion on it beyond the circle of those for whose benefit it was intended. With the opinions expressed in it as to the relative merits of six-coupled and four-coupled engines for passenger traffic, the advantages or otherwise of steam domes and single slide-bars, and other like matters on which opinions differ, it is not necessary that we should here concern ourselves. Suffice it to say, that the Minister, without affording the Locomotive Engineer the opportunity of even seeing the report of the Tramway Superintendent, forthwith adopted its recommendations, and on the 26th of April wrote as follows:—"I consider it would be detrimental to the best interests of the Railway Department to accept any tenders which have been received for the engines in question owing to their indaptability to our traffic requirements, and I have directed tenders to be invited in terms of the recent resolution of Parliament for fifty engines, twenty-five each of the types I have referred to." (Those recommended by the Tramway Superintendent). "I have directed the Superintendent of Tramway Rolling Stock to draw up such specifications as may be necessary, and he will dismantle two engines and have them placed in the shed so that manufacturers can see the design, and I shall have the locomotives constructed under the Tramway Superintendent's supervision." The

The action of the Minister in this matter was, as will have been seen, of the most arbitrary kind. Although, no doubt, entirely within his powers as Ministerial Head of the Department, we venture to say, in view of the fact that the Locomotive Engineer was retained in his position as responsible head of the Locomotive Department, that the action of the Minister was not only unjust to that officer but subversive of all discipline and responsibility, and therefore hardly consistent, one would think, with the "best interests of the Railway Department," which the Minister professed to have so much at heart. The "recent resolution of Parliament" to which the Minister referred, as affording an excuse for ignoring the tenders already received, was one passed by the Legislative Assembly on April 24 (1887), to the effect—"That, in view of the wide-spread distress amongst the iron trades, this House is of opinion that the Government should take immediate steps to call for tenders in the Colony for the manufacture of 100 locomotive engines, and that the following be the conditions of such tenders:—That the construction of the said engines be carried out by labour already in the Colony, and that only such material be imported as cannot be produced here"; a rather curious "free-trade" resolution, indeed, by a free-trade majority in a free-trade colony. No one, we fancy, would question the right and title of the Legislative Assembly to pass whatever resolutions it deemed fit, without reference to interests outside the Colony, but seeing that tenders had been received only ten or twelve days previously from these same firms for forty-four locomotives, at prices 60 per cent. in excess of those at which manufacturers in this country were prepared to supply them in steam on the railway, the resolution passed by the Assembly was not a little absurd, unless, indeed, the object of its promoters was, as is believed, to delay the settlement of the question.

It might, no doubt, be urged that by increasing the number of engines to be tendered for from forty-four to 100, the local firms would be enabled to tender at a lower price per engine; but as the Minister himself limited the number for which fresh tenders were invited to fifty, the aim of the Legislative Assembly in this respect was defeated by the action of the Minister, and the whole affair rendered more absurd than ever. Its inherent absurdity was shown by the result. The fresh tenders received from the local firms, taking the lowest in each case, were only some £120 less than the previous ones, giving a reduction of little over 3 per cent., and leaving their prices fully 56 per cent. in excess of the offers made by makers in this country under the altered conditions, deferring acceptance and payment until the arrival of the engines in the Colony; and this, too, notwithstanding that the make of locomotives to which the Minister directed the new tenders to be invited were—if the opinion of the Tramway Superintendent be accepted—considerably less costly than those for which the English tenders were invited.

Another feature of this case, to which we may refer in passing, is that a (so called) "trial" of locomotives of the types recommended by the Locomotive Engineer and the Tramway Superintendent respectively, was gone through at the instance of the Minister, with the object, apparently, of giving a semblance of substantiality and weight to the opinions enunciated by the Tramway Superintendent. The papers on the subject laid on the Table of the Legislative Assembly, show an amount of unfairness to the Locomotive Engineer and the engines he recommended, in the conditions under which the trial was directed by the Minister to be made, which we would hardly have been prepared for, had it not been for the prior action of the Minister in the matter. With this part of the case we purpose dealing on a subsequent occasion.

In concluding this article, we may remark that to the unwarrantable treatment which tenderers outside the Colony have experienced at the hands of the New South Wales Government has been added the discourtesy of withholding from them official notification either of the rejection or acceptance of their tenders, the only information on the subject being such as may be gathered from the papers laid recently before the Legislative Assembly. They have consequently suffered the inconvenience of being held in suspense as to the result of their offers. No sufficient reason has been disclosed to warrant this treatment. It would have been but reasonable for the Government—pending the settlement of the question as to the fostering of local manufacturers—to have taken action on the tenders submitted in response to the invitation of their predecessors. The remote period named by the local firms for commencing delivery of the engines and the slow rate of supply promised by them renders it impossible for them—apart from other considerations—to meet the existing demands of the Department for Locomotives.

We shall not be surprised to find that the delay which has occurred in dealing with the matter will be followed by the discovery at the last moment that the pressing need of the Railway Department for additional engines can only be met, as on previous occasions, by ordering from America, and without competition, locomotives at prices much in excess of the English tenders.

This is altogether wrong, the engine being of a different type no comparison can be made. It is idle to say that they are 56 per cent. above the English prices unless we know what the English prices are. The writer's argument leads him constructively into the assertion that engines in England, whatever their character, dimensions, &c., are built at the same price.—CH.A.G., 16/4/88.

Railways.—Further papers respecting Tests for suitable type of Engine.

Ordered by the Legislative Assembly to be printed, 25 October, 1887.

Mr. Acting Locomotive Engineer Midelton to The Traffic Manager.

New Engines for working Mail and Mixed Trains.

Now I have this matter in hand, I should be glad to know your views as regards the maximum number of vehicles (or total weight of train exclusive of engine and tender) you desire to work on your mail trains regularly.

As you of course know, we have been using *two* powerful engines on our mail trains for some time, I hardly think it necessary to point out how prejudicial this is in many ways, as you, of course know that also.

If

If you will kindly let me know the weight of the heaviest train you desire to work, at an average speed of (say) 35 miles per hour, I should be glad, as the practice of employing two engines on ONE train should be discontinued as soon as possible. I am preparing designs for an engine which shall take the train I think you will propose, that is, of course, keeping within bounds as to safety on our steep grades.

I have my opinions of course, and when I have yours probably I shall find I have under-estimated your requirements. Please, therefore, let me have this as soon as you can.

THOS. MIDELTON, 20/3/83.

Memorandum to The Traffic Manager.

Locomotive Engines Branch, Redfern, 13 April, 1883.

WILL the Traffic Manager kindly return my m.p., 83-2,179 *re* new engines for working mail and mixed trains. The paper was sent to Traffic Manager on 21/3/83.

R.J.S.

The information we require from Inspectors not yet furnished. Will return the paper in the course of two or three days.—W. V. READ (*pro* J.P.), 16/4/83. I shall be glad to have your reply as early as possible; I have several important questions standing for this paper.—T.M., 17/4/83. Traffic Manager.

I return the paper herewith, and from inquiries I have made, I find that an engine capable of maintaining a speed of 35 miles per hour on an ordinary road, and of drawing thirteen loaded vehicles up an incline of 1 in 30 or 33, would meet the requirements of the Department. I do not mean, of course, that a speed of that kind should be maintained upon such an incline, because that would be impossible. It will be a great desideratum if such an engine can be procured for our passenger trains, because I quite concur with Mr. Midelton, that it is undesirable to have two engines doing the work of one, as they have very frequently to do at present.—W.V.R., 25/4/83. Mr. Midelton.

Please see L.E., 84-2,946, Comrs. 84-10,352 and 84-9,134.

I am sorry it has taken two years to accomplish that which is so generally admitted to be so desirable. We now possess ten passenger engines which will do what is required, *viz.*, take thirteen vehicles over any portion of the N.S.W. lines at any time-table speed the Traffic Manager likes to decide upon. I have to-day (15/4/85) hauled a train of 101 tons (exclusive of engine and tender) from Penrith to Glenbrook under conditions which cannot be said to be favourable, the boiler of No. 311 engine (the one in question) being very dirty indeed, and also the water. The engine steamed freely, did not prime, hauled the load with ease, and ran perfectly cool all round. On the return journey No. 311 was attached to the up passenger train, and ran often at a speed of over 40 miles an hour for a long distance. I consider this most satisfactory, and these engines are capable of successfully working any passenger train we have, even the express, where, if one of them were used, a train of double the weight of the present one could be worked, but of course I should not advocate the use of a six-coupled 5-ft. wheel engine where a four-coupled 6-ft. wheel will do.—T.M., 15/4/85.

Traffic Manager will please note and return, so that I may forward paper to L.E.—Seen.—W. V. READ (*pro* D.K.), 16/4/85.

Locomotive Engineer.—T.M., 16/4/85.

Minute by Mr. Midelton, Locomotive Overseer.

On letter received by Commissioner for Railways from Mr. W. Rhodes (of the Baldwin Company), offering six locomotives of the "Mogul" type, dated 1st December, 1883.

This represents the class of engine and tender I am now designing in accordance with a minute by you on a previous paper. I have ever since I came to the Colony—in 1880—argued that an engine such as here illustrated, having 18 x 26 cyls, and a set of 6-coupled wheels, 5'0 diameter, would with a suitable engine we could have, such as would be capable of working any passenger trains, or goods trains, or fast eight-wheeled tender to carry 3,000 gallons of water and 5 or 5½ tons of coal, be the best "all round" class of cattle traffic, in short it could be attached to any train and work it satisfactorily. I have already made my views known in the report and specification *re* the twenty new Mogul engines recently cabled for from England, but I regret to hear that my suggestions were *not regarded*. If the Loco. Engineer will give me his *full support* I shall have very great pleasure in preparing "Special specifications" as alluded to in the attached printed circular (extract from the *Chicago Railway Age*, May 29th and June 5th, 1879), and guarantee to have an engine which shall give equal performance, and under similar circumstances, to those named by Mr. Finney, and I recommend that such specification be prepared and submitted to the Baldwin Company for prices for six engines and tenders as suggested by Mr. Rhodes, as I am quite sure they will give us greater satisfaction than any engine we now have. It grieves me to see two engines on our mail trains when one (such as I propose) would do the work comfortably in all weathers.

The reason for this is shown in the papers.—W.S.

Mr. Midelton has my support when I consider he is right.—W.S.

T.M., 22/12/83.

The class of engine submitted by Mr. Rhodes, on behalf of the Baldwin Company, would be a great improvement on the Consolidation class supplied to us by this firm, and provided they undertake to build such a type of engine on our specification I recommend an order be given for six of them if the price be reasonable. The class of engine which I consider best adapted to our requirements is a 19 x 26 cylinder and a 54-inch driving wheel. This type of engine would have a tractive power of about 174, and can be run at a speed of 35 miles per hour, allowing a good margin of safety, which I consider would be ample for any mixed passenger or live stock trains. Believing that the speed of our mail trains must be increased rather than reduced, I could not think of recommending the use of such an engine as Mr. Midelton advocates for running mail trains.—W. Scott, 2/1/84. The Commissioner.

Will

Will the Loco. Engineer be good enough to direct Mr. Midelton to draw up a specification to his design, and I shall be glad to receive a specification from Mr. Scott to his own design, as explained in his minute of 2/1/84. Then I think it would be well to obtain prices from Baldwin Company on a competitive basis for one or both of these engine. Let Mr. Midelton state the speed to which the engine he proposes can be run to with perfect safety.—CH.A.G., 22/1/84.

Stated 35 to 40 miles per hour on specification.

I must agree with Mr. Midelton that it is a grievous thing to see, when a train is slightly added to—(say) 40 tons added, and not weighing on the whole 120 tons (without motive power)—that two engines should be required to move it. If one engine can do such work by all means let us have a design of it.—CH.A.G., 22/1/84.

Memo. to Mr. Midelton, 25 January, 1884.—Referring to your minute of 22/12/83 on Mr. Rhodes' letter of 1st December, the Commissioner desires that you will draw up a specification of the engine you propose, and state the speed to which the engine can be run with safety.—W. SCOTT.

Specification herewith. I very much regret there is not time for preparing complete drawings also.—T.M., 26/2/84. Loco. Engineer.

Extract from Commissioner's Minute Paper, 84-10,352.

* * * * * Mr. Midelton has designed a powerful passenger engine which, when required, can be used as a goods engine. The two specifications are herewith. The latter engine is to enable us to increase the weight of our passenger trains without using two engines. * * * * *

CH.A.G., 27/3/84.

Approved.—F.A.W., 3/4/84.

Railways.—Tenders for Engines and Tests for suitable Type of Engine.

Ordered by the Legislative Assembly to be printed, 13 October, 1887.

The Locomotive Engineer to The Commissioner for Railways.

Additional Engines required for new extensions, &c.

In view of the number of additional miles that will be opened for traffic within the next two years, I beg to recommend tenders be invited at once for the number of engines required to work them.

On the Northern Line there are not sufficient goods engines now in stock to meet the traffic in the busy season, and when the line is opened to Tenterfield we shall have very great difficulty in meeting the increased requirements, so that it is absolutely necessary that more locomotives be supplied at the earliest possible moment for that line.

While we have sufficient engine power to meet the traffic on the Southern and Western Lines at the present time, yet when the new extensions are opened (over 300 miles) an increase to our locomotive stock will be indispensable.

In view of the many advantages accruing from as few types of engines as possible being used, I strongly recommend that the terms of the specification for the two classes now required be strictly adhered to.

The class most suitable for our passenger traffic is that provided for in the specification upon which tenders were last invited, and for which the Vulcan Foundry Company, of England, obtained the contract. The advantages gained by having even the same class made by the same makers are so considerable, and in view of the very low price at which the Vulcan Foundry Company are supplying, induces me to strongly recommend that an order for those now required be given to the same firm.

For the goods traffic I do not think that a more suitable engine than the Mogul class, specification No. 191, can be obtained. We have now had some years' experience of them, and, as regards loads hauled, economy in "Running Stores," and small cost of repairs and renewals, they have given general satisfaction. I therefore strongly urge that this type of engine be adhered to.

The following are the number of engines required, and the estimated cost:—

Great Northern Railway—

4 Passenger Engines, @ £2,450 each	...	...	...	...	—	£ 9,800
8 Goods " @ £2,780 each	...	...	...	...	—	22,240

Great Southern and Western Lines—

12 Passenger Engines, @ £2,450 each	...	...	...	...	—	£ 29,400
20 Goods " @ £2,780 each	...	...	...	...	—	55,600

Total £117,040

I intend to submit a separate paper upon the quantity and description of tank engines which will be required to meet the increased requirements on our suburban lines.

W. SCOTT, 25/5/86.

I cannot concur in Mr. Scott's recommendation that for the reasons given the order for the sixteen passenger engines required be given to the Vulcan Company without competition.

We have not, I think, received the engines which the Vulcan Company obtained recently the contract for, and therefore cannot know much of the quality of the work; but even if it be all that can be desired, I do not think it right that we should depart from the approved system of inviting tenders.—CH.A.G., 28/5/86.

The system of inviting tenders should not be departed from. It is represented that it is absolutely necessary these engines should be obtained. I therefore approve of tenders being called.—W.J.L., 29/5/86.

Memo

Memo. by The Locomotive Engineer to The Commissioner for Railways.

Tenders for Locomotive Engines.

I FORWARD herewith a draft advertisement, calling for tenders for the supply of locomotive engines, approved on your 86-8,560 herewith, which will, I trust, be inserted as early as practicable.

I also forward herewith twelve copies of each specification for Colonial-built engines and ten copies of each specification for engines to be manufactured in England or elsewhere.

W. SCOTT, 31/8/86.

Send copy of draft specification and conditions for locomotives to D. & W. Robertson, Mort's Dock, Atlas Company, Vale, Wearne, Hudson Bros., and Chapman and Company, and ask them to peruse them and let me know whether there are any alterations which, in their opinion, should be made therein to meet the reasonable requirements of Colonial manufacturers. Suggest that they have a meeting and act in concert in any suggestions which they may have to make.—CH.A.G., 2/9/86.

The Commissioner for Railways to Messrs. D. & W. Robertson and others.

Gentlemen,

Department of Public Works, Railway Branch, 2 September, 1886.

I have the honor to enclose herein for your perusal copy of our specifications for the supply of engines, for which tenders are to be shortly invited. I shall be glad if you will let me know whether there are any alterations in the conditions which you consider should be made to meet the reasonable requirements of local manufactures. I may add that a similar communication has been addressed to the firms mentioned in the margin. It would perhaps be desirable for a meeting of representatives of these firms to be held in order that any suggestions may meet with their entire concurrence.

I have, &c.,

CHAS. A. GOODCHAP

(Per D.C.M'L.),

Commissioner for Railways.

Mort's Dock Co.,
Mr. Wearne, Mr.
Vale, Champan
& Co., Hudson
Bros., Atlas Co.

Please reply on or before the 15th instant.

The Secretary, Iron Trades Employés Association, to The Commissioner for Railways.

Iron Trades Employés Association, Box 256, General Post Office,

Sydney, 14 September, 1886.

Sir

Your favour of 2nd instant, together with copies of specifications for supply of locomotives, were duly received, and the several firms having had a conference on the subject, acted under their instructions, I have the honor to request that the following alterations be made in the conditions, viz. :—

GOODS ENGINES.

1.—General Arrangements, page 2.

In lieu of the contractor preparing the working drawings, the employés consider it to be the duty of the Government to supply plans and specifications from which the contractor should work.

See Minister's
decision ; con-
tractors to pre-
pare their own
drawings.—
CH. A. G.,
25/10/86.

2.—Wheels and tires, page 4.

The Colonial manufacturers consider that, as there are several English firms with quite as good a reputation for this class of work as that of Vickers, Sons, & Co. (such as John Brown & Co., Cammell & Co., Brown, Baley, & Dixon), it is not fair or to the interest of the Government they should be limited to one particular firm, especially as the principal railway companies in England and elsewhere obtain their material from those and other equally good firms.

See Minister's
decision.—
CH. A. G.,
25/10/86.

3.—Boiler, page 4.

The "Farnley" brand of iron to be included with Lowmoor, Bowling, or Taylor Brothers, as the makers of that iron stand on equal terms in England.

See Mr. Scott's
minute con-
ceding this.—
CH. A. G.,
25/10/86.

4.—General conditions, page 11.

Alterations.—The minor alteration to be executed by contractor should be limited to £5 ; anything beyond that value should be paid for.

See Mr. Scott's
minute con-
ceding this.—
CH. A. G.,
25/10/86.

Cost of Arbitration.—The employers consider it would be more equitable for the contractor to bear expense of arbitration if he be not awarded an amount equal to one-half his claim, instead of three-fourths, as now specified.

See Minister's
decision.—
CH. A. G.,
25/10/86.

Hoping this will meet with your approval,

I have, &c.,

JAS. CHAS. PRATT,

Secretary.

Mr. Scott for report. I do not see how the Colonial manufacturers can be prejudicially affected by our mentioning Vickers' steel for tires. The same condition will apply as regards the description of steel if English manufacturers compete. I strongly doubt whether the firms named by the Contractors' Association do make as good tires and axles as Vickers ; our experience is the other way.—CH.A.G., 23/9/86.

The

The Locomotive Engineer to The Commissioner for Railways.

CONTRACTORS' suggestions *re* alterations in specifications for engines proposed to be built in the Colony:—

(1.) The object of stipulating that contractors should provide their own working drawings is to obviate the necessity of employing a staff of locomotive draftsmen for which there is at present no accommodation, in addition to which we could not find permanent employment for them.

(2.) I cannot admit the contention that the other firms mentioned have as good a reputation as Messrs. Vickers have as makers of axles and tires, and in view of the importance of having the very best quality of material, I do not think the alteration suggested should be granted. I assume that, provided tenderers are supplied at the prices now charged to the Government by Messrs. Vickers, they are not prejudicially affected.

(3.) I have no objection to the Farnley brand of iron being included. In fact the proviso that tenderers were to name the brand of iron they intended to use was specially inserted to meet such views.

(4.) I have no objections to the value of the minor alterations in detail being limited to £5.

W. SCOTT, 28/9/86.

In what way can it be stipulated that the contractors shall have the axles and tires at the price paid by the Government? The only way that I can see to accomplish this is to provide in the specification that the axles and tires shall be provided by the Government.—CH. A. G., B. C., 30/9/86.

Mr. Scott.—Urgent.

I had a conversation with Mr. J. N. Vickers, of Bond-street, who represents the firm in the colonies, on this subject, and he gave me to understand that they could supply contractors building engines for the Government at the same price as they are supplied to the Government, and he informed me that he intended to see you on the subject. I would suggest that he be written to so as to obtain a written offer to that effect.—W. SCOTT, 2/10/86. Commissioner.

I have no doubt if the undertaking were made that the firm would carry it out, but I do not think it desirable that the Department should contract for third parties, as complications might arise. Before, however, the question is finally decided, the contention of the manufacturers that we should take other tires and axles must be submitted to the Minister. Manufacturers will push their wares, and no doubt the Department lays itself open to ungenerous suspicion in advocating a special article made only by *one* manufacturer, but if an accident were to occur through defective axles and tires—and on our mountain lines the consequences would be perhaps exceptionally severe—those who advocate cheap axles and tires would not be held responsible, but the officers of the Department would be for weakness in not resisting the use of inferior material in such vital parts of our rolling stock. Of course the manufacturers named would urge that their tires and axles are as good as Vickers', but the report of Sir John Fowler and our own experience are to the contrary.—CH. A. G., 7/10/86.

I see no objection to the contractors providing their own working drawings; on the contrary I believe if it were done it would be a considerable saving to the Department. With regard to the use of tires and axles, I deprecate any proposal to obtain these unless they are of the best quality, and obtained of makers of the highest standing. There can be no objection to the contractors arranging with Messrs. Vickers & Co. for the supply of the same class of tires, &c., as we are now using. It is undesirable that the Government should make the arrangements, as they would thereby become third parties to the transaction, which might cause complications, but contractors should have direct communication with the makers, the Government reserving to itself the right to accept or reject any supplies. With reference to the use of axles and tires other than Vickers', unless experts in whom the Department and the public have confidence are prepared to recommend other makers I certainly cannot take the responsibility of authorizing any alteration.—W. J. L., 11/10/86.

Will the Minister decide question as to cost of arbitration, as provided in specification? It reads that, unless the contractor is awarded three-fourths of his claim, he must pay costs; this is, of course, to prevent excessive claims being made. The contractors say "one-half," but that seems to me absurd. A contractor claims £100, and is awarded £50, which sum we may have been willing to pay, without going to arbitration, and yet we should have to pay costs. It would be better to say that the cost of all references to arbitration shall be borne equally by both sides, or make it in proportion—that is, the same proportion as the award bears to claim and offer.—CH. A. G., 14/10/86.

If the contractor does not get an award of more than offered by the Department, he should pay *all* costs, and if he obtains one-half his claim (being *more* than we would pay), the Department should pay half costs.—W. J. L., 21/10/86.

Communicate to Colonial manufacturers the decision of the Minister on the points raised, and the other points which the Locomotive Engineer has conceded. Then to Mr. Scott to have specification and conditions amended in accordance therewith. The payment of arbitration costs should be arranged as provided in the accompanying printed copy of conditions as to arbitration, clause 13.—CH. A. G., 25/10/86.

The Commissioner for Railways to The Secretary, Iron Trades Employés Association.

Sir,

Department of Railways, Sydney, 3 November, 1886.

With reference to your letter of the 14th September last, suggesting certain alterations in the specifications for the manufacture of locomotives in the Colony, I have the honor to inform you that the matter has had very careful consideration, and I have to intimate that Mr. Secretary Lyne has decided as follows on the various points raised:—

First.—As to drawings, that it is advisable the contractors should provide the working drawings.

Second.—Wheels and Tires: That, in the interest of public safety, it is essential they should be of the very best quality, and obtained from makers of the highest standing.

Relative to the use of axles and tires, other than Vickers', Mr. Secretary Lyne cannot accept any responsibility in authorizing the receipt of tires and axles, the manufacture of any other firm, but would be prepared to consider the matter if experts, in whom the Department and the public had confidence, were prepared to recommend other makers.

Third.

Third.—Inclusion of the "Farnley" brand of iron; and

Fourth.—Cost of alterations above £5 to be paid for. These points will be conceded.

Fifth.—Cost of arbitration: The cause relating to the costs of arbitration to be amended as follows:—

"If, upon an arbitration in respect of claims made by the contractor the sum awarded to the contractor shall be less than one-half of the amount of his said claim, all the costs, charges, and expenses of, and incident to, the said arbitration and award shall be borne and paid by the contractor, but if the amount awarded shall exceed one-half of the amount of the said claim, then each party shall pay his own costs and one-half of the arbitrators and umpire's fees."

I have, &c.,

CHAS. A. GOODCHAP,

Commissioner for Railways.

Memo. from The Locomotive Engineer to The Commissioner for Railways.

I SHALL be obliged if you will kindly inform me when tenders will be invited for the engines to specifications, Nos. 188A and 191, which were forwarded to you on 31/8/86.

As the engines cannot be delivered for a considerable time after tenders are invited, I would point out that unless tenders are soon called for serious inconvenience may be caused in working the traffic.

W. SCOTT, 29/10/86.

The Secretary, Iron Trades Employés Association, to The Commissioner for Railways.

Iron Trades Employés Association, Box 256, General Post Office,

Sydney, 12 November, 1886.

Sir,

I have the honor to acknowledge the receipt of your favour of 3rd instant in reference to the locomotive specifications, and am instructed to say the employers acquiesce in the specification being amended in accordance with your letter now under acknowledgment.

I am further instructed to ask if you would favour the employers with the prices paid by the Government for the Vickers' wheels and axles and tires.

I have, &c.,

JAS. CHAS. PRATT,

Secretary.

Locomotive Engineer.—D.C.M'L., 15/11/86. The information can be supplied by the Store Branch if the Commissioner approves.—W.S., 17/11/86. The Commissioner.

This paper was sent to Loco. Branch to amend the specification. The matter mentioned in the second paragraph of Mr. Pratt's letter is being dealt with separately.—D.C.M'L., 18/11/86. Locomotive Engineer—A.R., B.C., 18/11/86. The specifications with the alterations approved by the Commissioner are in the Printer's hands.—W.S., 19/11/86. The Commissioner. In a week to see if specifications are ready, 23/11/86.

Give the fullest information of the price we pay for locomotive wheel-tires and axles. I do not think we get the wheels from Vickers. Please inquire? Be careful there is no mistake, as the tenders will probably be based on the price we name.—CH.A.G., 16/11/86.

RETURN of prices paid for tires and axles during 1885-1886.

Date.	Maker.	Description.	Invoice cost per ton.			Cost in Colony per ton.		
			£	s.	d.	£	s.	d.
1885	Cammell & Co.	Engine tender and waggon tires.....	20	0	0	21	11	3
1885	Vickers, Sons, & Co.....	Brake-van tires	22	0	0	23	13	3
1885	do	Engine and tender tires	24	0	0	25	13	0
1886	do	Carriage and waggon tires	18	0	0	19	10	10
1885	do	Carriage and waggon axles	26	16	9½	28	13	6
1886	do	do do	18	0	0	19	10	10

Memo. by The Locomotive Engineer to The Commissioner for Railways.

Tenders for Locomotive Engines.

I HEREWITH forward twelve copies of specification No. 188A, and twelve copies of specification No. 191, which are complete, in accordance with your directions on 86-4,423, re provision for Colonial manufactures. Draft advertisement also herewith.

W. SCOTT, 23/11/86.

The specification must embody in itself, and not in the form of addenda, the alterations made to Monk bridge boiler-plate, to be included with other brands. Is it not proposed to invite tenders in Europe and America at the same time?—CH.A.G., 25/11/86. Locomotive Engineer.

I will have the specifications altered, to include the amendments referred to in their proper places; but as this will involve the reprinting of them, some delay will necessarily occur. In regard to the Monk bridge-plates I regret to say that I have not sufficient confidence in their quality to justify my including them in the specification, more particularly as regards the boilers; but I see no objection to their being used in the frame-plates, and will provide accordingly. I would, however, suggest, for your consideration,

consideration; the desirability of sending a cable to the Inspecting Engineer in England, to the following effect:—"Are Monk bridge-plates considered suitable for locomotive boilers?" I assumed it was your intention to invite tenders in Europe and America, and provided for it in a separate specification.—W. Scott, 30/11/86.

Prepare cablegram for Agent-General.—CH.A.G., 2/12/86. Cablegram forwarded to Public Works for transmission to Agent-General, 2/12/86.—D.C.M'L., 2/12/86. Locomotive Engineer.

Eight specifications for passenger engines herewith. The specifications for goods have not been received from the Printer yet.—W. Scott, 29/12/86. The Commissioner.

Memo. by The Commissioner for Railways.

Specifications for Locomotives.

It is time the advertisement was out for locomotives.

Tenders are to be invited in the Colony, and simultaneously in England and America.

Let me have completed specifications and notices.—CH.A.G., 30/12/86.

Specifications for the passenger engines herewith; those for the goods engines have not yet been turned out by the Printer. Advertisements might however be put in the newspapers saying that specifications for the latter can be obtained after (say) the 7th proximo. Please say how much notice should be given of the date for reception of tenders.—D.C.M'L., 30/12/86.

The Commissioner wishes you to submit at once the draft advertisement. I would point out that the specifications sent only provide for the engines to be made in the Colony. Where are the specifications to be tendered from in England and America? The matter is urgent, and the Commissioner wishes it attended to with the utmost expedition.—D.C.M'L., 30/12/86. Locomotive Engineer.

Draft advertisement herewith. The specifications were only received from the Printer's this morning. There are ten of each description for Colonial tenderers, and twenty of each for foreign tenderers. More can be forwarded if required.—W. Scott, 4/1/87. The Commissioner.

The specifications have been forwarded to your office.—W.S., 5/1/87. The Commissioner.

* Specifications included in papers laid on the Table of the House, and ordered to be printed, 27 April, 1887.

ENCLOSED are papers and specifications* containing all necessary information for the invitation of tenders for the following locomotive engines:—

16 of passenger type	...	...	...	...	...	12 at Sydney, 4 at Newcastle.
28 of goods type	...	...	...	...	...	20 at Sydney, 8 at Newcastle.

The mail leaves *via* Melbourne on Wednesday next, and it is proposed to call for tenders in America, England, and the Colony, returnable in each place on the same date (12th April). The tenders received in Sydney will not be open until the Agent-General reports (which he will be able to do by cablegram) the result of the tendering in England, America, and on the Continent.

CH.A.G., 10/1/87.

Approved.—W.J.L., 10/1/87. Write to Agent-General at once.—A.R., 10/1/87. Draft letter to Agent-General.—C.A.B., 11/1/87.

The Secretary for Public Works to The Agent-General.

Sir, Department of Public Works, Railway Branch, Sydney, 11 January, 1887.

I have the honor to inform you that, in view of the expected opening of new lines, it has become necessary to obtain a further supply of locomotives, both for passenger and goods work, and the Government have determined that tenders shall be invited for them in England, America, the Continent of Europe and the Colonies.

The locomotives required are:—

Sixteen four-coupled outside cylinder passenger bogie engines with tenders to specification, 188A (twelve to be delivered in steam in Sydney, and four in steam in Newcastle).

Twenty-eight six-coupled outside cylinder bogie goods engines with tenders to specification, 191, of which twenty are to be delivered in steam in Sydney, and eight in steam in Newcastle.

For these engines you will please invite tenders in England, America, and on the Continent; tenders to be lodged by the 12th day of April next.

As time is now an important consideration, I will ask you to be good enough to communicate to me by cable the result of the tendering, and the recommendation of the Consulting Engineer, in order that it may be considered with the Colonial tenders. By this mail I send you forty copies of specification No. 188A, and a similar number of specification No. 191.

I have, &c.,

W. J. LYNE,

Secretary for Public Works.

The Manager, Phoenix Foundry Co., to The Locomotive Engineer.

Phoenix Foundry Company (Limited),

Dear Sir,

Ballarat, 11 January, 1887.

I notice by the papers that you will be calling for tenders shortly for the locomotive engines you mentioned some time since. When the specifications, conditions, &c., are ready, I would be obliged if you would kindly forward me a copy of same. I will remit the charge for same per return. With best wishes to yourself and Mrs. Scott for the new year,—

I am, &c.,

W. H. SHAW,

Manager.

Copies forwarded.

The

The Manager, Phoenix Foundry Co., to The Locomotive Superintendent.

The Phoenix Foundry Company (Limited),

Ballarat, 19 January, 1887.

Dear Sir,

Referring to the specifications for forty-four locomotive engines which you have kindly sent us, we notice that the specifications state the engines are "To be manufactured in the Colony of New South Wales," and in the conditions also, "the remainder must be manufactured in the Colony of New South Wales."

Will you kindly inform me if these conditions are imperative on all tenderers, or if they are intended to apply to New South Wales tenderers only. If they are imperative on all tenderers, they, of course, shut us out entirely, because, although we do all the work ourselves, and only import the raw materials, yet none of our work could be done in New South Wales, and, consequently, we could not comply with this condition.

We trust you will see your way to make these conditions apply to all the Colonies. Awaiting your reply,—

I am, &c.,

W. H. SHAW,
Manager.

Minute by The Locomotive Engineer to The Commissioner.

COPIES of the specifications for Colonial tenderers were forwarded to the manager upon his application. I now submit his subsequent letter, which opens up the question as to whether they must be built in this Colony. I submit that the Phoenix Foundry be treated as a foreign firm, and be supplied with the specification relating to foreign builders.

W. SCOTT, 25/1/87.

For Minister's consideration.—I think Victoria, or indeed any of the Australian Colonies, should be admitted on the same terms as the manufacturers of New South Wales.—Ch.A.G., 29/1/87. The present tender is for engines to be made in the Colony, in accordance with the resolution of Parliament.—J.S., 20/5/87."

Tenders for Forty-four Locomotives.

The Agent-General for New South Wales to The Secretary for Public Works.

Sir,

5, Westminster Chambers, 22 April, 1887.

In accordance with your instructions, as conveyed to me in your letter 86-140, of the 11th January last, and the Honorable the Colonial Secretary's telegrams of the 5th March last and the 4th instant respectively, I have invited tenders from the Continent, America, and the United Kingdom for the forty-four locomotives required by the Government. Tenders were received at this office on the 12th instant, and on the 14th idem I informed the Honorable the Colonial Secretary, by telegram, as follows:—

"*Re Locomotives.*—Four tenders received from United States of America; three from Continent; twenty-two from England. Eleven according to original, and twelve to new conditions. Six informal. English tenders lowest, and very close. Neilson's lowest according to new conditions, but without design—passenger, £2,375; goods, £2,245. After further examination of tenders I will telegraph again."

On the 19th instant I further telegraphed as follows:—

"Tenders locomotives. Large difference between old and new conditions to cover possible rejection risks and deferred payments. Six firms not tendered under new conditions. Consider Government best served (Dübs) £2,165, passenger (Beyer) £2,495—payment in England as hitherto. Believe Beyer would take £100 less."

I have now the honor to forward, for your information, the Inspecting Engineer's letter of the 21st instant, having reference to the analysis of the tenders received, together with schedules of the tenders for each kind of engine.

I have, &c.,

SAUL SAMUEL.

[Enclosure.]

Sir,

2, Queen's Square Place, Westminster, S.W., 19 April, 1887.

I have gone very carefully through the details of the tenders, plans, and specifications of the locomotives. Of the various plans which have been sent in, six firms do not tender on the altered or new conditions, and the difference between the original and new conditions is in some cases large—namely, as much as £460 per engine. This is excessive; about £150 would perhaps represent the money value of the different modes of payment and cost of shed-room. There is the interest on the deferred payment, the commission to the Financial Agent in the Colony, and the exchange in sending home the money, &c. In the instance where the large increase is made, I think the manufacturers have put down the difference to compensate for risk of rejection in the Colony.

The lowest tender under the new conditions is, as previously stated, that of Messrs. Neilson & Co.; but no plan has been sent with the tender, and before any acceptance of this tender it would be absolutely necessary to have plans and details to be approved, so that we may know what they propose, as Messrs. Neilson have not hitherto made engines for the New South Wales Government.

If it be a question of excellence of manufacture, I should recommend that the goods engines be given to Messrs. Dübs and the passenger engines to Beyer and Peacock, who have made similar locomotives for the Colony, and have always given satisfaction in their work.

Also, that payment be made in England in the usual manner, the price being respectively* £2,265 for the goods engines at Sydney, and £2,495 for the passenger engines at Sydney. The Newcastle delivery is £25 each more.

I am, &c.,

JOHN FOWLER.

The Agent-General, New South Wales Government.

*Price since been reduced by £100¹

SCHEDULE OF TENDER.

(F 1475.)

28 outside Cylinder Bogie Goods Engine, with Tenders.

Firm	Original conditions— Pay in England.		Altered conditions— Pay in Colony.		Informal conditions.	Place of delivery.	Designs accompanying tender.	
	Price each for 20 Sydney engines.	Price each for 8 Newcastle engines.	Price each for 20 Sydney engines.	Price each for 8 Newcastle engines.	Price each for the 28 engines.			
Dübs & Co.	£ 2,265	£ 2,290	£ 2,725	£ 2,750	.....	20 in steam, Sydney 8 ,, Newcastle.	Engine & tender.
Beyer, Peacock, & Co.....	2,345	2,370	2,495	2,520	.....	20 ,, Sydney 8 ,, Newcastle.	,, ,,
Stephenson & Co. ....	.....	.....	No tender...	No tender...	2,135	F.o.b., London or Liverpool.	,, ,,
Kitson & Co. ....	.....	.....	2,990.	2,990	.....	20 in steam, Sydney 8 ,, Newcastle.	,, ,,
Sharp, Stewart, & Co. ....	.....	.....	2,368	2,368	.....	20 ,, Sydney 8 ,, Newcastle	,, ,,
Neilson & Co.	2,228	2,228	2,245	2,245	.....	20 ,, Sydney 8 ,, Newcastle.	No design of en- gine or tender.
Clyde Locomotive Company	2,375	2,400	2,425	2,450	.....	20 ,, Sydney 8 ,, Newcastle.	Engine; no tender.
Vulcan Foundry Company	2,336	2,386	No tender...	No tender...	.....	20 ,, Sydney 8 ,, Newcastle.	Engine & tender.
Burnham, Parry, Williams, & Co. ....	.....	.....	,, ..	,, ..	2,950	Alongside vessel, New York.	,, ,,
Canadian Locomotive Com- pany.	.....	.....	,, ..	,, ..	2,500	F.o.b., New York ...	No design of en- gine or tender.
Sächsische Company	About £2,518 (price given by weight).	About £2,500 (price given by weight).	,, ..	,, ..	.....	20 in steam, Sydney 8 ,, Newcastle.	,, ,,
Société de Construction	No tender for these engines.		

SCHEDULE OF TENDER.

(F 1475.)

16 Outside Cylinder Bogie Passenger Engines, with Tenders.

Firm	Original conditions— Pay in England.		Altered conditions— Pay in Sydney.		Informal conditions.	Place of delivery.	Designs accompanying tender.
	Price each for 12 Sydney engines.	Price each for 4 Newcastle engines.	Price each for 12 Sydney engines.	Price each for 4 Newcastle engines.	Price each for the 16 engines.		
Dübs & Co.....	£ 2,425	£ 2,450	£ 2,885	£ 2,910	.....	12 in steam, Sydney 4 ,, Newcastle.	Engine & tender.
Beyer, Peacock, & Co.....	2,495	2,520	2,645	2,670	.....	12 ,, Sydney 4 ,, Newcastle.	,,
Stephenson & Co. ....	.....	.....	No tender...	No tender...	2,350	F.o.b., London or Liverpool.	,,
Kitson & Co. ....	.....	.....	3,090	3,090	.....	12 in steam, Sydney 4 ,, Newcastle.	,, ,,
Sharp, Stewart, & Co.....	.....	.....	2,516	2,516	.....	12 ,, Sydney 4 ,, Newcastle.	,, ,,
Neilson & Co.....	2,358	2,358	2,375	2,375	.....	12 ,, Sydney 4 ,, Newcastle.	No design of ten- der and engine.
Clyde Locomotive Company	2,475	2,500	2,525	2,550	.....	12 ,, Sydney 4 ,, Newcastle.	Engine, no tender
Vulcan Foundry Company.	2,530	2,580	No tender...	No tender...	.....	12 ,, Sydney 4 ,, Newcastle.	Engine & tender.
Burnham, Parry, Williams, & Co. ....	.....	.....	,, ..	,, ..	2,900	Alongside vessel, New York.	,, ,,
Canadian Locomotive Com- pany	.....	.....	,, ..	,, ..	2,400	F.o.b., New York ...	No design of en- gine and tender.
Sächsische Company	About £2,775 (price given by weight).	About £2,851 (price given by weight).	,, ..	,, ..	.....	12 in steam, Sydney 4 ,, Newcastle.	,, ,,
Société de Construction ...	3,150	3,250	,, ..	,, ..	.....	12 ,, Sydney 4 ,, Newcastle.	Engine & tender.

Telegram from London Station to The Colonial Secretary.

LOCOMOTIVES tenderers pressing for answer; please reply.

Refer to Works.—C.W., 10/5/87. Railways.—J.R., B.C., 12/5/87. Submitted for Minister's direction.—D.V., 13/5/87. I think we should cablegram to say: "Cannot finally decide till all the tenders are in hands of the Government."—CH.A.G., 25/5/87. Approved.—J.S., 26/5/87.

Minute by The Commissioner to The Locomotive Engineer.

I AM informed that the engines for which tenders have recently been invited are of a different type to any that we have now in use. Our object should be to reduce and not to increase the types of engines. We have now some thirty different types. My wish is to reduce the number of types to five: An express engine, an ordinary passenger, an engine for mixed trains, a heavy goods, a tank engine, and perhaps, though this is not certain, a light mixed engine for the level lines in the interior.

Loco. Engineer.

CH.A.G., B.C., 12/2/87.

Will Mr. Scott be good enough to explain why he has increased the types of engines.—CH.A.G.

It has always been my object to lessen rather than increase the number of types of our engines. I entirely agree that five types should be sufficient, and it will be found that my recommendations have been in accord with this.

The goods engines, for which tenders are now invited, are of our ordinary heavy goods class, "Mogul type," with very slight alterations to cylinders, which are increased 1 inch in diameter; the tender enlarged to hold 500 gallons more water, and an extended smoke-box provided with the view of assisting to prevent emission of sparks from the chimney.

The passenger engines are exactly the same as those now under order from the Vulcan Foundry, and will be of our ordinary heavy passenger type. The necessity for taking heavier loads required by traffic rendered it necessary to enlarge the cylinders and tender-tank. The extended smoke-boxes are also provided for in these engines.

W. SCOTT, 14/2/87.

The Commissioner.

Let me know the number of types of engines which have been introduced since Mr. Scott has been Locomotive Engineer.—CH.A.G., 18/2/87.

Memo. to The Locomotive Engineer.

I HAVE to inform you that the Commissioner wishes to be furnished with a statement, showing the number and description of types of engines which have been introduced by Mr. Scott since he succeeded to his present position.

Please forward this information early.

D.C.M'L., B.C., 22/2/87.

41 express engines, of the Standard type.

60 goods engines, of the Mogul Standard type.

18 tank engines, for suburban traffic.

2 do for Camden Line.

12 passenger engines, of the 79 class, but with increased cylinder power and tender capacity.

The Commissioner.

W. SCOTT, 25/2/87.

Not new.

Not new.

New.

Did the enclosed paper go to Mr. Scott with this covering paper? I do not think his answer quite corresponds with the question I put.—CH.A.G., 28/2/87. No.—D.C.M'L., 1/3/87.

The Mogul goods have been altered, and also the passenger, in the recent indent for forty-four locomotives. Did not Mr. Scott propose a heavier engine for the suburban traffic?—CH.A.G., 1/3/87.

The question of providing a more powerful tank engine for suburban traffic has been under discussion, but so far the Locomotive Engineer has not submitted any design. The matter was awaiting the settlement of the question as to the maximum load a suburban engine is to haul. The decision arrived at was that the present engines have sufficient power, and that a new type of engine is not required.—D.C.M'L., 1/3/87.

Memo. by The Secretary for Public Works.

Locomotives.

TENDERS invited in England, America, and Europe for,—

Passenger engines	16	
Goods engines	28

44

Tenders are to be received up to the 12th April next. Agent-General written to, 20th January, 1887.

The conditions provide that:—

"Payment will be made for each engine as follows:—90 per cent. in cash in London on receipt by the Agent-General for New South Wales of the bills of lading, together with a certificate from the Inspecting Engineer, that the terms of this specification, as to completion, and packing, &c., &c., of the engines have been fulfilled."

I consider it desirable that this condition should be amended, both as regards inspection and payment.

The area of competition has been widened, and European and American firms, as well as English and Colonial firms, have been invited to compete. The engines if made in the Colony will be subject to the inspection of an Inspecting Officer here. If made in England the Inspecting Engineer there will be able to perform the duty, but if a Continental or an American firm should obtain the contract we shall have no Inspector in those Countries.

Under these circumstances it seems to me that the inspection should be in the Colony only, and that payment should be made in the Colony on the certificate of the local Inspector, in the following proportions:—

75 per cent. upon Inspector's certificate on the arrival of the engines, and the balance, 25 per cent., after they have run to his satisfaction, 1,000 miles. A

A cablegram must be sent to the Agent-General to alter the conditions accordingly, before tenders are invited.

It is not likely that any action in this respect has been taken, as the indents have been in the hands of the Agent-General only a few days, if indeed they have yet reached him.

JOHN SUTHERLAND,

28/2/87.

Send telegram to Agent-General:—"The specifications for forty-four engines alter conditions as to payment; no inspection on your side necessary; 75 per cent. will be paid on certificate of Inspecting Engineer in Colony; balance on his certificate when they have run 1,000 miles; manufacturers must find their own workshops here for erecting engines."—CH.A.G., 28/2/87.

Locomotive Engineer to note and please return quickly.—D.C.M'L., 4/3/87. Noted.—W. Scott, 5/3/87. Commissioner. Does Commissioner wish any further action taken on this paper?—D.C.M'L., 9/3/87. Any persons representing foreign houses, either American or Continental, who have received in the Colony copies of the specification should be apprised of the change, and also firms in the neighbouring Colonies who may wish to compete.—CH.A.G., 10/3/87. Write letter to Agent-General confirming cablegram, and explaining the reason for the change more fully.—CH.A.G. The Agent-General, 15/3/87. The Locomotive Engineer.—A.R., B.C., 19/3/87. Letters written to Augustus Morris, Esq., Messrs Carson Wood, & Co., Messrs Mason Bros., Messrs Parke & Lacey, Mr. Shaw, Phoenix Foundry, Messrs Gauz & Co., Messrs Ostermeyer, Dewez, & Co.—W.S., 24/3/87. The Commissioner.

The Secretary for Public Works to The Agent-General.

Sir, Department of Public Works, Railway Branch, Sydney, 18 March, 1887.

I have the honor to confirm my cablegram of the 1st instant, relative to the conditions of payment for the supply of forty-four locomotives.

I may say that the area of competition has been widened for this supply, European and American, as well as English and Colonial firms, having been invited to tender. Should an American or Continental firm obtain the contract there would of course be no provision for inspection before arrival in the Colony, and to place all on an equality it has been determined that the engines shall be inspected locally, payments to be made as follows:—75 per cent. upon the inspector's certificate that the engines have arrived, and 25 per cent. after they have run 1,000 miles to the satisfaction of the responsible officers.

I have, &c.,

JOHN SUTHERLAND,

Secretary for Public Works.

I wish the tank engine papers separated from these, as they have not received final action. I shall exhaust every effort to make our present engines (suburban) answer before I consent to the introduction of another type. As I have before said, five types of engines should be sufficient, but owing to the total disregard of this necessity for economic locomotive working in the early years of our railway management, we have nearly thirty-three different types of engines. I feel certain I shall have the sympathy of Mr. Secretary Sutherland in this effort to reduce the number of types of engines, as he has long been aware of the mischievous effect on our working expenses this multiplication of types of engines has had.—CH.A.G., 4/3/87.

I entirely concur with the Commissioner in this matter.—J.S., 9/3/87. Locomotive Engineer to see.—A.R. 9/3/87. Seen.—W.S., 14/3/87.

Mr. C. Wood to The Locomotive Engineer.

Sir, Sydney, N.S.W., 24 March, 1887.

I beg leave to point out to you that my sole reason for troubling you about the specifications for forty-four locomotives was on behalf of the Charleroi Engineering Société. Your to-day's letter, which I have now the pleasure of acknowledging, modifies, you say, the terms of this contract. You will please see at this late date I have no means of notifying my principal that the terms of contract are changed. I must protest on behalf of European clients who are put to immense cost and great trouble, and at the eleventh hour I am here notified, 16,000 miles from my principals, that the conditions of tender are changed.

I will enclose your letter or a copy to my principals to-day.

CARSON WOOD.

For your information.—W. Scott, 28/3/87. The Commissioner.

Telegram from The Agent-General, London, to The Colonial Secretary, Sydney.

DEPUTATION from the locomotive builders urge specification should provide for inspection in this country as hitherto, and that Government find accommodation erection engines; charging contractors' fixed price per engine. I advise reconsideration. Last condition causing much feeling here.

Telegram from the Agent-General, London, to The Colonial Secretary, Sydney.

25 March, 1887.

LOCOMOTIVES.—Answer urgently required to my cablegram of 18th March. Contractors inquire what import duties or other Government dues will be charged locomotives on arrival and landing. Require immediate reply.

The Under Secretary, Public Works.—C.W., B.C., 28/3/87. Railways.—J.R., B.C., 29/3/87.

Reply:—

"BETTER tender at certain price, wharf and Customs duties to be added."—CH.A.G., 5/4/87.

Cablegram sent to Public Works for transmission to Agent-General, 6/4/87.

The

The chief objection seems to be that we should require English and foreign manufacturers to find their own erecting shops in the Colony instead of giving them the free use of our erecting shops as heretofore. Colonial manufacturers will not be allowed any facility of the kind, and if tenders are to be obtained on a fair competitive basis I do not see why foreign and home manufacturers should have the advantage they ask for. The condition is not prohibitory, for there will be little difficulty in obtaining conveniences for erecting engines should a home or foreign manufacturer secure the order. There is, moreover, a precedent for this course; the contractors for the supply of dump-cars were required to find premises for their erection on arrival in the Colony.—CH.A.G., 28/3/87.

I should advise the following message being sent to Agent-General,—“ Amended conditions as to payment and inspection and contractors finding their own premises for erection will be strictly adhered to.”—CH.A.G., 28/3/87.

Approved.—J.S., 30/3/87. Cablegram sent to Public Works for transmission to Agent-General.—D.C.M'L, 31/3/87.

LIST OF TENDERS received for Locomotives proposed to be manufactured in the Colony.

Name.	20 Goods South.		8 Goods North.		12 Passenger South.		4 Passenger North.	
	Price.	Total.	Price.	Total.	Price.	Total.	Price.	Total.
	£	£	£	£	£	£	£	£
Thos. Wearne	<u>*3,750</u>	30,000	.....	.....	<u>*3,750</u>	30,000	.....	.....
Mort's Dock Company.....	3,995	79,900	4,185	33,480	<u>4,375</u>	52,500	4,555	18,220
Atlas Company.....	4,040	80,800	4,225	33,800	4,405	52,860	4,585	18,340
Henry Vale	3,785	75,700	.....	.....	.....	.....	.....	.....
Hudson Brothers	<u>3,680</u>	73,600	<u>3,760</u>	30,080	<u>3,820</u>	45,840	<u>3,970</u>	15,880
Australian and American Agency Company	Ineligible, as the offers are for engines to their own specifications and for delivery in America.							

*Only tenders to supply eight engines.

Those underlined thus are the lowest offers.

Memo. by The Secretary for Public Works.

Department of Public Works, Railway Branch, Sydney, 18 April, 1887.
 THE Commissioner will please send the papers and specifications to Mr. Midelton for full report. I have many reasons for desiring that gentleman's report, although he is not in the Engineering Branch of the Railways. I shall be glad to have the papers and report on Wednesday, the 20th instant.

JOHN SUTHERLAND.

Mr. Midelton accordingly.—CH.A.G., 18/4/87. Report on Commissioner's 86-8,560 and specification No. 188A and 191 herewith.—T. MIDELTON, 19/4/87. Commissioner.

Minute by The Secretary for Public Works.

Re Railway Rolling Stock, &c.

WITH reference to the specification for twenty-eight goods and sixteen passenger engines, it seems to me, from a perusal of them, that they provide for a different type of engines to any we have now running, and their adoption would, in my opinion, be a serious mistake. There are many provisions that would make the engines unnecessarily complicated and costly, and debar Colonial makers from having any success in tendering. I think we might, for instance, substitute best steel for iron; it would be cheaper, and would give the locomotive a longer life.

Three-fourths of the trade we have over the mountains, on the steep gradients, could be best and cheapest carried by one class of engines, simple in construction and powerful in action; but we have a number of engines of various designs that it would pay the Department better in the long run to put on the scrap heap, if we could be sure of replacing them by a class of engines more suitable to our requirements.

I am not in favour of any increase in the rates for passengers and produce to augment our revenue, as, I believe, by improving our rolling stock, we shall be able, with economical working, to improve our returns, so as not to require any increase. We have at present a large traffic in live stock, which has proved unprofitable, both to the Railway Department and the owner, the latter asserting that the loss to him through delay in transit by rail, &c., is sometimes equal to 10% on the value of the consignment; and this must be taken in a degree as adding to the railway rates. We will always have a large traffic, either in live stock or dead meat, and I do not think a permanent improvement will come until we have improved rolling stock for this traffic, both in engines and trucks. Stock trains should be run at almost the same speed as our mail and passenger trains, and should give precedence to nothing but them.

For the purpose of obtaining opinions as to the best class of engines for this purpose, I wish an early report from Mr. Midelton, now Superintendent of Tramway Rolling Stock, Mr. Midelton having had a large engineering experience both in England and the Colonies, and has already shown evidence of his ability with regard to his plans for the Goulburn running sheds, and in regard to his advice in connection with the Eveleigh workshops. He has already designed ten locomotives, which, after two years' service, have proved to be the most economical in working that we have; and for these and other reasons, although he is not now in the Railway Locomotive Branch, I should like his opinions on this question.

JOHN SUTHERLAND, 18/4/87.

Mr. Midelton.—A.R., B.C., 19/4/87/. Seen. My report was forwarded on the morning of the 20th to the Commissioner.—THOS. MIDELTON, 22/4/87. Commissioner.

The Superintendent, Tramway Rolling Stock, to The Secretary for Public Works.

Report on Additional Locomotives.

Sir,

After a careful perusal of the papers which provide for the addition of forty-eight locomotives to our present stock, I have the honor, in obedience to your command, to report as follows:—

In the original recommendations of the Locomotive Engineer, dated 25/5/86, I notice he writes there are "many advantages accruing from as few types of engines as possible being used. I strongly recommend that the terms of the specification for the two classes now required be strictly adhered to. The class *most suitable* for our passenger traffic is that provided for in the specification upon which tenders were last invited, and for which the Vulcan Foundry Company of England obtained the contract. The advantages gained by having even the same class, made by the same makers are so considerable, and in view of the very low price at which the Vulcan Foundry Company are supplying, induces me to strongly recommend that an order for those now required be given to the same firm." Although Mr. Scott has had a very long experience here, I venture to assert that he is in error upon this question. We have had no experience of the engine which the Vulcan Foundry are now supplying, and I am at a loss to understand how Mr. Scott arrives at the conclusion that they are the most suitable for our passenger traffic. I have gone very carefully into the merits of the designs of these engines, and must express my conviction that their unsuitability will be established on trial; they cannot be successful unless they are ruinously *overloaded* on their (four) coupled wheels.

Referring to the goods engines, Mr. Scott states: "I do not think that a more suitable engine than the 'Mogul Class'—Specification No. 191—can be obtained. We have now had some years' experience of them, and, as regards loads *hauled*, economy in running stores, and small cost of repair and renewals, they have given general satisfaction. I therefore strongly urge that this type of engine be **ADHERED** to." I will at once say that my views, based on a large experience of the running of these engines, are quite to the contrary, and the records will show that I tried to improve them when the second lot was being ordered in December, 1883, (*vide* Comr's. M.P., 83/19,720), but Mr. Scott opposed it; indeed it is evident Mr. Scott now practically admits that the principal feature—the hauling power—is deficient, for he stipulates that the power of the new engines is to be *increased* 5lb. by making the cylinders 1 *inch larger in diameter*, and by *shortening the stroke 2 inches*. I would point out in this connection that, while the improvement as regards increased power is immaterial, Mr. Scott contradicts, by introducing it, his professed anxiety to limit the types of engines—for undoubtedly he thus introduces another class.

In reporting on Specification No. 188A, for twenty passenger engines, it will be well to consider what has already been done in the matter of equipping our railways with locomotive engines. We, unfortunately, have no less than forty-two different "classes" at the present time of nearly every possible shape and dimensions, twenty-two of which are for passenger traffic, and the rest for goods traffic. This is objectionable and costly, for almost any railway could be properly worked with, at the most, six different "classes" of engine, and many lines could be worked with three.

We began in 1855 with a "class" which exerted a power of 93·10 lb.

In 1856 we had	"	"	97·85 "
" 1865	"	"	71·10 "
" 1867	"	"	112·70 "
" 1870	"	"	105·00 "
" 1875	"	"	168·00 "
" 1877	"	"	117·80 "
" 1877	"	"	123·40 "
" 1880	"	"	102·40 "
" 1883	"	"	104·00 "
" 1884	"	"	117·00 "
" 1884	"	"	140·40 "

I have here referred to twelve "classes," but do not think it necessary to name the other passenger engines which were introduced between 1855 and 1886, as they are all *less* powerful than the above.

As we have a large stock of the class which give off a power of 117·80 lb., this would lead some people to the conclusion that they were the best engines for our lines. But such is not the case, as it often—daily, I might say—happens to be necessary to put two of these engines on many of the passenger trains to work them to Schedule time. The class of passenger engine introduced by me in 1884 (*vide* Com. M.P., 83/2,350, &c.), which exerts a power of 140·40 lb., has answered our requirements satisfactorily in every respect during the past two years on all lines, and the proof of it seems to reside in the fact that the author of the Specification 188A actually describes an engine *which will exert exactly the same power, but will be of totally different design and dimension*; and not only that, it will not be such a suitable engine for the New South Wales lines generally. It will have cylinders and wheels each larger in diameter than is necessary for the power required, and the insistent weight on the wheels will be *much* more—7½ tons per wheel—as against 6 tons. This, I need not remark, will be destructive to the permanent way and to the engine itself.

The comparison between the two engines stands thus:—

Present Passenger Engine and Tender.

Cylinders—18" diameter, 26" stroke, 60" driving wheels, 6 wheels coupled, and 2-wheeled bogie
Power = 140·40 lb., as aforesaid.
Tender on 8 wheels carries 3,600 gallons of water, and 6½ tons of coal.

Proposed Passenger Engine and Tender.

Cylinders—19" diameter, 26" stroke, 66½" driving wheels, 4 wheels coupled, and 4-wheeled bogie.
Power = 141·14 or 742 lb. more.
Tender on 6 wheels carries 2,500 gallons of water and 3 tons of coal.

We here propose to introduce another "type of engine" of practically the same power, but which will in *practice* be certainly not so serviceable an engine as the present one, but *why* it is done it is difficult to

to see. I contend it would be best in every way to go on reproducing the type which has proved to be the best, instead of further complicating matters and increasing our difficulties and expenses for no good purpose. It is more than probable that the weight on the coupled-wheels of the proposed engines will largely exceed the weight specified, viz, 30 tons; if it does not, the engines will slip, and will require the use of a lot of sand, which will increase wear and tear of rails and tires, and cause other trouble. It is best to so proportion an engine that the use of the sand shall be avoided, and this has been done in the engines we have; and as it is specified that each box shall hold 4 cubic feet of sand, it is evident that much is to be expected from the free use of it, if the load on the coupled-wheels does not exceed 30 tons. To be a good reliable engine in all weathers there should not be less than 9 tons on each of the (four) coupled-wheels, but as that weight is *too much for our rails* it is proposed to put $7\frac{1}{2}$ tons on each wheel, and that is excessive. In short, the engine *should have six* coupled-wheels instead of *four* coupled wheels, and I cannot see a valid reason for proposing to have such engines. Quite the contrary, we should now reproduce in our own shops the engines and tenders we have found to answer our requirements best; and as locomotive builders only *manufacture* very little of our engines and tenders, I consider the Government should import the necessary raw material—consisting of steel plates for boilers, copper plates, boiler tubes, Staffordshire iron plates, steel tires, axles, &c., &c. (articles which cannot for some time be made in the Colony), direct from the various manufacturers of such articles, in the same way exactly that the locomotive builders do at Home, and I dare say the Government could obtain such material at the same—perhaps lower—prices than they do. Then we could, with the splendid special machine tools and new workshops at Eveleigh, fully and profitably employ our skilled mechanics and others constantly in constructing new engines and repairing old ones, under the supervision of specially trained, expert officers, on the spot, and I feel confident that the total cost of engines built in this manner, under proper discipline and control, would not exceed the highest—perhaps the average—tender which will be received for supplying the engines now under consideration, as the profit now paid the manufacturers, cost of freight, inspection, trial, dismantling, and other items would about balance the extra price of labour here. Indeed, unless this is done, I do not see how the new Eveleigh Works, which have cost about £600,000, can be fully utilized. We have only recently been able to haul, with *one* engine, mail trains, consisting of thirteen carriages, or 104 tons, exclusive of weight of engine tender and passengers, up a grade of 1 in 30, and over the 8-chain curves of the Western road; we cannot do *more* with the proposed new engine; they will not do as much, if constructed to the specification, which specification I might say is certainly a curious one. The first few lines run thus:—“Specification for a four-coupled, outside cylinder, passenger (bogie), *with* engine and tender.” Sixteen are to be delivered in Sydney, and four in Newcastle. Now, as it is almost certain that railway connection with the Southern and Northern lines will be established long before the delivery of the engines takes place, it would have been more convenient and economical for all of them to be delivered in Sydney.

The general arrangement of the engine, it is stipulated, is to be in accordance *with a plan to be prepared by the Contractors, in which certain leading particulars are to be faithfully embodied and adhered to.* For instance, the cylinders are to be 6 feet 3 inches apart, centre to centre, and the slide bars are to be 5 inches wide, the slide blocks $\frac{1}{2}$ inch thick, the tires are all to be $5\frac{1}{2}$ inches wide. Now, if these dimensions are faithfully adhered to, I think the bogie wheels will, in radiating, rub hard against the main frames, or the slide blocks or bars, or the sharp curves of the Western road, and serious results might occur, as the “clearance” is certainly not sufficient. The said specification is not only curious, but it is incongruous and amusing, as can be seen by comparing the above with the last clause on page 13, which states that “Tenderers in England or America *may either tender to the within Specification, or if they wish to depart from it*—in almost every particular—they will be *allowed* to submit *alternate ‘Tenders,’* provided they adhere to the general dimensions of the engine.” This practically means that the author of the specification describes an engine such as he thinks he wants, but he is so undecided in the matter that if any contractor will design and specify a better engine, he will accept it and his tender. A specification embodying such conditions could have been printed on half a sheet of foolscap, and the trouble and expense of preparing the present one entirely avoided.

I consider the engine and tender unnecessarily complicated, and consequently expensive to manufacture. To give an instance, it is specified that one of three makes of Yorkshire iron is to be used in the boilers, whereas *steel*, of far greater strength, and about half the cost, should have been used instead. The connecting rods are composed of no less than sixteen separate parts, whereas only three are necessary. The same argument also applies with equal force to the side rods, and nearly all the other details. There are to be four slide bars where two only are required. The driving and trailing axle-boxes are to be of wrought iron, well case-hardened. This is wholly unnecessary, and very expensive. Brass boxes and keeps are to be used on the bogies. Cast iron is all that is necessary, and it is of course cheaper and better.

The steam “dome” in the boiler is very expensive to make; it is ugly; not only that, but it weakens the boiler, and it is utterly useless.

The regulator is of a class which is anything but good. The spark arresters are to be of the “best design” known. That is very vague; surely something definite could have been specified.

The Roscoe Lubricator is a very old device; there are many others less expensive and far more efficient lubricators to be had. A water-jet is to be applied to each tire of each wheel of the engine and tender for the purpose of “cooling,” and it might have been added, for the purpose of causing the engine to “slip” on the rails unnecessarily, which they will do oftener than is convenient, even with a dry rail, as they have not sufficient weight on them to use up the cylinder power.

It is also difficult to see why the tender and train brakes only are to be worked by the Westinghouse gear. The engine brake is to be worked by *hand*, I notice, whereas the whole lot should be worked by one handle operating the Westinghouse gear to be thoroughly efficient and up to modern requirements.

The tender, which is to have a “well,” is a costly and inefficient design; the water and coal capacity is small, and the coal will have to be piled up very high to enable the proper quantity to be carried. This is dangerous, as it often happens that large lumps drop off and sometimes strike the men engaged in repairing the road. There are only six wheels to the tender; this is a grave error, as each wheel will be excessively loaded. There should be eight wheels (two bogies), but it would seem that six wheels are preferred.

The side-lamp brackets should be put at the front end of tender, and *not* at the back, for many good reasons.

To

To sum this matter up, I consider that the author of the specification has ignored the main questions, of first cost, utility, simplicity, and efficiency; and I have no hesitation in saying that a simpler, a far more efficient, and less costly engine and tender could be made in our own workshops at Eveleigh than the one proposed. I should strongly recommend the construction in our own shops of twenty-five more of the 304 class of engine, which were designed for and intended to work five different kinds of traffic, viz., mail trains, fast cattle and goods, suburban passenger, and goods traffic, and shunting generally.

Specification No. 191 for Twenty-eight Goods Engines.

THIS specification describes what is known here as the 205 class of engine; indeed if it were not stipulated that the cylinders were to be 19" in diam. and 24" stroke, instead of 18" diam. and 26" stroke, it would exactly describe the 205 class of engine, a great many of which we have been supplied with by Messrs. Beyer, Peacock, & Co.; but the author of the specification is not content with introducing another class of passenger engine, but he wishes to have another class of goods engine also, without securing any benefit. The 205 class are well known to be the most sluggish engines we have, and there are grave defects in them, as at times enormous weights are thrown on the bogie and trailing wheels, on account of the absence of proper compensating levers in the required positions, and I notice that it is not intended to remedy this defect, therefore we are not only destroying the permanent way with the engines we have, but we propose to build a still *heavier* type to expedite the destruction. The 205 class are evidently poor copies of the American Consolidated engines introduced in 1877, and intended to compete with them, but they have ignominiously failed, and if the proposed engines are built further failure will take place. I consider the Consolidated type have proved themselves to be the best goods engines we have; they are lightly loaded per wheel, and are therefore easy on the road. They give of 200.00 lb. of power, and the proposed engine will give off 180.5 lb., only *more* weight per wheel. I should strongly recommend that the new design be abandoned, and that twenty-five more of the consolidated engines be built in our Eveleigh Works. Nearly all the arguments I have advanced against the passenger engines can be made to apply to the proposed goods engines.

We now have eleven engines (of the 48 class) which are lighter, and give off 195.00 lb. of power—far more than is proposed; therefore we are taking a backward step by ordering LESS powerful goods engines than we now have.

As the recommendation indicates, the passenger engines are to be made by the Vulcan Foundry Co.; and it is evident that the goods engines are intended to be made by Messrs. Beyer, Peacock, & Co.

In my opinion it would be a serious mistake to have such engines constructed. I should advocate not only what I have hereinbefore stated, but I would construct a great many new engines of a more suitable type, in place of a lot of obsolete engines we seem to be unable to utilize. We have the best appliances for the purpose, and unless this is done it is difficult to see what use the appliances can be put to; indeed, it is a huge co-operative concern, in my view, in which every railway man is personally interested, and as the railways are State properties the whole question is a national one.

I have, &c.,

THOS. MIDELTON,

Superintendent of Tramway Rolling Stock.

19 April, 1887.

The Minister wishes to know if there are specifications for the two classes of engines which Mr. Midelton recommends; if not, could engines be built to the types of engines, one of each of which could be exhibited as a model, with perhaps some modifications in regard to material to be substituted for the material used in the engines exhibited?—CH. A. G., 25/4/87.

There is a specification and there should be drawings also for the passenger engines only. Engines could be built to a model engine as proposed, and I think it would be necessary to specify (say) "British steel" instead of "steel" only, and a few other matters of a like nature.—T.M., 25/4/87. Commissioner.

Resolution of Legislative Assembly.

Relative to Manufacture of Locomotive Engines.

(1.) That, in view of the widespread distress amongst the iron trades, this House is of opinion that the Government should take immediate steps to call for tenders in the Colony only for the manufacture of one hundred locomotive engines, and that the following be the conditions of such tenders:—That the construction of the said engines be carried out by labour already in the Colony, and that only such material be imported as cannot be produced here.

(2.) That the above Resolution be communicated by Address to His Excellency the Governor,—put and passed.

Invite tenders for twenty-five engines of each of the above types, in accordance with recent resolution of the Assembly.—J.S., 25/4/87.

Minute by The Secretary for Public Works.

Department of Public Works, 26 April, 1887.

Tenders for Locomotives.

WITH reference to the loco. engines, tenders for which were invited in the Colony and in England before I took office, I must express my disappointment that the Loco. Engineer, while professing to do so, did not display that regard for minimising the number of types of engines which is so essential for the economical working of his branch of the Department. He had already in his charge and in active use on our lines two types of locomotives, which answer more satisfactorily than any other the requirements of our traffic. I allude to the Consolidation goods engines which were introduced through my instrumentality when I was in office previously, and the locomotives designed by Mr. Midelton for the express service over the mountains. Instead of ordering engines to correspond with these designs, Mr. Scott proposed to introduce two other types, thus multiplying the undue number we have already on hand, and necessarily increasing thereby the working expenses of the Loco. Department.

I consider that it would be detrimental to the best interests of the Railway Department to accept any tenders which have been received for the engines in question owing to their inadaptability to our traffic requirements, and I have directed tenders to be invited in terms of the recent resolution of Parliament for fifty engines, twenty-five each of the types I have referred to. As there is no time to obtain plans and detailed specifications for these types of engines, I propose to have patterns of each exhibited in the running sheds at Eveleigh. Other material might perhaps be substituted for some of that used in regard to tires, wheels, and boiler plate, but this can be specified.

I have directed Mr. Midelton to draw up such specifications as may be necessary, and he will dismantle two engines and have them placed in the shed so that manufacturers can see the design, and I shall have the locomotives constructed under Mr. Midelton's supervision.

JOHN SUTHERLAND.

Mr. Scott to see.—CH. A. G., B. C., 26/4/87. Inform Mr. Midelton by separate memo.—CH. A. G.
Done.—D. C. M' L., 27/4/87. Received, 28/4/87. Please see my minute of to-day's date herewith.—
W. SCOTT, 12/5/87. Commissioner.

Minute by The Locomotive Engineer to The Commissioner for Railways.

IN referring to the Honorable the Minister for Works' minute, and decision respecting additional locomotives required by the Department, and the strictures on my recommendations made by the Superintendent of Tramway Rolling Stock, which have been accepted and endorsed by the Honorable the Minister for Works, I would respectfully point out that the perusal of such has given me no small degree of pain, as the action taken practically implies a want of confidence in my ability to fulfil the important duties devolving upon me as Locomotive Engineer of the New South Wales Railways.

Without any desire to enter into a controversy with the gentleman's opinions, which appears to have guided the Honorable the Minister in his action on this occasion, or even to refer to any of the circumstances of the past which led to that gentleman's services being severed from the Railway Department of this Colony, I respectfully submit that in justice to myself, considering my past career in the Department for over thirty-one years, coupled with the fact that the honorable position I now hold has been attained by untiring energy and ability displayed while filling subordinate positions to my present one, it would only have been an act of justice if, before such documents had been made public, the Honorable the Minister had submitted such to me and requested that I would reply to them. Such reply could then have been considered in conjunction with the strictures on my recommendations, and such a course would, if the Honorable the Minister had seen fit to still maintain the action he has taken, at least have given him an opportunity of judging of the correctness or otherwise of my opinions and actions.

The first intimation I had concerning this matter was from the columns of the public press; and considering the Honorable the Minister's action, without reference in any form to me, forces the conclusion that any explanation I may have to offer will not in any way (with his present views of my capabilities) have the effect of altering his decision. Still, I trust I shall not be considered as exceeding my duty in explaining such action, even now that the question has been decided.

A great deal is attempted to be made of the numerous types of engines on our lines as if such a thing was unknown anywhere else, which is not the case. Several of the "types" were introduced fully ten years before we had mountain lines with heavy grades and sharp curves, and some of them even before such lines were thought practicable. It is ridiculous for any one who is unacquainted with the history of our railways to criticise the action of those who had to provide for the lines opened and proposed over twenty-five years ago. It is a matter for congratulation that all the engines ordered within the last twenty years are still performing good and profitable work, and I question very much, considering the extensions opened, the varying grades and traffic to be provided for, whether such a satisfactory result has been obtained anywhere else under similar conditions. I have always been opposed to increasing the types of engine unnecessarily, and I can confidently refer to the records of the Department in support of this. The engines recommended by me are practically the same as the Standard design of passenger and goods engines, of which we have eighty-one and eighty respectively. It is absurd to say that minor alterations in the details constitute a new type, and I venture to predict that there will be many such alterations from the pattern engines if built in the Colony as proposed. I have really only introduced one "new type" of engine on our lines during the six years I have had the control of the Locomotive Branch, and these are the tank engines for suburban traffic, in which service they are giving entire satisfaction.

If this gentleman was sincere in his contention that even the difference of an inch in the cylinders constitutes a "new type," it is singular that he overlooked it when he classified the engines in stock during my absence in England. If reference is made to the table framed in the Commissioner's room, signed "THOS. MIDEルトON, Acting Loco. Engineer," it will be seen that he places engines Nos. 36, 37, 38, 39, 75, 76, 77, and 78 in one class, whereas six of them have 16-inch and two of them 17-inch cylinders with a difference of power, viz., 93.1 lb. as against 105.1 lb. Again, in the same table of classification of engines, Nos. 23, 24, 25, 26, 27, and 28 in the same class with Nos. 32, 33, 34, and 35, although the former have four coupled wheels 5' 9" in diameter, whereas the latter are four coupled wheels 5' 6" in diameter, the relative power being 112.7 lb. and 132.97 lb.

The Superintendent of Tramway Rolling Stock states I have no experience of the class of engine I recommended, and therefore he is at a loss to understand how I arrived at the conclusion that they are the most suitable.

From this he would have it inferred that I have taken a leap in the dark instead of being guided by my experience. He forgets that he might have been asked the same question when he recommended the "304 class," of which we had no experience at that time. I have not the slightest doubt that the engines of the same type I recommended, now being supplied by the Vulcan Foundry Company, will draw an equal load to the "304 class," and at a much higher rate of speed, and the price of them after running our trains 2,000 miles satisfactorily, is only £2,315 each, which is considerably cheaper than any passenger or goods engines ever tendered for before; hence my reason for recommending that the order be given to the same firm, in addition to which we would secure that the several parts be interchangeable, which, I may remark, is never the case when engines are built by different makers even to the same drawings and specifications.

The question of which is the most suitable engine should be considered from the standpoint of how far it is desirable to sacrifice "speed" for "power," and we cannot shut our eyes to the fact that, when our lines are opened to Newcastle on the North, and Kiama on the South, we shall have to compete, particularly in the former case, with water carriage served with very fast steamers. Again, the public, are constantly complaining through the press about the slow speed of our trains, and unfavourable comparisons are drawn with the trains of other countries. I therefore submit that if we want fast trains we must have a different class of engine to the "304 class," which has only 5 feet driving wheel. The recent trial of one of this class with the "Fireman's special" will fully prove this. (See Commissioner's 87-3,216, with the report from the traffic and locomotive officers on the subject.)

I also understand that there is a desire for increased speed with the morning train from Penrith, which can only be attained by the use of engines adapted for fast running.

The specification for the "304 class" stated that they were intended to run at a speed of from 38 to 40 miles an hour. This is altogether beyond the working speed of such a class of engine, which is more of a "mixed train engine" than a passenger engine.

My critic expresses his conviction that the unsuitability of the engines I recommended will be established on trial. I am quite content to abide by that test, and, as four of them are now being delivered, we shall very soon be in a position to decide the point. I have no fear of the result.

Reference is next made to my recommending the Mogul class of goods engines, in which I state that after some thirty years' experience of them they have given general satisfaction, and this type should be adhered to.

My critic asserts that his experience of them is quite the contrary; so that it comes to a question of who has most experience, and who is best able to decide. As regards experience, this class of engine first commenced to run in 1882, and I have had control of this Branch all the time, so that I ought to know what work they can do, and have done, and also whether they are expensive to keep in proper running order. He forgets that we have ten engines of the "Mogul class" with precisely similar cylinders as those recommended running on our lines for the past two years; so that I have experience to guide me, and his assertion about my introducing another class is not correct.

In reference to his comments upon what has been done in the matter of equipping our lines with locomotive engines, he asserts that there are forty-two (42) different classes at the present time of nearly every possible shape and dimension on our lines. As a matter of fact there are only twenty (20) altogether, and of these seven are odd ones, which have been purchased at different times from contractors and others at very low prices, and four engines, which constitute a class, were built as an experiment upon the recommendation of Mr. James Henry Thomas, who was appointed in 1869 to supervise the construction of new engines and rolling stock in the Colony, and these had afterwards to be altered from "Tank" to "Tender" engines. When the Superintendent of Tramway Rolling Stock classified our engines in 1882, he made only twenty-nine classes, and this number has since been reduced, so that at present time there are only twenty classes, exclusive of the old ones before referred to, and of these 75 per cent. are included in four classes, and, as a matter of fact, our orders for new engines during the past ten years for our main lines have been confined to seven types, including the two classes he takes credit for; so that there is no reliance to be placed on his statement on this subject. It is perfectly absurd to assert that such lines as ours, with different descriptions of traffic to be provided for, could be advantageously, or profitably worked with only three types of engines. Perhaps he can show where such a thing exists. The following classes will be found on all well managed lines, where such traffic as we have has to be provided for, viz. :—

1. Express engines.
2. Fast mail and passenger.
3. Ordinary passenger.
4. Mixed train.
5. Goods engines for minerals, &c.
6. Goods engines for ordinary traffic.
7. Suburban tank for heavy trains.
8. Suburban tank for ordinary trains.
9. Shunting engines.

With reference to the greater power of the "304 class" over our ordinary passenger engines, saving the use of an assisting engine, on many occasions the "304 class" has to be assisted, as the load for it is twelve vehicles, and not thirteen as asserted, and as the loads are always increasing the number of times the "304 class" will require the aid of an assisting engine will increase; so that what is a slight advantage now will then become a disadvantage, as the "304 class" uses more fuel per mile. My critic says why not go on reproducing the type that has proved to be the best, while he acted entirely different when he recommended the "304 class," so that he reflects upon me for the very thing he did himself during the short time he was in this Branch, but he evidently considers that he alone is capable of judging what is best; but it would be more to the point if he would state on what railways fast passenger trains are run with six coupled wheels 5 feet in diameter, which in this respect are similar to the goods engines on the London and Brighton Line. (See Mr. Stroudly's remarks, page 76, vol. 81, of the Proceedings of the Institution of Civil Engineers.)

The proposal to build the fifty engines in our new workshops at Eveleigh upon the grounds that with the appliances there they could be built at "perhaps the average" of the tenders received, shows how little he knows of the subject he is dealing with.

I am positive he could not build engines of the "304 class" for 50 per cent. over the price paid to the Vulcan Foundry Co., and bearing on this I would ask where a sufficient number of specially trained experts are to be found in the Colony who are to secure such results? No fear need be entertained about the new workshops and appliances being fully and profitably utilized without our undertaking the building of new engines and rolling stock, and I have no doubt but that the saving to be effected in our repairs and renewals will, when we get them into full operation, more than cover the interest on the capital invested in them, and as our wants increase the advantage in respect to economy and efficiency will be still more marked. When recommending that the Eveleigh shops should be built I looked beyond our present requirements, and although they are much less extensive than many of the railway shops in other countries, I am pleased to say, compare very favourably with any that I have seen in my tour through England and America, both in design and equipment.

I will now refer to the criticism upon my specifications, and I have no doubt I shall be able to do so satisfactorily to every one acquainted with the stipulations and conditions usually embodied in such documents.

First.—As to the provision for having a number of the engines delivered at Newcastle, my critic asserts that we shall be connected with the Northern Line long before the engines will be delivered, therefore it would be more convenient and economical to have them delivered in Sydney. I know that some of the engines are required on the Northern Line now, whereas I am informed the Hawkesbury Bridge is not likely to be finished before two years at least.

Second.—Exception is taken to my stipulating that the general arrangement of the engine is to be in accordance with a plan to be prepared by the contractors, in which certain leading particulars are to be faithfully embodied and adhered to.

The reason for such a proviso is so obvious that it is difficult to imagine how any one having any knowledge of the subject should cavil at it. When contractors make their own drawings it places the responsibility of their correctness upon them, in addition to which all locomotive builders of repute have a properly trained staff of draftsmen for the special purpose. As to the prediction that if the dimensions and distances of the several parts mentioned are adhered to the bogie-wheels will in radiating rub hard against the main frame when running round the sharp curves on the Western Line, I am sure he will be surprised, if not gratified, to find that I have provided for all this, and that nothing of the sort can occur. The provision in my specification which he terms incongruous and amusing, viz., that tenderers could send in "alternate tenders," was inserted, not as he would have it supposed, that I was undecided as to what was best, but was the result of a discussion on this subject with the Commissioner, and it was deemed advisable in order that foreign builders should not be debarred from tendering to insert the proviso. It is scarcely necessary to say that we have no experience in the suitability of the material used by Belgian and other foreign locomotive builders, some of whom were desirous of competing, so that by admitting alternate tenders to be sent in they could, of course, receive consideration if the prices were appreciably lower than those sent in strict terms of my specification. If I were undecided about what was best, I would not have specially stipulated that certain material was to be used, and his reference to my specifying for three makers of Yorkshire iron in the boilers which he takes exception to, upon the grounds that steel of "half the cost" and of "greater strength" could be used instead. It would be more to the purpose if he were to follow my example and mention the particular brands of steel that will fulfil these conditions. This point is evidently introduced for effect, but the fact remains that up to the present time the extended experience of English and foreign builders, has not yet given them sufficient data to universally substitute steel for iron in locomotive boilers, and, in reality, can only yet be considered in an experimental stage. Steel has been used, but then those who did use it made their own steel, like Mr. Webb, the Locomotive Superintendent of the London and North-Western Railway, did at the "Crewe Works." When in England in 1883, I made special inquiries on the subject, which was then being discussed by the Institute of Engineers, and the opinions I obtained from the Chief Locomotive Superintendents were adverse to the use of steel in locomotive engine boilers. As the responsible head of this important Branch of the Railways, I conceive it to be my duty to specify for material that is almost universally used, and which my own experience proves to be suitable, rather than to stipulate for steel which, as before said, may yet be considered in its experimental stage, and of which there are no generally recognized "brands" specially adapted for boiler work, that I know of, and further, considering its being in such a stage, I did not, neither do I think any experienced Locomotive Engineer would at present recommend so large an order of this material, in view of the fact that what I stipulated for is the recognized practice of all English and Colonial Engineers,—I am content to differ with him.

The driving and trailing axle-boxes which I stipulate to be of wrought-iron, well case-hardened, he designates to be unnecessary and very expensive, &c., as cast-iron is all that is necessary, and it is cheaper. This is again a matter of opinion, in which I am pleased to disagree with him. If I only considered the first cost, I should be in favour of cast iron, but my experience tells me that "first cost" in this case is more than counter balanced by the cost of renewals. However, as my critic has nothing to do with this responsibility, he naturally disregards it as unworthy of notice.

The comments upon my specifying for a "steam dome" to the engines, clearly shows to what an extent my critic's vanity leads him in engineering matters. He states that it "is very expensive to make, it is ugly," in addition to which, it is utterly useless. From these objections it would be supposed that such an expensive and dangerous contrivance would, if used at all, be only in some isolated part of the globe where the advance of science was unknown; but what, I may ask, is the universal practice? They are used all over the world, with scarcely an exception, and the very substitute he suggests was tried over thirty years ago. The fact of its being practically abandoned, and also that no locomotive engineer of experience has deemed it worthy of consideration since, shows that it cannot contain the advantages claimed for it unless, indeed, locomotive engineers in all parts of the globe are, like myself, unable to comprehend its value. I scarcely think any person would like to take up the position that locomotive engineers in other parts, who have retained the "dome," are unqualified for their positions; and one of the very classes (the Consolidation) which my critic now recommends has a "dome," so that he proposes the very thing he so strongly condemns in my specification—perhaps from the fear that to dispense with it would involve another *type* of which he expresses his condemnation so strongly. So much for consistency.

The comment on the terms used in my specification about the "spark arrestors," viz., that they are to be of the "best design known," is very ingenious, as it leaves it to be inferred that I did not know what is "best;" but when I explain the object sought by the introduction of these so-called "vague" terms it will be seen what grounds there are for the insinuation that they were inserted because I had not the ability to deal with the subject. It is admitted by everyone who has seen the spark arrestors in our engines, which I take credit for, that they are the best they have seen; so that I can well afford to treat it with contempt.

The sole object for stipulating for the "best known design" was to protect the Commissioner from being mulcted in heavy damages for fires alleged to have been caused by sparks from our engines, as the law as laid down in our Courts is that, provided the Commissioner for Railways has in use what is "best known to science" to prevent the emission of burning matter from the engine, he is not liable; and the production of the specification in Court that the engines have been built under such a proviso has on several occasions been accepted as satisfactory evidence upon this important matter. The

The "Roscoe" lubricator is an old device, but it is nevertheless a very good one, and many of those so-called improvements upon it will, I have no doubt, be found much less effective.

The reference to the "water-jet" causing the engine to slip is absurd, as it is not, of course, intended to apply it to the wheels when the engine is pulling; therefore the slipping cannot occur from that cause.

The reason why I made no provision for working the engine by the Westinghouse brakes, and confine its operations to the tender and train, is because I consider it entails unnecessary expense in the wear of the tires without effecting a corresponding advantage.

The objections raised to the tender I recommend are—"it is to have a well," is "costly and inefficient in design," "the water and coal capacity is small," and "the coal will as a consequence have to be piled up high to enable the proper quantity to be carried." This is alleged to be dangerous, as it often happens that large lumps drop off, and sometimes strike men engaged in repairing the road, also that I provide for six wheels instead of two four-wheeled bogies, which is considered a grave error. Well, as regards the cost, I have only to say that it is all included in the £2,315, which is for the engine and tender complete, and I think it will be found in this respect to compare very favourably with those to be built under his specification. As regards the "design," it is of the usual horse-shoe form, which for convenience in coaling and general efficiency has given entire satisfaction, and will in these respects compare very favourably with the American pattern which he advocates. The quantity of coal and water to be carried was fully considered, and I have no fear about the capacity being equal to the requirements in these respects without it being necessary to pack the coal up as alleged. As regards the assertion about the danger to the permanent-way men through being struck with lumps of coal falling, I have no recollection of such a thing occurring on our lines, and I am confident there is no foundation for it. I prefer the six wheels to the two four-wheeled bogies, for the reason that they admit of greater controlling power being exercised by the brake upon the wheels, and our experience undoubtedly proves this. The objection raised to the position of the lamp brackets on the tender affords ample testimony of the "straits" my critic was put to in finding something on which to ground a difference of opinion.

My critic sums up his objections to the class of passenger engines I recommended as follows:—

"I consider that the author of the specification has ignored the main question of first cost, utility, simplicity, and efficiency, and I have no hesitation in saying that a far more efficient and less costly engine and tender could be made in our workshops at Eveleigh than the one proposed.

"I strongly recommend the construction in our own shops of twenty-five more of the '304 class' of engines, which were designed for and intended to work five different kinds of traffic, viz. :—

"Mail trains, fast cattle and goods, suburban passenger and goods traffic, and shunting generally."

As I have already disposed of his absurd assertions as to the cost, if built at Eveleigh, as he recommends, I will not again refer to it beyond mentioning that the engines he recommends cost £2,600 each free on board of ship at New York, and that when cost of freight, insurance, shipping, wharfage, cartage, erection, &c., is added, it would bring the price up to about £2,970 each in steam, as against £2,315 for those delivered in steam under my specification. No one who has the slightest knowledge of the question would make such wild assertions unless with the view of misleading. If, as I understand, the lowest Colonial tender received for engines under my specification was over 60 per cent. higher than the lowest English tender, it is certainly a subject for grave consideration how far work done by Government labour, even allowing for our superior appliances at Eveleigh, would be economical.

As for the assertion of my ignoring the main question of *utility, simplicity, and efficiency*, I am satisfied the engines I recommend will prove satisfactory in these and every other respects. I never heard of an engine being specially designed for so many different kinds of work (from mail trains to shunting) before, and I think such a statement will be a surprise to Locomotive Superintendents who have hitherto acted in the belief that it is desirable, in the interest of efficiency and true economy, to have each class of traffic served as far as practicable by engines best adapted for it.

Specification No. 191, for twenty-eight Goods Engines.

My critic starts his comments on this specification by saying that if it were not stated that the cylinders were to be 19 inches diameter and 24 inches stroke instead of 18 inches diameter and 26 inches stroke, it would exactly describe the "205 class," so that he here practically admits that they are not a new class, as he previously said they were. As a matter of fact, ten of the "205 class" have cylinders of exactly the same size as those specified for, as I have before mentioned. He designates the "205 class" as being the most sluggish engines we have, that they are but poor copies of the Consolidation engines, introduced in 1877, with which they were intended to compete, but have ignominiously failed to do so, and that if the proposed engines are built further failure will take place. From these condemnatory terms it would be assumed that they have nothing to recommend them in his opinion, but it will be seen on reference to the Commissioner's 83-19,720 that in my absence he himself suggested some improvements—that such is not the case, as in the report referred to he says:

"Generally speaking these are a good class of engines, and I consider them a marked improvement upon the 93 class, but there is still room for many improvements in them, &c., &c."

He then goes on to mention the details in which the improvements could be made, which are almost identical with those which he now says the want of renders them what he designates "failure." It is notorious of my critic that he never sees anything that he could not improve on if he had a chance. It is singular that he should suggest improvements in the "Mogul class," which he now condemns, when he could have recommended the Consolidation engine instead, if he then considered they were best; it was clearly his duty to do so.

I am at a loss to know what he means by designating the "Mogul" as copies of the Consolidation engine, the more particularly when he repeatedly asserts that a difference in detail constitutes a "new type," for, as a matter of fact, they are of an entirely different design, as the following will show:—The Mogul is a six-coupled 4-foot wheel with a bogie; the cylinders are 19 inches diameter, by 24 inches stroke, with the usual English tender on six wheels, whereas the Consolidation is an eight-coupled 4-foot wheel with a bogie; the cylinders are 20 inches diameter, by 24 inches stroke, and the tender is of the American pattern, carried on two four-wheeled bogies.

The difference in power amounts to one truck on the ascending grades over the mountains in favour of the Consolidation, but the load on the descending grades is the same for both classes; but the Consolidation require an extra fireman, the expense of which in itself is sufficient to justify my not recommending them; but there is a still more important objection to the Consolidation, which is the much greater wheel base, that causes the leading bogie wheels to lift off the rails when running round the 8-chain curves on the Western Line. When this was pointed out to the Baldwin Company, who built and introduced them into the Colony, they admitted it was a defect, and upon their suggestion several schemes have been devised to effect a cure, all of which have failed to effect the desired result.

The statement that I intended the goods engines to be made by Beyer, Peacock, & Co. is evidently made with the view of having it inferred that I unduly favoured that firm. The fact that I recommended that public tenders be invited for them affords sufficient testimony, if any were needed, that such was not contemplated. It will, I flatter myself, take more than *his* insinuations to prejudicially affect my character for integrity, so I shall treat it as unworthy of further notice.

In conclusion, my critic states he would advocate, not only the building of the fifty engines before mentioned, but would advocate the construction of a great many new engines of a more suitable class in place of a lot of obsolete engines we seem to be unable to utilize. He will be surprised, no doubt, to hear that most if not all of the obsolete engines he refers to have already been replaced by others more suited to our wants, and as other engines become useless or worn out they will be replaced in like manner. I will, for obvious reasons, refrain from alluding to his remarks about "the best appliances, &c.," being "a huge co-operative concern in which every railway man is personally interested," and the railways being "State properties, the whole question is a national one;" but I would call attention to the fact that the "best appliances" referred to were specially selected by me, and afford convincing evidence that I know what was "best" in such a very important professional matter, and that even he has to admit it. As the question of the experience of my critic has been introduced into this matter, I assume it will not be considered out of place if I state what mine has been.

After serving my apprenticeship in an engineering works in Scotland, I joined the Edinburgh and Glasgow Railway in 1845, and remained three years in the shops as a leading fitter, when I went to the Locomotive Works of the London and North-Western Railway at Wolverton, where I was employed as a leading fitter for three years. I was then promoted to the position of Locomotive Foreman of the Camden Town Depôt, which I held for three years. I was appointed by Mr. McConnell, the Locomotive Superintendent of the London and North-Western Railway, to supervise the construction of the engines and rolling stock for this Colony—he being the Consulting Engineer of the agent of the "Sydney and Goulburn Railway Co." When the engines and rolling stock were completed, I came to this Colony in charge of them, under agreement, and arrived here in January, 1855, and remained in the employ of the Company until the railways were taken over by the Government, shortly after which I received the appointment of Locomotive Overseer, which position I held until April, 1882, when I was promoted to the office I now hold of Locomotive Engineer of the New South Wales Railways.

W. SCOTT, 12/5/87.

Minute to The Commissioner for Railways.

MR. SCOTT'S remarks of 12/5/87 (Comr's. M.P., 87/9,852), upon Mr. Midelton's report (requested by the Honorable the Minister for Public Works) on specifications and recommendations submitted by Mr. Scott for obtaining additional locomotive engines.

To dispose of the plausible assertions and peculiar reasoning advanced by Mr. Scott, I am compelled to go into the matter at greater length than I could have desired.

Mr. Scott in the first place says, "Without any desire to enter into a controversy with the gentleman's opinion, which appear to have guided the Honorable the Minister in his action," and then he immediately writes twenty-five pages of foolscap to upset my opinions, occasionally descending to personal references of invidious nature; at one time alluding to what he terms my "vanity," then of being "notorious" for qualities which he wishes understood as baneful, and again that I make "wild" and "absurd" assertions, his great effort being directed to depreciate and cast doubt upon everything I have said in furnishing the Honorable the Minister with my conscientious opinion upon the matter which he referred to me for report.

I will, however, at once analyse the mass of mediocre matter, which, with a certain amount of ingenuity displayed in cloaking true facts and raising false issues, is all that Mr. Scott's remarks really represent.

It seems to me that Mr. Scott's attempt to depreciate my remarks, against adding to the already excessive number of types of engines in use on our railways, recoils upon himself. Every railway man of locomotive experience is fully aware that the great advantage in having as many engines of one type in use as possible lies in their dimensions admitting of interchangeability of the parts. This is what was in my mind when I referred to the forty-two classes of engines now on our railways, and to Mr. Scott, as a locomotive man, the justice and force of my reference must have been quite apparent. Yet, with considerable subtlety, he attempts to show that I cannot be "sincere" in my representation, because, as he says, the classification sheet of the engines bearing my signature does not show as many classes as stated in my report to the Honorable the Minister. The classification referred to is based upon the general *outline* of the engines and in regard to the description of work they are equal to, the object being to group together, as much as possible, the different engines of similar power, and within one class are included many engines of different "types"; but to prevent the possibility of misconception in the matter, there is a special column in the classification sheet distinctly describing the difference in dimensions of the engines included within each class. Of this, Mr. Scott is perfectly informed, and it is from the very details entered by me on the classification sheet that he gathers the particulars with which he seeks to belittle my remarks against unnecessarily increasing the types of engine. But he shoots very wide of the mark intended, as I will now show. Mr. Scott knows that the engines he instances as included within one class will not admit of interchangeability of parts, and indeed, Mr. Scott himself, goes on to actually prove the gravamen in my reference by quoting the dimensions of several types included in one class in my classification. Had I used the word "types" instead of classes in my report, Mr. Scott would not have had available the peg upon which he hangs his peculiar argument; but this is only a fair specimen

of

of the disingenuous reasoning apparent throughout Mr. Scott's remarks. If the fact that other railways have too numerous types of engines in use, is consoling to Mr. Scott, to me it seems only reason why we should avoid the same error. He states that he "has really only introduced one new type of engine on our lines during the six years he has had the control of the Locomotive Branch." This is incorrect, for Mr. Scott caused the introduction of the "255 class," and there are four types within that class. The American Mogul engines—the suburban tank engines in opposition to my direct proof against the suitability of those engines as shown by the papers on the subject at the time; and now he adds the Vulcan engines. At one time he preferred inside cylinders, and at another outside cylinders—thus showing his indecision. And notwithstanding his assertion that it is "absurd" to say that minor alterations in the details constitute a "new type," I affirm that it is the alterations in the details that constitute a new type of engine. I might add that the prediction upon which he ventures "that there will be many alterations from the pattern engines, if engines are built in the Colony," will not be verified should the engines be built in the Colony, as there is a special clause in the specification directed against it (*vide* specification). Indeed, I have arranged that as many parts of the passenger engine as can be made to suit the goods engine shall be so made.

In his reply to my remarks upon his want of actual experience of the "Vulcan" engines, Mr. Scott says I wish to infer "that he has taken a leap in the dark," and that I forget that I "might have been asked the same question when I recommended the 304 class."

Now, as a specimen of disingenuousness, the whole of the paragraph referring to this question stands out with perhaps greater prominence than any other portion of Mr. Scott's lengthy statements. There is no analogy between the position and circumstances in which Mr. Scott and myself were severally placed. When I designed the engine (304 class) I had the knowledge that there was not an engine on the New South Wales Railways equal to the task of taking thirteen loaded carriages over the mountain line. I also had experience of the "60 class" engine, built expressly for this work in 1875, which engine gives off a power of 168 lb., and yet could not do the work. So I designed an engine giving off only 140 lb. of power with the same sized wheels as the "60 class" engine, which has proved itself fully equal to the work I have stated. And now Mr. Scott, although possessed of the same experience as to our wants years before I arrived in the Colony, made no attempt to produce an engine equal to the service required, but when the success of my engine becomes a fact accomplished, with the latter experience, he steps in and recommends another type of engine of *exactly the same power*. (In literature this kind of action is called plagiarism.) Therefore if they will do the same work (which I very much question), he has made a serious mistake in endeavouring to increase the types of engines unnecessarily. I might add that (as I have already pointed out in my report to the Hon. the Minister) this engine must have a most injurious effect upon the permanent way of the railways.

With due deference to Mr. Scott's remarks relative to the increased speed required in running the trains, I would point out that an engine of the 304 class runs the passenger train from Penrith, which train is heavier now than it ever has been. According to time-table and reference to Commissioner's M.P. 83/23,540, will show that I anticipated all that Mr. Scott now raises, and that the "304 class" engines possess all necessary to meet the requirements of the Penrith trains, being equal to a maximum speed of 35 to 40 miles an hour, in accordance with my specification.

With reference to the "Mogul" type of engine, No. 205 class, I must again point out that Mr. Scott's representations are incorrect. I had considerable experience of these engines before Mr. Scott had. They were put together and run for some time during the period I was Acting Locomotive Engineer when Mr. Scott was in England, and at the Commissioner's request, after Mr. Scott's return, because of this very experience, to which the Commissioner makes special reference (see his M.P. 83/19,194), I reported upon these engines on the 27/11/83, intimating clearly the different direction in which improvements should be effected, and Mr. Scott agreed with my suggestion. (Reference should be made to the paper.) Again, after further experience of the Mogul engines I wrote on 23/4/84, on the Commissioner's M.P. 84/5,900, in favour of the "Consolidation" engines, and from the thirty-eight reports from different inspectors and engine-drivers *re* failures of the Mogul engines, such as slide-valves, crank-pins, and draw-bar springs, &c., breaking No. 219 engine with fifty brass tubes put in, and tube-plate bulged after eleven months' service, I had come to regard the Mogul as a costly engine to keep in repair, as well as being very destructive to the road.

Mr. Scott says, referring to myself, "He forgets that we have ten engines of the 'Mogul' class, with precisely similar cylinders as those recommended."

I do not forget, on the contrary I pointed it out at the time the type of engine of No. 295 class was introduced by Mr. Scott. (The engines of this class were made in America at the same time as my engine, No. 304 class.) The following minute on the Commissioner's M.P. 83/23,540, shows that Mr. Scott objected to my engine (304 class), and introduced the one in question with a foot smaller wheel, and which engine he stated would run 35 miles an hour and "allow a good margin," which would be ample for any mixed passenger or live stock train.

"Believing that the speeds of our mail trains must be increased, I could not think of recommending the use of such an engine as Mr. Midelton advocates for running mail trains."

Now what are the facts *re* the service rendered by the two classes of engines just referred to? Why, my engines have worked the mail trains over the mountains successfully for the last two years, whereas Mr. Scott's engine have never been tested at all to ascertain if they will fulfil the condition laid down by himself.

With further reference to the too numerous types of engines, Mr. Scott says:—"It is perfectly absurd to assert that such lines as ours, with different descriptions of traffic to be provided for, could be worked advantageously or profitably with only three types of engines."

Perhaps he can show where such a thing exists. First let me point out what my words referring to the necessity for avoiding too many types of engines were. "This is costly and objectionable, for almost any railway could be properly worked with, at the most, six different classes of engine, and many lines could be worked with three." I think the object sought in endeavouring to fix me to saying, "Three types of engines could properly work our railways," is not difficult to see. And now to comply with Mr. Scott's request as per the last line of the foregoing extracts. If he will refer to the *National Car Builder* of May, 1885, he will see illustrations of four types of engines used in working the traffic of the New York West Shore and Buffalo Railroad—a line of 850 miles, the equipment of which being 177 engines and 7,291 vehicles. The types of engines being A and B, passenger; C, Consolidation; and D, six wheels coupled

coupled tank engines. This line is acknowledged by all railway men to be the finest and best equipped in America, even not excepting the Pennsylvania railroad—and all this equipment was being prepared during the very time that Mr. Scott was in America and had he been so inclined he could have obtained valuable information in respect thereof.

With reference to the "304 class" engines not now being allowed to take thirteen vehicles over the mountain line, all I can say is that such a fact reflects upon Mr. Scott's management of the Locomotive Branch, for when I had charge of the engines under Mr. Scott, thirteen vehicles were taken without the service of an assisting engine and the same thing can be done now.

I will meet Mr. Scott's remark "That it would be more to the point for me to state on what lines engines with 5-foot wheels run express trains," by simply pointing out that as far back as 1872 Mr. Webb, of the London and North-western Railway, ran a train from London to Liverpool, a distance of over 200 miles, in five hours, with an engine with four coupled wheels of 5 feet diameter, and that the same rate of speed has been run on our lines by my engine. If reference be made to the Commissioner's M.P.'s. 87/3,216, 87/4,076, 87/4,334, and 87/5,898, the facts revealed, if estimated correctly in regard to the special trip made by one of my engines with the firemen's train on the 22nd February last, show a performance so good that I very much doubt if anything superior is on record.

Mr. Scott's assertions on pages 11, 21, and 22 of his remarks, to the effect that he is positive that I could not build engines at the Eveleigh workshops for 50 or 60 per cent. more than the cost of the engines now being delivered by the Vulcan Co., are mere assertions, and the matter he advances to support them simply specious pretences put forward to hide his own inability to grasp this important question in all its bearings, and I am not surprised that he cannot properly appreciate the advantages to accrue to the Department in dealing with it in the manner I have recommended. In his efforts to show that the position I have taken up in the matter is an untenable one, I am charged with making absurd and wild assertions; need I remind Mr. Scott that abuse is not argument. I repeat here all I have already said in regard to building new engines at the Eveleigh shops, but I do not think I am at present called upon to submit particulars of the line of detail actions I should take and consider necessary for the success of such an undertaking. I am content to simply direct attention to the fact that as yet Mr. Scott has shown no reason for his self-satisfying declaration that he has disposed of my absurd assertions as to the cost of engines if built at Eveleigh.

In reply to the remarks bearing upon the subject, I may say that I am perfectly aware that when contractors make their own drawings for engines they have to build, that it places extra responsibility upon them, and I am also aware, if Mr. Scott is not, that such course relieves the locomotive engineer of the responsibility which properly and exclusively belongs to such an officer, and forms a very important part of the special duties for the performance of which he is paid a salary.

Passing over the intervening matter, as possessing no special significance, till I come to Mr. Scott's remarks *re* steel *versus* Yorkshire iron for boilers of engines, I would say this: The proof of Mr. Scott's undecided tendency lies in the fact that he had two brands of Yorkshire iron for boilers printed, in his specification, and he afterwards added in manuscript a third. I can import the best boiler steel made for £8 2s. 6d. per ton f.o.b. Glasgow, whereas the Yorkshire iron preferred by Mr. Scott would cost from £30 to £39 per ton.

The following extract from the Presidential address at the N.E.C. Institute of Engineers and Shipbuilders, 1885-6, will perhaps enlighten Mr. Scott:—"The success which has attended the introduction of mild steel in the construction of marine boilers is so marked that but one opinion exists as to the suitability of this material for such purposes; and as Mr. Head says, 'One contributing cause for this development is doubtless the employment of the higher pressures now in daily use; or, perhaps to speak more correctly, the capabilities of this material have assisted to render possible such advances in pressures as would otherwise have been out of the question. But be this as it may, call it what you like, cause or effect, there can be no question as to the success of steel boilers built by the Company with which I was connected in the spring of 1878, which are now running without having cost a penny for repairs, and practically in as good a condition as ever, and doubtless other manufacturers could bear similar testimony.'" Mr. Scott could have seen lately at the Circular Quay, in some of the new Orient steamers, steel boilers 15 feet in diameter carrying a working pressure of 160 lb. to the square inch. Now surely in the face of this there cannot be much that can be considered an extraordinary departure in proposing to make of steel locomotive boilers of 4 feet 6 inches diameter, carrying 140 lb. to the square inch, more especially when one considers that Mr. Scott quotes Mr. Webb as having used steel of *his own make* on the London and North-western Railway. And here let me say that had Mr. Scott been as alive to his opportunities as he might, and ought to have been, when in America, he would have found hundreds of steel boilers in use in locomotive engines. Yet with imperturbable self confidence Mr. Scott asserts that this matter can only yet be considered as in the experimental stage. I fear that steel for boilers, as well as many other advancements in engineering science, would have remained in the "experimental stage" were the majority of engineers as conservative as Mr. Scott. Perhaps it may not be out of place to also point out that of ninety-seven motors in the Tramway Department of the Colony ninety-two are fitted with steel boilers, and that even the two motors built by Mr. Wearne in Sydney are fitted with steel boilers, so that if Mr. Scott had taken the trouble to watch what was passing under his eyes so to speak, he could have acquired valuable information relative to the use of steel in locomotive boilers. As he asks for it I have not the slightest objection to putting Mr. Scott on the way of obtaining a few of the best brands of steel which will fulfil the conditions I have named; they are,—

The Steel Company of Scotland (Limited), Glasgow.

The Landore Siemens Steel Company, Swansea.

The Leeds Forge Company, Leeds.

Park Bros. & Company, Pittsburgh, U.S.A.

Ohio Steel Company, Cleveland, O.

Perhaps this will suffice.

In reply to Mr. Scott's peculiar remarks *re* steam domes, I did not think it necessary to take the dome off the boiler of the pattern engine No. 133 for the mere sake of allowing the contractors to see the engine without a dome. When I mention that the engines of 304 class have run for over two years without a dome, the success of the change is established.

Mr.

Mr. Scott should keep pace with the times. Evidently he did not notice the domeless engines on the Great Northern, Great Western, and South-eastern Railways in England. Yet the fact remains that such engines are largely in use, in fact exclusively so on the Great North Railway, which had over 500 engines in the year 1876.

In regard to Mr. Scott's perforated plate, which he takes credit for as a spark arrester, I see, according to the light he now throws upon the subject, that it was Mr. Scott's retiring nature which prevented him from stipulating for his own spark arrester in his specification, but as he stipulated for "the best," and as he now tells us his spark arrester is admitted by everyone who has seen it to be "the best," the inference is obvious.

My reference to the water-jet acting on the wheels causing the engine to slip is not "absurd," and the attempt made to place me in a false position by explaining that it is not intended to be used when the engine is pulling is puerile.

I say that if the jet is often used on down gradients the wheels would be wet, and in ascending gradients with wet wheels, and it would happen at times the handicap on the engine would be great. I certainly think, after reflection, that this is a case where the disadvantages outweigh the advantages. I am therefore opposed to the water-jet arrangement on engine wheels.

With reference to the remarks dealing with the Westinghouse brake, I think a little reflection will make it quite clear that the reason advanced by Mr. Scott for not working the Westinghouse brake on the engine is really a reason in favour of its being so worked.

I can afford to ignore Mr. Scott's remarks about "horseshoe" *versus* "wedge" shaped tenders. I will, however, again refer to the seemingly small matter of the position of the side-lamps on the tender, as it is just one of those small matters sufficient to be important in averting or occasioning serious accident. The reason the side-lamps should be placed on the front end of the tender rather than on the back end is that the men on the engine may be enabled to see ahead or behind without having a dazzling light thrown in their eyes; indeed, the proper place for these lamps is on the side of the engine-cab, above the men's head, in which position it would help instead of hinder their range of vision.

In the year 1884.

It is quite true that my engines (304 class) cost £2,600 each, f.o.b. New York, but it must not be forgotten that there was no competition for supplying them—that they were built to a *special specification* stipulating wide departures from the beaten track, all of which tends to increase the cost of the first engines of a new type,—and I have no doubt whatever that if engines were tendered for now in England and America under the same specification, with the detail drawings now available, that we should obtain them for a less price than actually paid for the Vulcan engines now being delivered. I might mention, because Mr. Scott does not refer to the fact, that the ten engines (296 class) built to his specification by the same makers, and at the same time as my engines, cost exactly the same price.

And now to refer to the cost of the Vulcan engines, which Mr. Scott quotes over and over again in the course of his remarks at those points where he apparently thinks it is likely to create effect, as £2,315, and as the cheapest engine ever offered to the Government.

It will no doubt be a rude shock to the reliableness of Mr. Scott's statements when I say that reference to the invoices of the Vulcan Company will show that the amount paid, or to be paid, for their engines is very much nearer £2,500 each than the figures stated by Mr. Scott, and as to being the cheapest engine ever offered to the Government, reference to the Commissioner's minute paper 80/5,712 will show that offers were made to the department by Messrs. Beyer, Peacock, & Co. to supply goods engines of the 205 class at £2,300 each. I need not say that Beyer, Peacock, & Co. are second to none as locomotive manufacturers.

I now come to the question of goods engines, but I will not combat Mr. Scott's incorrect assertions. It is sufficient to say that I have always recommended "Consolidation" engines for goods traffic ever since 1880, when I first had experience of them and of their merits, evidence of which is afforded on the Commissioner's minute paper 84/5,900 by my minute of 23/3/84, as follows:—

"* * * If it is decided to import goods engines I recommend that we have the Consolidation type, and to be exactly like those last imported, except as far as this specification (Spec. for 304 class engines) can be made to hold good."

This is good evidence I think that I have been consistent in endeavouring to limit types as much as possible, and make the parts of goods engines interchangeable with passenger engines. Again, Mr. Scott has purposely suppressed a very valuable report on the utility of the Consolidation engines by Driver John Jones, dated 15/11/79 (copy attached). I may mention that Driver Jones was a superior engineman, and was always selected by Mr. Scott himself to run special trial trips of engines for test purposes, therefore his remarks are entitled to great weight.

Mr. Scott makes a point of the second fireman being required on the Consolidation engine, and states "that in itself was sufficient to justify his not recommending the Consolidation engine." To this I would reply that when I had the opportunity I tried by certain alterations to the arrangement of the brake gear to dispense with the second fireman, and should have succeeded had I met with proper support from Mr. Scott.

In the engines I proposed to build to the pattern Consolidation engine No. 133, I have, by simply removing the cab 15 inches further back, and rearranging a few details, taken all the action necessary to dispense with the second fireman.

The best answer I can give to the sensational paragraph about the bogie-wheels lifting on the curves is that the engines have been running successfully over the Mountain line for close upon ten years.

In regard to Mr. Scott's remarks in attempted refutation of my statement that "it was evidently intended that the goods engines should be supplied by Messrs. Beyer, Peacock, & Co.," I repeat what I said, and to anyone acquainted with the favourable circumstances in which that firm stands to supply the engines in question, the reason is obvious.

In conclusion I beg to point out that it is most unsatisfactory to continue to debate the question as to the most suitable engines for our requirements, which can only be satisfactory and finally settled by actual experience of the working of the different types of engine under precisely similar conditions. And I submit that at least my engines have by their *work* during the past *two years* demonstrated beyond all question their great efficiency in all important respects, and I trust that this, with the facts I have stated in this paper, will assist the Commissioner in arriving at a sound decision upon this important, though unnecessarily rendered somewhat intricate, question.

Randwick Works.

THOS. MIDELTON, M.I.M.E.

[Enclosure.]

[Enclosure.]

Mr. Tipping,—
Sir,

Penrith, 15 November, 1879.

I have travelled with all the Consolidation engines on the Western line, as requested, &c. I beg to make the following statement to the several questions:—

1. Do these engines keep up sufficient steam with an ordinary load? They do since I have been with them. There has been no case of sticking up, but one or two struggles to reach the destination, where the pulling has been long and severe. This, in my opinion, was caused by unskilful firing. They require more judgment in firing than the old engines, having such a large area to fire over, and sometimes inferior coal will creep in. There are instances of the old engines sticking up, sometimes for want of steam from various causes, but as a rule the Consolidation engines steam as well as the old engines, and better than some of them.
2. Do they require any more attention than any other class of goods engines? They do not, excepting in watching that bolts and nuts do not stack back through not having a split-pin in to secure them.
3. Is the present mode of firing the best; if not, can you suggest any alteration? Different men have different ways of firing; but I consider the best to be a low flat fire, so as not to choke up the arch; and fire about six shovelfuls at a time.
4. Is the quality of the coal suitable? It is, as the mountain coal makes no clinker; it is readily acted upon by the rocking fire-bars.
5. Is it absolutely necessary to have a second fireman beyond Lithgow, or between Bathurst and Orange? It is at present, not altogether on account of the hard work, but the inability of the drivers to assist in braking. If the driver was supplied with a steam-brake in his corner, or things could be brought closer together, so that the driver could assist his mate in shunting, &c., then I think the second fireman could be dispensed with on the easier lines.
6. Report on the brake power of both engine and tender? The tender brake is a good one, but takes sometime to get it on, owing to its peculiar construction. The great loss of power is in the engine brake, which should have eight blocks instead of four, and six inches longer, if it is possible to get them on; owing to the great weight of the engine. The brake-rod and screws of both engine and tender should be lengthened 2 or 3 inches, so that they could be taken up a hole before starting, instead of having to wait until they are worn right up, and having to start the journey with about two or three threads on the screws.
7. Do the drivers take sufficient interest in these engines, and give them a fair trial as to their taking the maximum load with due regard to economy in fuel and stores, keeping time, &c.? The drivers take a very fair amount of interest in them, as they must do to get along the roads; but there is not that pride and care exercised as there would be if every man had his own engine. His care and attention extends of course to the end of the trip only; as he will have another engine the next day, and so on; but, generally speaking, I do not think the men appreciate them at present as they will by-and-by when they get more accustomed to them. The engines have power to take one or two waggons more, but I do not think the water in tender would hold out between some of the water cranes, and they are very difficult to get along with their present sand gear in greasy weather.

General Remarks.

In the Consolidation engine we have, I think, the *grandest goods-engine ever placed on the Western road*. They are very heavy certainly, but they pull and run well with very little signs of heating if properly lubricated; peculiarly adapted for the Western line; runs round the curves *better*; and is, in my opinion, much *safer* on the curves than the *old* goods engines. The bogie in front of them is in fact a splendid idea for the goods engines for the Western road, but their brake-power is not sufficient, and their sand boxes and gear should be altered to suit our requirements. As we have sand boxes and gear on some of the old engines, which, I think, cannot be excelled, it would be a good idea to put them on these. Their sand-box being placed on the top of the boiler occasions great loss of time and much labour in filling it. Two large sand-boxes could be placed on the truck in front, or bracketed on the side as on the old engines. They should have the short lever and quadrant, instead of their straight-pulling handle, as a much better means for gauging it. They should be worked separately, as it is impossible to catch the right and left curves, &c.

Straight Road.

I know there is an objection to sanding one rail at a time, owing to all the strain coming one side; but these engines are doing the same thing now, as one sand-pipe is running the sand on the ballast instead of the rail on the sharp curves and wasting it, owing to the cause above-mentioned. The practice also of running these engines down the mountains, tender first, cannot be too soon put a stop to, as it is unsafe in greasy weather through not being able to get any sand under tender-brake, and the small brake power of the engine, they are unable to hold the train properly. I believe the two first goods engines that arrived here are the best with the short blast-pipes. They are more lively, pull better, and burn less fuel, and do not heat their smoke-box like the others; but their injectors should be horizontal, as they work much better in that position. In conclusion, I beg to say that I think all the present difficulties will disappear in the future, as the men get more accustomed to them, and the alterations which I have suggested are carried out.

It was not stopped until did it in 1882.—T.M.

I remain, &c.,
JOHN JONES.

Loco. Overseer (Mr. Scott).—JOHN TIPPING, 17/11/79.

Sent the original papers to the Commissioner on the 1/7/82, with these comments: "The attached reports by driver J. Jones is, in my opinion, a very valuable document. He is a very steady, thoughtful man; and I agree with what he has written in almost every particular. My experience of these engines here leads me to almost the same conclusions. I forward these papers for your information." The Commissioner replies thus on 10/7/82.

"I shall be glad if Mr. Midelton will make these engines as effective as possible by the additions of the improvements suggested by driver Jones, in which Mr. Midelton concurs, and will report to me the result (say) at the end of this year."
CH. A. G.

I think the original papers should be put with these, as I fancy I wrote more than is stated in my memo. above, which I have copied from my own copy of Jones' report.—THOS. MIDELTON, 20/5/87.

Minute by The Chief Clerk to the Commissioner for Railways.

TENDERS for the manufacture of fifty Engines in the Colony.

In the advertisement for the above it is stated that particulars can be obtained at this office. One gentleman called to-day, but I was not in a position to furnish him with any particulars further than to inform him that the pattern engines would be dismantled and on view at Eveleigh running shed. To whom am I to refer intending tenderers as to the details of the engines required?

D.C.M.L., 27/4/87.

Instruct them to go to the running shed, Eveleigh, inspect No. 308 engine and tender and No. 133 engine. Any engine and tender between 804 and 313 inclusive can be inspected.—T.M., 28/4/87.

Draft specification left with Assistant Secretary for printer at 11:30 a.m. to-day.—T.M., 28/4/87.

Yes, when we receive the drawings from America, and make drawings of goods engines here.—T.M.

Mr. Midelton will please say if he wishes any one in attendance at Eveleigh. If instructions were given to the employé in charge of shed to point out the engines which are to be placed there as pattern engines, I presume that should suffice for that portion of the public requirement. In the specification to be drawn up the general dimensions of the engines will be given, and also a statement of the material which is to be used. No doubt, ultimately, detailed drawings will be required, but these could perhaps be better supplied when a contract has been accepted. It will not be convenient to persons intending to compete to visit Randwick for the purpose of seeing Mr. Midelton. The skeleton specification should be at this office, and perhaps Mr. Midelton could arrange to meet those interested in Sydney at this office at stated times.—CH. A. G., 27/4/87.

They represented that they understood from the public prints that the Government intended to allow contractors for the manufacture of locomotives the use of the machinery at Eveleigh workshops, and they contended that this would be an injustice to the firms who had spent large sums of money in building up private workshops.

They further considered that it should be the aim of the Government to encourage private firms: If, as suggested, the Government allowed the use of the shops, or undertook to build the engines, they would be entering into competition with private firms who had invested fully £1,000,000 in buildings and machinery, and in a sense they would be causing the manufacturers to be entering into competition with themselves, for in a degree they were part owners of the Government works at Eveleigh, as they were taxpayers. When the Government proposed to erect these works, and asked Parliament to vote the funds, it was never intended that these shops should be used for manufacturing work, as it was stated they would be devoted to the repairing of machinery and stock. They contended that it would not only be an injustice to them for the Government to enter into competition, but it would be unwise, as the Government never got work done so economically as it was done in private workshops. The system had been tried in other parts, and experience showed this. In America they had no Government works, and in England they had recently decided not to extend their Woolwich works, but to allow the State requirements to be met by private firms. They thought it was an unwise policy for the Government to be adopting a large plant. A foundry had been set up at Eveleigh, but the private foundries in existence already met all requirements, and if private persons found that the Government were providing these appliances they would decline to invest capital in manufacturing industries, and this would act most injuriously upon the best interests of the Colony, as in times of danger we would have to rely largely upon our local manufactories.

It was stated that through the inducement offered by the Government some of the best mechanics in the private firms left to join the Government works, and throughout the country there was a desire on the part of young men to look for Government employment rather than take up private service or to take up land for production. They thought the Government should, as far as possible, break down this system rather than increase it, by undertaking new works, and consequently employing more labour. When the motion was carried in the House to have 100 locomotives made in the Colony, it was never anticipated that they would probably be made in the Government shops.

I informed them that the Government had no intention whatever of adding anything to their present heavy responsibilities with regard to the employment of labour. They were aware they had engaged twice or three times as many men as they should, and that this was prejudicial to the interests of the Colony. The farming interest was crippled because the young men of the farming class looked to the Government for employment rather than to obtain a living from the soil. The Government were aware of all this and would give the matter their best consideration. I was the medium for bringing the matter under attention, but the conditions would be altered, as it had been decided that all deputations to all Ministers would be received in the Cabinet room, when reliable press men could be present. At the present time, with divided deputations, the press writers were scattered, and to meet the exigencies some days young reporters were sent out who did not fully understand the position, and were unwittingly the medium of misrepresentation.

It had been taken for granted that we were to make the locomotives in our works; but I might say at once that no such thing was intended, and no such proposal had engaged the attention of the Government. I was fully aware of the merits of this matter, and would be very careful in any representation I would make, knowing as I did what the effect would be if the Government were to increase the number of men they now have employed. I fully agreed with them that we should so seek to establish our private manufactories as to be able to rely upon them in case of emergency, and I had expressed that years ago in connection with the manufacture of torpedoes. I believed our local works should keep pace with the times, and by obtaining the best improvements be able to do any nature of work.

With regard to the offer to allow contractors the use of tools, I pointed out that we had at Eveleigh certain special tools that were perhaps not possessed by any private firms, and to facilitate the contract I had approved of tenderers being allowed the temporary use of these specialities under our supervision; but in their tenders they would have to state what tools they would require and certain terms would then be fixed; but the Government would entertain no speculative offers in this direction, and the whole arrangement had been made in the interests of the contractors. I was giving them every opportunity to secure this work by giving them reasonable terms and simplifying the design of the engines. I was glad to hear that masters and men had determined to do their best to secure this contract for the Colony, and if they did not take advantage of it, it would be a bad thing for the Colony. The employer and employé must agree to let the Government obtain as low a price as possible, because they might not get so good a chance again. The Government had the English prices, and they were not likely to give the colonial tender an advantage that could not be justified in giving an undue benefit to a certain class.

It had been rightly said that the Eveleigh workshop belonged to the people, and they as taxpayers should not be compelled to compete against themselves. The Government, I believed, would not attempt to do that, and so injure interests in which, as they pointed out, a million of money had been invested. I admitted that in many ways the contractors of the Colony had not had fair play, but I was trying now to give them the greatest fair play, and if they did not take advantage of it, it would be no fault of mine.

The matter would not be finally decided by me—it would be settled by the Government after full consideration, and I would submit the various points that they brought under my attention; but my sympathies were in favour of having all work, whether woodwork or iron, made in the Colony so far as it could fairly be done.

JOHN SUTHERLAND.

Locomotive Engines.

Minute by The Superintendent of Tramway Rolling Stock to The Commissioner for Railways.

IN compliance with the foregoing minute I have the honor to report as follows:—The very important question of designing and manufacturing, as well as repairing, locomotive engines, tenders, and rolling stock generally, in the workshops owned by a State or by a railway company, as the case may be, has occupied my mind for over twenty years; and I may say that I have studied the matter as much perhaps, as any man in the Colony, in consequence of my professional training, which commenced in very large works in England owned by a railway company, where all the rolling stock they required was designed and manufactured by their own officers and men, the work being done better and at considerably less cost than it could have been done by private firms.

The company alluded to (the Great Western Railway Company), like other similar companies in England, not only did as I have said, but they rolled in their own rail mill nearly all the rails they required for the maintenance of lines opened for traffic and the construction of new lines. The London and North-western Railway Company do more, for they make their own boiler plates, tires, axles, &c.

When I first came to this Colony, in 1880, I was engaged by the late Locomotive Engineer (Mr. R. H. Burnett) to design the proposed new workshops at Eveleigh, but nothing was done, practically, until I became Acting-Locomotive Engineer, when you, on the 19th of January, 1883, approved and endorsed my design of the Eveleigh shops in the following terms: "May be carried out, both Engineer for Existing Lines and Locomotive Engineer concurring;" and the shops now erected and to be erected are substantially my design, and they have been expressly laid out for the purpose of *manufacturing*, as well as *repairing*, railway rolling stock, and will be equipped with the best machinery and appliances accordingly; and it is satisfactory to note that Mr. Scott, the present Locomotive Engineer, who was sent on a tour by the Government through America and England, and who had copies of the designs of these works sent to him in London to work to, reported in July, 1883, when he returned to this Colony, that he was "exceedingly pleased to be able to say that our new shops will compare very favourably both in design and general arrangements with the *best* I have seen in my travels."

This I could cordially endorse if Mr. Scott had done as he promised he would do—that is, "*work strictly to the drawings I sent home* for his guidance." But he has, unfortunately, altered the overhead travelling cranes, and also the main shafting arrangements, which alterations, I still contend, are a serious mistake.

I also think that other mistakes are taking place at Eveleigh now, in placing the machinery, benches, &c., &c., the way it is being placed. In a new works like that, the machinery, &c., should be properly placed, so as to avoid unnecessary handling of raw material, &c., and for turning out work quickly and economically.

In round figures, there will be spent on the Eveleigh works about £600,000; and I estimate that there is £120,000 worth of machine tools, exclusive of buildings, small hand tools, &c., employed in the Locomotive Department of the New South Wales Railways, at the following stations:—Redfern, Eveleigh, Newcastle, Randwick, Penrith, Bathurst, Goulburn, and Junee shops. This, if properly placed and fully employed, would be far more than sufficient for keeping our present rolling stock in efficient repair, and we could in addition manufacture all the locomotives likely to be required in the whole of Australasia for the next fifty years. Consequently, if we do not manufacture locomotives, &c., at least for ourselves, it is evident that the vast amount of capital invested in buildings, machinery, &c., will only be partially worked and utilized. We have, unfortunately, made the same costly mistake that many English and other railway companies have made—that is, gone in for decentralizing our repairing establishments, and large workshops have, in consequence, grown up at the stations I have named; whereas we should have built and equipped our central works at Eveleigh long ago, and do nothing but the *daily running repairs* at the out-stations referred to. All manufacturing and *heavy* repairing should be done at head-quarters under the constant supervision of the chief and subordinate officers of the Locomotive Department, in whom *personal responsibility* should be centred, instead of its being divided, as at present, among a great many subordinate officers hundreds of miles apart. Centralization is now the recognized practice in the Locomotive Departments of all well-managed railways, and, if it is justifiable for so many of the said companies all over the world to manufacture their own rolling stock, rails, plates, &c., &c., and many other things they use on their lines, it certainly is equally justifiable, equitable, and philanthropic for a State to do the same thing, because, in the first case, a few shareholders only are benefited, whereas, in the latter case, the whole population is benefited and interested, and it really is a benefit to every individual in the State.

It is, perhaps, not generally known that some of the Railway Companies actually *manufacture more* of the details of a locomotive than the private firms do. For instance, they manufacture steel (boiler) plates, iron and steel cranked and straight axles, steel tires, frame plates, &c., &c., whereas none of the locomotive engine builders do that. They call for prices, and they purchase that class of material from the various manufacturers of such articles; then it is forwarded to their works to be manipulated and made into a locomotive. I propose that the Government should do the same thing. They should call for prices, and then import such articles as I have named, and which cannot, for some time to come, be made in the Colony, the freight and first cost of which, delivered in Sydney, would not, I think, exceed the cost of the same material delivered in the works of a Glasgow or Manchester engine-builder; therefore up to this point the Government stand in the same position as the manufacturers, the only question now remaining for consideration being that of *control or management of the workshops, and the price of labour*. Regarding the first, I do not see any insuperable difficulty or reason why the Eveleigh Works could not be managed by one head upon exactly the same system, principle, or basis as private establishments in the Colony of a similar character are controlled, books kept, and a proper half-yearly report produced. Indeed I believe the artizans would much prefer such a system of management to the present, because they would all know who was *head*, and *merit* then would predominate and rise to its proper level and be utilized, whereas now it is of no use whatever; it rather tends to hinder than advance its possessors, and unless proper discipline and control is established, I should strongly recommend that the work I suggest be never started.

The

The next question is the price of labour. This Colony has consented to pay a workman here on the spot about as much again for what he does, as it—through contractors—pays a similar workman for what he does in England; but the artizans here argue that they can do as much if not more work in eight hours than can be done by their brothers in England in ten hours, and I believe this to be true where proper discipline and control is practised; but of course the same quantity of work cannot be got out of *machinery* in eight hours as in ten. Therefore it is evident that a locomotive made here will cost more than it would if made, *from the same drawing*, where labour is cheaper; but this is not, under the circumstances, sufficient justification for having our engines built outside the Government workshops.

I will now proceed to show the advantages to be gained, and the reasons why we should do as I propose.

We have the workshops, the tools—such as no other establishment in the Colony has—the skilled officers and men, all specially suited for manufacturing as well as repairing, and if it is justifiable to do *repairing* it is equally justifiable to *manufacture*; indeed, much of the so-called repairing is *manufacturing*.

Unless manufacturing is done the shops and plant will not be fully utilized.

We should now, after the “tests” of the locomotives which were made on the 15th and 16th of June, adopt the simple and efficient class of locomotive and tender, which *we can manufacture*, and the more we simplify the details the less the cost of production will become and the nearer we shall approach the cost of the imported engine, which is usually paid for by weight, and which, however much it is simplified, only puts more profit into the manufacturer’s pocket; whereas, if *we supply our own engines* we profit most by it ourselves. It is clear, of course, that the simpler an engine is the less it will cost to make and keep in repair, and the more that is done in that direction the sooner we shall balance the higher price of labour here to what it is at home.

Work done by ourselves would be better done, because good work should and would be the *sole* aim of everyone engaged upon it. No *profits* having to be made, all exertions would be thrown into the *quality* and *quantity* of work to be turned out, and all difficulties of “contracts,” inspection, and litigation would be avoided. Manufacturers aim chiefly at making large profits, “extras,” &c., and as everyone engaged upon this work would see, or soon be caused to see, that the more he worked, and the better he worked in this cause the more he would gain. I think the success of the scheme would be near and certain, especially as there is no novelty about the matter; we should be simply following established precedents.

What is generally known as the American type of locomotive *can* be made here, and we have now lying idle hundreds of tons of good material which could be worked up at once in these proposed new engines, in the bar frames, motions, wheels, cylinders, &c., &c., whereas the English type of engine cannot be so easily made here; for instance, we should either have to import “frame plates” or erect special rolling mills for rolling them.

I have already reported that a simple, a far more efficient, and less costly engine and tender can be made here in our own shops than those proposed and recommended so strongly by the Locomotive Engineer. The correctness of this view is proved by the fact that the Colonial tenders for my passenger engines are £220 less per engine, and £290 less per engine for the goods engine I recommended than the Colonial tenders received for the English type of engine referred to, and as the *average tender* from six English houses for the passenger engines is £2,650, and £2,743 for the goods engines, I am convinced that we can produce in our own shops as good an engine as the imported one for the same price.

One of the most magnificent class of passenger engines and tenders in Great Britain is made by the Great Northern Railway Company at their Doncaster Works, for £2,025 each, and I could name no less than twenty-seven different Railway Companies, in England and America, who make their own engines in their own shops. The Great Western Railway Company made no less than twenty-four new engines during the *half year* ending 31 December, 1886, *at the cost of revenue*, at their own works. In doing this they not only *saved* the *profit* which would go to manufacturers, and cost of inspection, but *secured the exact type of engine which they knew best suited their requirements*.

The London, Brighton, and South Coast Railway Company have practically rebuilt the whole of their locomotive stock during the past twenty years at their works at Brighton, where they employ 1,200 hands constantly; and I notice in a recent American newspaper that the Pennsylvania Railway Company have given orders for forty new engines to be at once put in hand at their own works at Altoona.

It will be seen from the foregoing that in the building of the locomotives in the Government workshops of the Colony the only serious drawback would be the extra cost of labour, for which we should have to pay about double the English price; but on the other hand, in favour of that course, we should save litigation, contractor’s *profit*, the cost of inspection, &c., and at the same time secure better workmanship in every respect, and an engine made in every way suited to the special requirements of our railways.

As the latter appears to me to more than counterbalance the former, I have only to repeat my former recommendation in favour of the engines being built in the splendid new shops at Eveleigh.

THOS. MIDELTON, M.I.M.E.

Randwick Works, Sydney, July 11th, 1887.

Minute by The Secretary for Public Works to The Commissioner for Railways.

Department of Public Works, Sydney, 28 May, 1887.

PLEASE write to Mr. A Morris, Agent Baldwin Company, asking him upon what terms his Company will supply twenty-five engines to Mr. Midelton’s specification, and twenty-five Consolidation goods engines, for delivery, f.o.b., New York, and in steam in Sydney; and also to state time of delivery.

JOHN SUTHERLAND.

The Commissioner for Railways to The Agent for the Baldwin Locomotive Works.

Sir,

Department of Railways, Sydney, 28 May, 1887.

I have the honor, by direction of the Honorable the Minister for Public Works, to inquire upon what terms your Company (Messrs. Burnham, Parry, Williams, & Co.) will supply twenty-five engines to Mr. Midelton's specification and twenty-five Consolidation goods engines similar to those supplied to the Department in 1879.

I shall be glad if you will state price of delivery f.o.b. in New York, and in steam in Sydney, and also mention time of delivery.

I have, &c.,

CHAS. A. GOODCHAP,
Commissioner for Railways.

The Agent for the Baldwin Locomotive Works to The Commissioner for Railways.

Sir,

Norwich Chambers, Hunter-street, 30 May, 1887.

I have the honor, in reply to your letter of the 28th instant (No. 3,120), to say that a cable has this day been forwarded to the Baldwin Locomotive Works, asking them to name prices and times of delivery of the two classes of locomotives referred to by you. Whatever prices may be named will include any modifications or improvements which experience may have suggested to your engineers.

I have, &c.,

AUGUSTUS MORRIS,
Agent.

The Agent for the Baldwin Locomotive Works to The Commissioner for Railways.

Sir,

Norwich Chambers, Hunter-street, Sydney, 2 June, 1887.

I have the honor to communicate the following offers from the Baldwin Locomotive Works for the supply of 100 locomotives.

The Baldwin Company are prepared to deliver f.o.b. in New York or Philadelphia 100 locomotive engines during six months, commencing with December of this year, or with January of next, or as may be preferred.

The price required for the Midelton engines, 8-30 D, is £2,600 for each, f.o.b.

The price required for the Consolidation engines, 10-34 E, similar to those shipped to the Government in 1879, or according to the Baldwin's Co.'s letter to the Commissioner, dated 31st May, 1884, in reference to an improved type of consolidated engine, is £2,900 f.o.b. The materials throughout to be identical with those on the Midelton engines.

If required to deliver and erect at the Eveleigh Station or Railway works under steam, £300 must be added to the price of each engine.

The terms of payment to be the same as those agreed upon when the twenty Midelton and Mogul engines were supplied in 1884.

In submitting these terms the Baldwin Locomotive Works are prepared to accept any modifications of details which experience may have suggested, but which will not conflict with the general design of the locomotives proposed, or be inconsistent with American practice.

The fullest guarantees of the goodness of the materials and the efficiency of the engines that may be desired will be given.

I have, &c.,

AUGUSTUS MORRIS,
Agent for the Baldwin Locomotive Works, Philadelphia.

Minute of The Commissioner for Railways.

REFERRING to answer to question given in House last night, as to conditions under which the engines advocated by Mr. Scott are to be tested against those recommended by Mr. Midelton, I request that Mr. Scott will furnish me by Monday morning next with proposed conditions of test. CH.A.G., 20/5/87.

I would recommend that one of each class be put to run the day passenger-trains between Sydney and Bathurst, and an accurate account be kept of the load hauled and the stores consumed.—W. SCOTT, 21/5/87. Commissioner.

The Superintendent of Tramway Rolling Stock to The Commissioner for Railways.

In response to your letter of the 19th instant, I beg to submit the following conditions to be observed in case the 304 class of engines are tested in competition with the new engines from the Vulcan Foundry Co. :—

1. That each officer (Mr. Scott and myself) shall select his own engine, tender, and enginemen.
2. That each engine and tender shall be fairly equipped with coal and water ready for the road, and that the weight on each wheel of engine and tender shall be accurately ascertained before going out; neither engine to have any sand in sand-boxes or water conveyed to any of the wheels.
3. As much coal as may be considered safe by each officer in each case is to be put on each tender, and the said coal to be either Zig Zag or Vale of Clwydd, and to be taken from the same waggon and properly weighed in baskets and put on the tenders, the total weight to be recorded in lb., and the coal which remains on the tender after the trial in each case shall be taken off and weighed in our presence.
4. The trial trips shall be from Sydney to Eskbank and back, and shall be run to a time-table to be made out by the Traffic Manager, each train to start and return in daylight, and to be timed the same as the Western Mail on the down and up journey.
5. The train to consist of eight of the Redfern carriages (double-bogie type), all to be coupled up as may be directed and properly lubricated and examined.
6. The general condition of each engine, the time each has been running, &c., shall be recorded.
7. The weight of train shall be accurately ascertained.

8.

8. Water to be taken at Sydney, Linden, and Eskbank only.
9. Each driver to record the trips in the usual manner, and no person to be allowed to ride on the engine or tender except the driver and firemen in each case.
10. Two guards to be supplied by Traffic Department—one to ride in front of train, and the other at the rear, and they shall record the trips in the usual manner.
11. A printed time-table to be supplied to those conducting the tests.
12. As these trials are of great public interest, persons concerned in the matter, to the number of about 100, could be allowed to ride in the carriages as passengers, but they must take no part in the trials or assist in any way. The number of passengers so attending to be ascertained by counting, and this duty to fall to the two guards named.
13. No brake-van to be used. The Westinghouse brake to be worked from the engine on the tender and carriages only.
14. The carriages are not to be uncoupled for any purpose whatever, and the same carriages to be used by each engine in each trial.
15. Each engine and tender shall be oiled and trimmed by each driver the night before the trials, and on the running of the trial the enginemen shall procure from the store the stores they may require on the trip, and the same to be properly weighed and issued to them, and to be duly recorded by storeman and driver on his sheet.
16. Nothing shall be done except Mr. Scott and myself are present to see what is done, and that it is done properly and be properly recorded.
17. Brake blocks, hangers, and rods to be taken off each engine.
18. Each engine to be tested to blow off steam at 140 lb., and the same gauge to be used in each case.
19. Mr. Scott to have sole control of everything the day his engine is tested.
20. Mr. Midelton to have sole control of everything the day his engine is tested.

THOS. MIDELTON, 23/5/87.

The tests proposed by Mr. Midelton are preferable. Will Mr. Scott say if he has any observation to make or any suggestion in connection with them.—CH. A. G., 25/5/87.

Minute by Mr. Locomotive-Engineer Scott.

Mr. Scott's own proposition was to test the engines between Sydney and Bathurst. Mr. Midelton suggested Sydney to Eskbank and return; but I presume there would be no objection to extend the journey from Eskbank to Bathurst.—CH. A. G., 31/5/87.

I most decidedly and emphatically protest against many of the conditions stipulated by Mr. Midelton, as they are at variance with the work for which the "Vulcan" engines were designed and intended to perform. About two-thirds of the journey proposed is over the Mountains, where fast running is not possible with any engine—in fact, such a test would be more applicable to a "Bank" engine than a fast "Passenger" engine, such as mine is. As mentioned in my report of 12th instant, the engines built to my specification by the Vulcan Foundry Co. were intended to compete with fast water-carriage, and reduce the time of running of our principal mail and passenger trains; therefore to confine the trials to a portion of the lines where such advantages would be reduced to the minimum would be manifestly unfair. If it be decided to have the engines tested as to their relative merits under all circumstances, I decidedly think such tests should be conducted under the direction and supervision of properly qualified locomotive experts outside the Department, who would have no interest whatever in the result. I will now particularize some of the objections that occur to me in Mr. Midelton's conditions.

- 1, 2, and 3. I decidedly object to dispensing with anything provided for the more efficient working of the engines, and therefore protest against the sanding arrangements not being availed of, if necessary. To the other conditions I have no objections.
4. I most decidedly object to the trials being confined to this portion of the line. To be fair, they should be made to extend to Bathurst, where the engines have to run with the trains, or from Sydney to Goulburn; and, if possible, a clear run of about 30 miles between stopping-places should be arranged for, so that the speed may be ascertained.
5. The load proposed is equal to sixteen, whereas the train load in regular service for the "304 class" is twelve vehicles. I therefore consider that what is proposed is simply a test of power, where a goods engine will, of course, give better results than a passenger engine, particularly over the portion of the line proposed by Mr. Midelton, chiefly mountain grades, where the running is slow. I consider the "service load" should be adhered to in the trials.

This is not reasonable. Mr. Midelton has said that his first stipulation was, when recommending his design of engine, that his engine would take thirteen vehicles over the mountains; that they did so while he had charge of the Loco. Branch, but that since the load, without reason, had been limited to twelve vehicles. Mr. Scott, in his report of 12/5/87, says that Mr. Midelton's engine will soon fail in its usefulness, as the tendency is to increase the load of trains, but if it can take sixteen vehicles its usefulness will increase.—CH. A. G., 31/5/87.

- 6, 7, and 8. As I object to the trials being made over the portion of the line proposed, the places named for watering may not answer. I therefore consider that water should be taken when each considers it necessary, but the time lost in taking it should be calculated.
- 9, 10, 11, and 12. As the engines were not designed for similar services, I think it more than probable that the opinions formed by the public would be fallacious, and therefore consider that any trials decided upon should be purely Departmental. Of course this would not apply to any locomotive experts whose opinions the Commissioner might desire to obtain. The result of the trials could be published for public information afterwards, if deemed necessary.
13. Although I do not apprehend anything occurring that would necessitate the use of a brake-van, there is the possibility of it being required, and therefore it should form part of the train.
14. I, of course, see no objection to the same class of carriages being used; however, that implies that the trials shall be made on different days, when the conditions under which they have to run may be totally different. I therefore consider that the trials should be made on the same day, so that the conditions of running should be as nearly equal as possible, or else have a number of days for each engine.
15. I see no objection to the conditions proposed, excepting as regards the time for oiling. Mr. Midelton can of course have it done when he thinks proper, and I claim an equal privilege.

16. I see no objections to Mr. Midelton, or any one whom he may select, being present to see that the proper thing is done, and I will do what I consider necessary to secure it being done.
17. I most decidedly object to the removal of the brake arrangements. They are part of the engine, and should be retained, and used if found necessary.
18. I have no objections to the pressure of 140 lb., but if the trials are to be carried out on the same day description of gauges would have to be used which would be tested previous to the trials.
- 19, 20. I scarcely see the necessity for specifying these conditions. I assume Mr. Midelton has no desire to interfere in any way with any arrangements I may make in conducting the trials. I certainly shall not in any way attempt to interfere with his.

In conclusion, I would say that Mr. Midelton appears to be stipulating for conditions to suit as nearly as possible the type of engine he recommends. The conditions laid down should, in my opinion, approximate as closely as possible to those under which our traffic has to be worked, and which a locomotive engineer would be necessarily guided by in ordering his type of engine.

W. SCOTT, 30/5/87.

Minute by The Commissioner for Railways.

WHAT was required was an engine which would take with reasonable speed a heavy passenger train over the Mountains. It was a matter of complaint on my part that the trains could not be controlled except by the use of an assisting engine, and I asked that an engine might be designed to obviate the necessity of two engines being used. Mr. Midelton designed engine Class 304 accordingly, and up to the time of his leaving the Locomotive Branch he says the engine performed the service required—viz., the haulage of a train load equal to thirteen vehicles.

Mr. Scott says that the train load is being increased beyond that, and yet the engine he has designed is not equal to the requirements—at all events he objects to its capacity to take sixteen vehicles being tested, although Mr. Midelton is willing that his engine should be tested to that extent—a condition which Mr. Scott should not be slow to accept if he adheres to his statement that the engine will not take more than twelve vehicles.

CH.A.G., 31/5/87.

Minute by The Commissioner for Railways to The Superintendent of Tramway Rolling Stock.

I HAVE made some remarks upon Mr. Scott's paper, but, notwithstanding, I should be glad if conditions mutually agreed to could be adopted. Mr. Midelton should see Mr. Scott's observations, and, as far as possible, try and meet the objections he has raised. The conditions are numbered 1 to 20. Mr. Scott agrees apparently to 1, 2, 6, 7, 9, 10, 11, 16, 18, 19, 20; of the eleven terms objected to, four—viz., 8, 12, 14, 15—may be considered unimportant.

The remaining five terms can be perhaps modified and agreed to:—

3. Engines carrying and making use of sand.
4. Line upon which test is to be made—Sydney to Eskbank, or Sydney to Bathurst.
5. The weight of train—sixteen or thirteen vehicles.
13. Brake-van attached to train. [I assume that if brake-van is attached the number of carriages will be reduced by one.]
17. Removal of brake arrangements from engines.

CH.A.G., 31/5/87.

The Superintendent of Tramway Rolling Stock to The Commissioner for Railways.

Remarks on Commissioner's M.P., 87-10,284, herewith.

If I understand the matter correctly, the tests are to be carried out to prove whether Mr. Scott or I have given the best advice, and provided the best class of locomotives for the requirements of the Railway Department.

Mr. Scott was asked to furnish "Conditions of test," and his reply was brief and unsatisfactory, viz., that each class of engine be put to run the day passenger-train between Sydney and Bathurst, and an accurate account be kept of the loads hauled, and the stores, &c., consumed."

I was also asked to submit "Conditions of test," which I supplied (see Commissioner's M.P. 87-10,450). These having been sent to Mr. Scott for consideration, he, of course, "most decidedly and emphatically protests against many of the conditions stipulated by Mr. Midelton, as they are at variance with the work for which the Vulcan engines were designed and intended to perform." Now, if these engines are not designed to eclipse the performance of all other engines in the Service, what are they designed for? Why was another class introduced? Again, he objects to my conditions, but he does not propose better ones, nor give a single reason why he objects to mine.

Seeing that six of my engines have been working the day passenger-train from Sydney and Bathurst, and also the night mail-trains over the same road for about two years, they have answered that test, therefore I see no use in doing it again; and to put the Vulcan engine on the work, as proposed by Mr. Scott, would mean delay, as many months would be swallowed up before any ~~thing~~ like accurate data could be obtained, or correct conclusions arrived at; therefore it is best to decide the question in a couple of days, as I propose, especially as we are about to obtain fifty more engines, and time is of great importance.

There are two questions to decide—one has reference to the type of passenger engine, the other to the type of goods engine required. I should like to prove, too, that my Suburban Tank engines are the best we have, because Mr. Scott stubbornly opposed me on that important question also.

The conditions of test I have laid down are fair and reasonable, and I desire nothing but what is strictly right and proper, and if I have "stipulated for conditions to suit as nearly as possible the type of engine I recommend," and can fulfil them, and Mr. Scott cannot, then I hold that to be proof that I provided

provided a better engine than Mr. Scott has, and if the weather is the same on each trial day, I see nothing to reasonably object to. Of course I should select a fine day for each test, and exactly the same conditions as near as can be obtained; but if sand is to be carried and used, I must stipulate that the test shall be made on a wet day in each case. Mr. Scott's objections to my "Conditions of test" is admission that my engine is the best by a long way, otherwise he would gladly work his engine under those conditions. Again, if I alter my conditions to meet *his* views, I should virtually admit that my engine can only do the same work as his; whereas I claim that it can do more, although of the same power, and that it is the best "all round" engine and tender ever put on the New South Wales railways. He states the Vulcan engines were intended to compete with fast water-carriage, and reduce the time of running of our principal mail and passenger trains; so are mine, and not only that, but to haul the "service load" of thirteen loaded carriages up to 1 in 30 at any time. This is a matter Mr. Scott overlooks altogether.

He says:—"If it be decided to have the engines tested as to their relative merits under all circumstances, such tests should be conducted under the direction and supervision of properly qualified locomotive experts outside the Department." Of course it is decided to make such tests, and I have drawn up conditions accordingly. (See Com. M.P., 87-10,480.) I state the worst possible circumstances. Nothing more can be done? I do not see the necessity for employing any experts. If Mr. Scott and I obey the same conditions, and test each engine under the same circumstances exactly, I should prefer being judged by the logical-minded men who would attend the trials rather than by "experts," who certainly cannot know more, if as much, of the details of these engines, and the conditions under which they will work on our line, than Mr. Scott or myself. In addition to the tests provided for, I am prepared to attach my engine to a train of thirteen carriages and run it over any portion of the New South Wales lines to any time-table which the Traffic Branch may think proper to (ever) work to. If Mr. Scott wants to test "speed" in preference to "utility," we can have a 34-mile run to Penrith and back for the purpose with the load I name. My reason for stating Eskbank and back was that I considered it the most severe test, and because the journey can be done in one day. I have no objection to extend it to Bathurst or to Bourke, but it will be an unnecessary expense and waste of time. It is astonishing that Mr. Scott has reduced his wheel from 72 inches to 66 to attain "speed." He seems to revel in calling my engine a "goods engine," whereas it is anything he likes to call it, because it will work *any train* which the Traffic Department choose to attach it to; and as it can be safely run at high speeds over the 8-chain mountain curves better than any other, will do 40 miles an hour on straight roads, and take good loads up 1 in 30. I think my conditions approximate as closely as possible to those under which our traffic has to be worked, and which a locomotive engineer would be necessarily guided by in ordering his type of engine. I also think that I have properly provided to have the engines tested as to their relative merits under all circumstances.

The "service load" has always been thirteen carriages up 1 in 30, even with two engines (or say 118 tons exclusive of engines and tender.) I should much prefer taking sixteen, as per conditions 5 and 12. If I alter my conditions the relative merits of the two engines will not be tested by a long way, therefore it would be useless to attempt the test at all.

As I claim to have put the best class of engine on the New South Wales lines, as they have done better work than any others, and fulfil conditions which are highly beneficial to the Department, Mr. Scott should now prove with the Vulcan engine that he can do more, and do it better—in short, surpass me in every respect. Otherwise, he has made a serious mistake, and introduced another type of engine and tender without any good reason for so doing. Even if he can do all I claim to do with mine, he will still be wrong, because there was no necessity for altering the type, seeing that we had introduced and adopted a "good (s) engine."

- 1, 2, and 3. Mr. Scott objects to running without sand, because he knows now that the "adhesion" is insufficient, although it is a heavier engine than mine by about 2 tons. Does anyone consider it fair to use sand on a dry rail in starting if an engine is properly proportioned? The utility of Mr. Scott's engine entirely depends upon the use of sand; and if he runs out of sand between two stations where sand can be obtained he will delay traffic, and fail to make much "speed" even with a 66 wheel. My engines carry sand, but it is rarely used—indeed I may say never used. I need not point out the economy of this.
4. I am not at all particular where the trials take place—any part of the N. S. Wales lines will suit me—but I thought I would stipulate the worst case I could think of, and do the work expeditiously and cheaply. I willingly consent to run to Bathurst, but four days will be occupied instead of two. If Mr. Scott wants to test "speed," I will undertake to haul a greater load than his engine can, and at a higher speed.
5. As the Vulcan engine gives off 141.14 lb., and my engine 140.40 lb. of power, why does Mr. Scott object to the load I propose, for, as regards power, his is a "goods engine" as well as mine. I too "consider the service load—that is, thirteen loaded vehicles—should be adhered to" in these trials, or 8 double bogie Redfern cars, with 100 passengers.
- 6, 7, and 8. I do not object to Mr. Scott's proposal *re* taking water and coal; but as my engine can run from Sydney to Linden (and probably to the bottom points at Lithgow) without taking water, and from Sydney to Bathurst and back without taking coal, I need not point out to the Commissioner the great economy of being able to do that.
- 9, 10, 11, and 12. If the engines are "not designed for similar services" they will be *used* in similar service, that is certain; and whether the trials are departmental and private, or entirely public, I do not mind in the least, but I prefer being judged openly by those who may see fit to attend, as well as by one or two whose duty it may be to decide the question. In my opinion it is more of a public question—than it is one for experts; and I have no fear of the public being able to correctly judge which is the best engine for our railways if they see the facts as they take place.
13. The reason I stipulated carriages only was that the continuous brake shall be worked by the driver exclusively; and, as Mr. Scott does not apprehend anything occurring that would necessitate the use of brake-van, I think the matter should stand as it is.
14. I propose to make a trial on two different occasions with the same carriages under exactly the same conditions in each case for each engine as far as it is possible, the same persons to attend each trial, &c., and nothing could be fairer.

15. Of course each driver may oil, &c., as he likes before starting; but I must see Mr. Scott's engine oiled; and he may see mine oiled, but it should be done as I say to be fair to both, and to ascertain the consumption of stores on the trial trip.
 16. If Mr. Scott chooses to allow some person to act on his behalf I have no objection, but whatever he does I must see it, and it shall be binding on him, but I consider he should act himself; and not delegate his powers to any one, and that condition 16 stands.
 17. I have no objection to the engine brake-gear remaining on, but it should, in my opinion, be taken off in such trials as these.
 18. The steam-gauge will be the same for each engine; it will be tested before being used on each engine, and also afterwards.
 - 19 and 20. The conditions were made to prevent others from interfering. I certainly will not interfere with Mr. Scott's trial; but, as he is Loco. Engineer, some one may understand that he would be in charge the day of my trial, whereas this should not be the case.
- I consider the conditions as originally submitted should be printed and adhered to—they are fair and reasonable—and if properly and courteously regarded there should be no difficulty or dispute whatever. Mr. Scott appears to consider "speed" everything. I, on the other hand, think general utility the main question, and I have provided conditions of test and an engine accordingly. If he cannot comply with my conditions he must be held answerable for that. I know my engine will do all he wants. Will his engine do all I want? if, so, the way I suggest will test and settle the question.
- Randwick Works, June 3/87. THOS. MIDELTON.

Minute by Mr. Locomotive-Engineer Scott to the Commissioner for Railways.

HAVING read the conditions for the trials of the two types of engine, I again most strongly protest against any portion of the engine being interfered with in any way whatever. Each engine should be fully equipped and in efficient working order, including sand in sand-boxes and all brake-gear and appliances as in ordinary train-working, so as to be available if required.

I would also again point out that equal to twelve carriages is the maximum load for the Vulcan engines on the 1 in 30 grades. If thirteen are put on I take no responsibility.

These engines are designed to work through passenger traffic, not merely for use as bank engines.

From ten to eleven carriages is the usual load from Penrith, and the Vulcan engines are quite equal to all that is required of them for general passenger trains on all lines.

W. SCOTT, 13/6/87.

It seems to me that Mr. Scott gives up the whole contention by this representation. Mr. Midelton claims that his engine will do all and more than the Vulcan engine will do. It will take as great a load and will run as fast. It was designed to take thirteen carriages over the Zigzag, and Mr. Scott's engine should do the same. If it will not, and Mr. Midelton's engine will run as fast, then it seems to be clear there was no justification for ordering another type of engine, and Mr. Scott has not consulted the best interests of the Department in doing so. Submitted for Minister's consideration. I still think the testing should be proceeded with upon the conditions named, and if Mr. Midelton's engine does the work (and it must be remembered that Mr. Scott has practically said it will not do it, for in working, he has refused to allow it to take thirteen carriages up the Zigzag without an assistant engine—an expense the engine was designed to save, then I think it will be established, even if Mr. Scott's engine also does the work, which, however, he says it was not designed to do) that Mr. Midelton's design should not have been departed from in ordering new engines.—CH.A.G., 14/6/87.

Approved.—J.S., 14/6/87.

Write separate memos. to Mr. Scott, and say that testing must take place under the conditions issued. That his engine, the Vulcan, will be tested on Wednesday, and Mr. Midelton's on Thursday. Ask Traffic Manager to arrange for the running in accordance with time-table for the tourists' run on holidays, that is as regards time of departure, &c., &c.—CH.A.G., 14/6/87.

Memo. sent
14/6/87.

Telephoned and
memo. sent
14/6/87.

Minute by the Chief Clerk to Mr. Locomotive-Engineer Scott.

WITH reference to your minute of yesterday's date on the subject of the tests to be made of the engines designed by Mr. Midelton and yourself, I am desired by the Commissioner to inform you that the testing must take place under the conditions issued.

The engine built by the Vulcan Company is to be tested to-morrow, and Mr. Midelton's on Thursday.
D.C.M'L.
B.C., 14/6/87.

Minute by the Chief Clerk to Mr. Locomotive-Engineer Scott.

THE Commissioner has written the following minute:—

"If the trials be made beyond Lithgow it will mean that four days instead of two will be consumed in the trials. The trials will not commence till Wednesday morning. On Friday we shall require all our rolling stock to meet the requirements of the excursion traffic for Jubilee.

"I must therefore decide that the tests be made between Sydney and Lithgow, and be concluded on Thursday night."

Please note the above decision.

D.C.M'L.

B.C., 13/6/87.

Telegram.

Testing relative capacity of Engines.

TELEGRAPH to Mr. Speight as under:—

"Can you allow your Acting Locomotive Engineer, Mr. Alison Smith, to come to Sydney for three days next week, or the following week, to test the relative merits of two classes of engines? The Minister for Works will be greatly obliged if you can do this."

CH.A.G. 19/5/87.

Telegram sent accordingly.—J.E.P., 19/5/87, 12:30 p.m.

The

The Commissioner for Railways to T. Roberts, Esq.

Sir,

11 June, 1887.

With reference to the trial which is to be made of the two classes of locomotive engines recommended by the Locomotive Engineer and Mr. Midelton respectively, I have the honor to inform you that Mr. Secretary Sutherland has approved of your appointment in conjunction with Mr. Smith, of the Victorian Railways, to conduct the said test, and I enclose herein a copy of the conditions under which the relative merits of the engines shall be ascertained.

I have, &c.,

CHAS. A. GOODCHAP,
Commissioner for Railways
(Per A.R.)

The Commissioner for Railways to The Assistant Locomotive Engineer, Victorian Railways, Sydney.

Sir,

15 June, 1887.

With reference to the trial which is to be made of the two classes of locomotive engines recommended by the Locomotive Engineer and Mr. Midelton respectively, I have the honor to inform you that Mr. Secretary Sutherland has approved of your appointment, in conjunction with Mr. T. Roberts, of the South Australian Railways, to conduct the said test, and I enclose herein a copy of the conditions under which the relative merits of the engines shall be ascertained.

I have, &c.,

CHAS. A. GOODCHAP,
Commissioner for Railways.

The Relative Merits of Locomotive Engines belonging to Classes of Nos. 305 and 373.

Messrs. Allison D. Smith, M.E., and T. Roberts, C.E., to The Commissioner for Railways.

Sir,

Melbourne, 22 June, 1887.

In compliance with the request contained in your letter, No. 87/11,622, dated the 11th inst., and your memo. of conditions of tests, a copy of which we attach (Appendix A), asking us, by the direction of the Honorable the Minister for Works, to conduct practical experimental tests with the classes of locomotive engines recommended respectively by the Locomotive Engineer and Mr. Midelton, we have the honor to report as follows:—

The engine, No. 373, selected by the Locomotive Engineer is a new one, of a type very favourably recognized and much used in England, but following the American practice in having outside cylinders, horizontal steam-chests, and the swinging link four-wheel leading bogie.

The specification was framed by the Locomotive Engineer, but the engine was designed in England, and built by the Vulcan Foundry Company, of Newton-le-Willows, Lancashire, and had run up to the date when the tests were made 2,323 miles. It was in first-class order, although, like all new engines, doubtless a little stiff.

The engine, No. 305, selected by Mr. Midelton, is one of the well-known American "Mogul" type, fitted with De Lacy's patent balanced slide valves, and built by the Baldwin Locomotive Company, of Philadelphia, United States; it had run 41,970 miles, up to 31st May last, since it was put upon the rails, and nothing had been done to it except ordinary, running-shed repairs; the tires were considerably worn, and the bearings generally very free, otherwise it was in first-class working order.

General outlines of both engines, marked B and C respectively, are attached to this Report as appendices.

Before proceeding to make the practical tests over the mountains, we accurately weighed each engine in steam, and tender fully equipped with coal and water, carefully recording the weight upon each wheel; these are detailed in Appendix D.

A comparative table below shows that, while the engines are of almost equal tractive power per lb. of effective pressure on the pistons, the "Mogul" engine, owing to the greater weight on the coupled wheels (there being six in this class as against four on the "Vulcan" engine) has a larger percentage of weight available for adhesion at the expense of a longer rigid wheel base and the disadvantage of coupling in a third pair.

The number of lb. of tractive power per ton of load on the coupled wheels in the "Mogul" is an average one, while that in the "Vulcan" engine is excessive.

No. of Engine.	Type.	Cylinders.		Wheels.		Tractive Power per lb. of effective steam-pressure.	Weight on coupled wheels.	Initial lb. Tractive Power per ton of load on coupled wheels.	Rigid wheel base.
		Diameter.	Stroke.	No. coupled.	Diameter.				
373	"Vulcan"	in. 19	in. 26	4	ft. in. 5 6	142.2	tons. cwt. 28 3	5.05	ft. in. 8 3
305	"Mogul"	18	26	6	5 0	140.4	34 0	4.12	15 0

As will be seen by the diagram of general outlines (Appendix B), the tender of the "Vulcan" engine is carried on six (6) wheels, having a rigid base of 11 feet 6 inches, with a water capacity of 2,500 gallons, and space for 4½ tons of fuel; total weight loaded 29 tons 17 cwt.

The "Mogul" tender is carried on two (2) 4-wheeled bogies, the greatest rigid base being 4 feet 6 inches, with a water capacity of 2,925 Imperial gallons, and space for 5 tons of fuel; total weight loaded 32 tons 6 cwt.

On

On the 15th instant we made the experimental trip with the "Vulcan" engine, starting at 7 a.m., and working to a time-table specially prepared by the traffic officers to the speeds of the "Western mail." (Appendix E.) The load consisted of six (6) bogie cars, and weighed in our presence totalled, including passengers, 102 tons. The length of the cars over buffers was 273 feet. The steam-pressure gauge was carefully tested, and the safety-valves loaded to stand a pressure of 140 lb. per \square inch. Deducting allowances for stoppages and detentions on the road, the engine lost six (6) minutes between Sydney and Penrith, and eight (8) minutes from Penrith to Katoomba; but gained $18\frac{1}{2}$ minutes between Katoomba and Mount Victoria, and $7\frac{1}{2}$ minutes between Mount Victoria and Eskbank, which station was made the termination of our trials. The whole journey was run in 12 minutes less time than that allowed by the time-table.

It was a fine bright morning, but until the sun attained a considerable altitude the rails were slippery with hoar frost in the cuttings; we found it absolutely necessary to allow the free use of sand to keep the engine from stopping altogether, when slipping commenced, and water was sparingly used two or three times on the flanges of the tender wheels.

We travelled on the engine together during the whole distance over the mountain, and observed that on no part of the ascent could proper advantage be taken of the large cylinder power, steam having to be cut off at $52\frac{1}{2}$ per cent. of the stroke, or thereabouts, to avoid slipping. When urged beyond this, even on a dry rail, it required all the driver's attention to prevent slipping.

The principal time lost was between Wentworth Falls and Katoomba, steam gradually falling to 105 lb. pressure per square inch till at about the $65\frac{1}{4}$ mile-post, on a rising gradient of 1 in 33, and in an 8 and 10 chain reverse curve it finally came to a dead stop, where we remained for two minutes, until steam rose to full boiler pressure, when a start was effected without difficulty. The curves were taken quite easily, and the engine was very steady on the foot-plate at all speeds, the highest rate of which we noted on any portion of the journey being 40 miles per hour, and we do not think this was exceeded.

On the day following we made the second experimental trip with the "Mogul" engine, leaving Sydney at 8.45 a.m., or 1 hour and 45 minutes late, owing to an accident in the running-shed yard. The same pressure gauge was used as on the previous day, and the safety-valves weighed to blow off at the same pressure as the "Vulcan" engine, viz., 140 lb.; the same train was also taken.

Deducting allowances for stoppages and detention on the road the time occupied in running between Sydney and Penrith was $19\frac{1}{2}$ minutes faster than allowed by time-table; between Penrith and Katoomba $18\frac{1}{2}$ minutes were gained; between Katoomba and Mount Victoria, $18\frac{1}{2}$ minutes were gained; and between Mount Victoria and Eskbank, $11\frac{1}{2}$ minutes—equal to a total gain of 68 minutes over time-table time for the whole journey. It was a fine bright morning, and as we reached the mountains later than on the previous day, there was less frost on the rails, which was decidedly in favour of the engine. No sand or water on the wheels was used, and on this trip the engine only slipped occasionally. When working up the steepest gradients steam was cut off at $70\frac{1}{2}$ per cent. of the stroke, and the engine appeared to be thoroughly master of the work, indeed the great gain in time during the ascent shows that the load might have been increased with safety. It should, however, be observed that, in approaching the same portion of the road where the "Vulcan" engine stopped, the steam-pressure in this case likewise fell, and the driver had allowed the water to get so low that it disappeared from the gauge-glass and gauge-taps, and did not again show until we had been standing at Katoomba for $1\frac{1}{2}$ minutes with both injectors full on. This engine also took the curves very easily, and was quite steady at the highest speed we noted, viz., 45 miles per hour. Analysis of running given below:—

ANALYSIS OF RUNNING.

Stations.	Miles.	Minutes by Time-table for Running.	Actual Running Time.		Time compared with Time-table.			
			Engine No. 373.	Engine No. 305.	Faster.		Slower.	
					Engine No. 373.	Engine No. 305.	Engine No. 373.	Engine No. 305.
		h. m.	h. m.	h. m.	Minutes.	Minutes.	Minutes.	Minutes.
Sydney								
Penrith	34	1 10	1 16	0 50 $\frac{1}{2}$		19 $\frac{1}{2}$	6	
Katoomba	32	1 55	2 3	1 36 $\frac{1}{2}$		18 $\frac{1}{2}$	8	
Mount Victoria.....	11	0 40	0 21 $\frac{1}{2}$	0 21 $\frac{1}{2}$	18 $\frac{1}{2}$	18 $\frac{1}{2}$		
Eskbank.....	17 $\frac{1}{2}$	0 47 $\frac{1}{2}$	0 40	0 36	7 $\frac{1}{2}$	11 $\frac{1}{2}$		
Total	94 $\frac{1}{2}$	4 32 $\frac{1}{2}$	4 20 $\frac{1}{2}$	3 24 $\frac{1}{2}$	26	68	14	

We regret that the time at our disposal was entirely too short to enable us to take indicator diagrams, because had we been able to do so we could have stated exactly the horse-power that each engine developed at various portions of the journey.

The following table analysis shows the consumption of fuel, water, and stores, with the work executed in train miles run:—

Engine.		Train Miles.	Fuel.		Water.		Lubrication—Oil and Tallow.	
Description.	No.		Total lb.	Lb. per mile.	Total gallons.	Lb. evaporated per lb. of coal.	Total lb. used.	Lb. per 100 miles.
"Vulcan"	373	189	9,355	49.5	7.025	7.5	12.25	6.48
"Mogul"	305	189	11,751	62.17	6.141	5.22	11.25	5.95

The excessive consumption of fuel by the "Mogul" engine is probably due to the high average speed of 20 miles per hour at which the ascent was made, the difference in levels between Penrith and Katoomba being 3,247 feet, equal to a constant gradient of 1 in 52 for 32 miles, with numerous curves of very

very short radius; the ruling gradient was 1 in 30 for $2\frac{1}{4}$ miles, and the sharpest curve 8 chains radius reverse. In descending, and throughout the trials, the Westinghouse automatic air brake, with which the cars and tenders were fitted, was used exclusively to control the speed and in station stops.

In conclusion, we are of opinion that the six-coupled engine recommended by Mr. Midelton is more suitable than the four-coupled engine, recommended by the Locomotive Engineer, for the particular class of traffic and road on which the experiments were made. The trials showed conclusively that the "Vulcan" engine had not sufficient adhesion on the coupled wheels to utilize its great tractive power. The specification shows that the makers were authorized to load the coupled wheels up to 30 tons in the first place, and in a letter to the consulting engineer in London, a press copy of which was shown to us, and an extract from which we attach (see Appendix F), the Locomotive Engineer subsequently authorized 32 tons as a maximum. We consider that those who were responsible for designing the engines in England should have worked to the authorized maximum of weight, or in departing from that, have made a corresponding reduction in the tractive power of the engine. Had this been attended to the engine would have been well proportioned, although the weights on the coupled wheels would have been severe on the road. The advantage of the six coupled engine recommended by Mr. Midelton is, that it has 34 tons of distributed weight availed of for adhesion, the greatest load on any pair of wheels being 12 tons—thus making it lighter on the permanent way, and able to utilize the full amount of tractive power developed in the cylinders; it has also the advantage of greater heating surface than the "Vulcan" engine.

We desire to express our high appreciation of the great courtesy extended to us by the Locomotive Engineer and his staff, who afforded us every assistance, and cheerfully supplied us with all the information and data that we required.

We have, &c,

ALLISON D. SMITH,

M. Inst. M.E., M. American R. R. Master Mechanics Association, Acting Locomotive Superintendent Victorian Railways;

THOS. ROBERTS,

Assoc. M. Inst. C.E., M. Inst. M.E., Assis. Locomotive Engineer, South Australian Railways.

APPENDIX A.

Government Railways—Minute Paper.

Subject:—Condition of testing Engines designed by Mr. Scott and Mr. Midelton.

I HAVE considered the proposals and the objections raised to some of them and believe that justice will be done, and the relative merits of the engines ascertained by the observance of the following conditions:

1. That Mr. Scott and Mr. Midelton shall each select his own engine and tender and enginemen.
2. The engines and tenders to be fully equipped, having a full complement of coal and water; if the day be fine and dry no sand to be placed in the boxes, and no water be conveyed to any of the wheels. If, in the judgment of the experts, the rails are greasy, sand may be used. The weight upon each wheel of engine and tender to be carefully ascertained before going out.
3. As much coal as may be considered safe by each officer in each case is to be put in each tender, and the said coal to be either Zig Zag or Vale of Clwydd, and to be taken from the same waggon and properly weighed in baskets and put in the tenders, the total weight to be recorded in lb., and the coal which remains on the tenders after the trial in each case shall be taken off and weighed in the presence of Mr. Scott and Mr. Midelton.
4. The trial trips shall be from Sydney to Bathurst and back, and shall be run to a time-table to be made out by the Traffic Manager, each train to start and return in daylight, and to be timed the same as the Western Mail on the "down" and "up" journeys.
5. The train to consist of rolling stock equal to thirteen carriages, and amount of dead weight to be added equivalent to the weight of passengers if the carriages were filled, the carriages, &c., to be coupled up as each competitor may direct, and properly lubricated, &c.
6. The general condition of each engine, the time each has been running, &c., shall be recorded.
7. The weight of train shall be accurately ascertained.
8. Water to be taken as required, the watering stations to be previously arranged.
9. Each driver to record the trips in the usual manner, and no person to be allowed to ride on engine or tenders except the drivers and firemen in each case and the experts.
10. Two guards to be supplied by the Traffic Department, one to ride in front of van and the other at the rear, and they shall record the trips in the usual manner.
11. A printed time-table to be supplied to those conducting the tests.
12. Press reporters and others, numbering not more than twenty-five (carefully checked by the guards of the trains), to be allowed to travel in the carriages only of the train; they are to be spectators only, and not to interfere in any way with the trial.
13. The train to be worked exclusively by the Westinghouse brake and by the enginemen only; the use of the brakes on the engines to be prohibited; if a brake-van form a portion of the train all parts admitting of manipulation of the brake to be removed from the brake-van.
14. The carriages are not to be uncoupled for any purposes whatever, and the same carriages to be used by each engine on each trial.
15. Each engine and tender shall be oiled and trimmed by each driver the night before the trial, and on the running of the trial the enginemen shall procure from the stores the stores they may require on the trip, and the same to be properly weighed and issued to them, and duly recorded by storeman and driver on his sheet.
16. Brake blocks, hangers, and rods to be taken off each engine.
17. Each engine to be tested to blow off steam at 140 lb., and the same gauge to be used in each case.
18. Mr. Scott to have sole control of everything the day his engine is tested.
19. Mr. Midelton to have sole control of everything the day his engine is tested.

The testing of these engines will be accomplished under the supervision of two (2) locomotive experts, who may make joint or separate reports.

They will be appointed by the Minister of Public Works.

The testing to take place between Tuesday, the 14th, and Friday, the 18th instant.

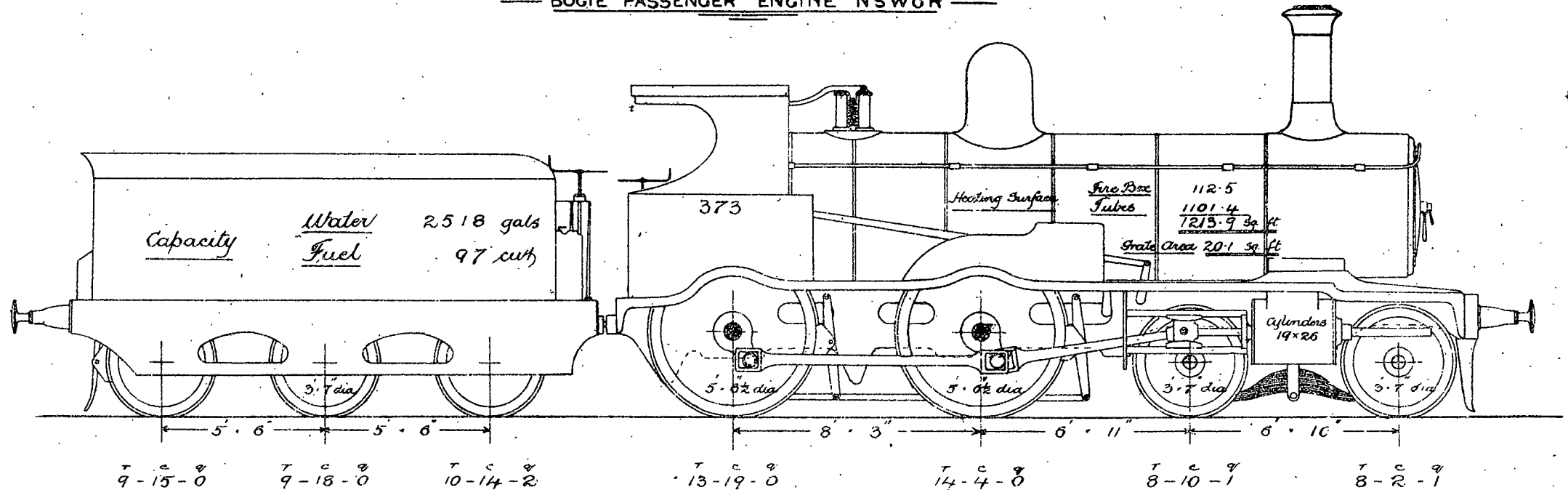
8/6/87.

CHAS. A. GOODCHAP.

APPENDIX B.

APPENDIX B.

— BOGIE PASSENGER ENGINE NSWGR —



Total weight of Tender loaded $30-7-2$

Total weight of Engine in steam $44-15-2$

Total weight of Engine + Tender in steam $75-3-0$

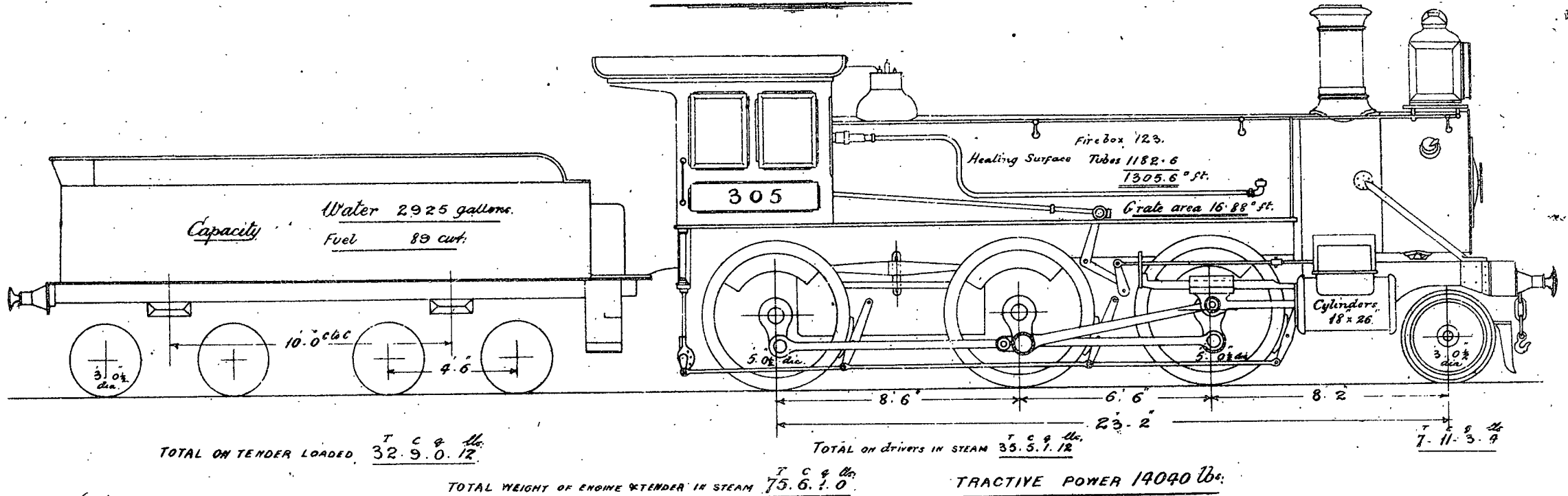
(Sig. 361-H.)

TRACTIVE POWER 14221 lbs

Loco. Engineers Office
Redfern 18th June 1887

APPENDIX C.

MOGUL ENGINE, NEW SOUTH WALES RAILWAYS.



(Sig 361-1.)

PHOTO-LITHOGRAPHED AT THE GOVT. PRINTING OFFICE,
 SYDNEY, NEW SOUTH WALES.

Locomotive Engineers Office
 Reform 18th June 1887.

APPENDIX D.

TABLE of Weights on Locomotive and Tender Wheels on dates of Trial.

Vulcan Engine, No. 373.			Mogul Engine, No. 305.		
	Weight.	Total.		Weight.	Total.
R. front bogie	T. c. q. 4 13 0	T. c. q.	L. leading bogie	T. c. q. 4 5 2	T. c. q.
L. " "	3 14 0	8 7 0	R. " "	4 9 3	8 15 1
R. trailing bogie	4 11 0		L. leading coupled	4 14 1	
L. " "	3 15 2	8 6 2	R. " "	5 8 3	10 3 0
R. driver coupled	6 13 0		L. driver coupled	5 11 1	
L. " "	7 4 0	13 17 0	R. " "	6 8 2	11 19 3
R. trailing coupled	6 13 0		L. trailer coupled	6 3 1	
L. " "	7 13 0	14 6 0	R. " "	5 14 1	11 17 2
Total		44 16 2	Total		42 15 2
Tender fully loaded, with tank quite full, and 4 tons 14 cwt. 3 qr. 7 lb. of coal.			Tender fully loaded, with tank quite full, and 4 tons 9 cwt. 1 qr. 9 lb. of coal.		
L. leader	4 11 1		L. leading bogie	3 19 3	
R. " "	6 1 1	10 12 2	R. " "	4 10 1	8 10 0
L. middle	4 5 0		L. leading bogie	3 14 1	
R. " "	4 9 2	8 14 2	R. " "	4 15 0	8 9 1
L. trailing	6 3 0		L. trailing bogie	3 19 2	
R. " "	4 6 3	10 9 3	R. " "	3 13 0	7 12 2
Total		29 16 3	L. trailing bogie	4 1 2	
			R. " "	3 13 0	7 14 2
Weight on coupled wheels		28 3 0	Total		32 6 1
Total weight, engine and tender		74 13 1	Weight on coupled wheels		34 0 1
			Total weight, engine and tender		75 1 3

APPENDIX E.

GREAT SOUTHERN, WESTERN, AND RICHMOND RAILWAYS.

Special Train Notice, No. 55.

M.P., S7/3,803c.

ON Wednesday, 15th, and Thursday, 16th June, 1887, a Special Passenger Train will run from Sydney to Eskbank and return as under:—

Down.		Up.	
No. 7.			
Sydney	Dep. 7 0	Esk Bank	Dep. 12 50
Granville	" 7 32	Zig Zag (B.P.)	" "
Parramatta	" 7 39	Clarence Siding	" "
Blacktown	{ Arr. 8 19	Mt. Wilson	" "
	{ Dep. 7 57	Mt. Victoria	{ Arr. 1 47
Rooty Hill	{ Arr. 8 5		{ Dep. 1 47
	{ Dep. 8 9	Blackheath	" 1 57
St. Mary's	" 8 19	Katoomba	" 2 15
Penrith	{ Arr. 8 30	Wentworth Falls	" 2 29
	{ Dep. 8 37	Lawson	" 2 40
Glenbrook	" 9 8	Linden	" "
Springwood	" 9 31	Springwood	" 3 18
Lawson	{ Arr. 10 17	Glenbrook	{ Arr. 3 40
	{ Dep. 10 24	Penrith	{ Dep. 4 10
Wentworth Falls	" 10 44	St. Mary's	" "
Katoomba	" 11 3	Rooty Hill	" "
Blackheath	" 11 20	Blacktown	{ Arr. "
Mt. Victoria	{ Arr. 11 30		{ Dep. "
	{ Dep. 11 32	Parramatta	{ Arr. "
Mt. Wilson	" 11 45		{ Dep. "
Clarence	" 12 0	Granville	{ Arr. 5 0
Zig Zag (B.P.)	{ Arr. 12 15	Sydney	{ Arr. 5 48
	{ Dep. 12 20		
Esk Bank	Arr. 12 25		

This train will also stop at Emu Plains, Lucasville, Blaxland, Karaba, The Valley, Faulconbridge, Numantia, Woodford, Hazelbrook, Medlow, and Hartley Vale—allowing 30 seconds at each place.

Line must be kept clear for this train.

Acknowledge receipt by wire at once.

Traffic Manager's Office,
Sydney, 14th June, 1887.

W. V. READ,
Traffic Manager.

APPENDIX F.

APPENDIX F.

Extract from letter from Mr. Scott to Mr. J. D. Baldry, dated 16th March, 1886.

With reference to the cable *re* the greatest weight that can be carried on the driving wheels of the twelve engines which are being built by the Vulcan Company, there is nothing in the way of (say) 16 or 32 tons on the four coupled wheels. I hope by this time the matter has been satisfactorily arranged.

Minute of The Commissioner for Railways.

Report of Messrs. A. Smith and T. Roberts, Locomotive Officers, Victoria and South Australia, on certain engines tested by them.

FORWARD copy of report to Mr. Midelton for any observations he may wish to make thereon.

I wish the report made not later than the 6th July.

CH. A. G., 2/7/87.

Minute by The Superintendent of Tramway Rolling Stock.

THE report of these gentlemen fully confirms my report of the 19th April last to the Hon. the Secretary for Public Works, and leaves no doubt whatever as to which class of locomotive is best for the New South Wales lines.

I will now only make remarks where I think it necessary to do so:

1. I do not quite understand what these gentlemen were requested to do.
2. The 373 type of engine is much more "favourably recognized and used" in America and Australia than it is in England, Messrs. Smith and Roberts to the contrary notwithstanding; the horizontal steam-chests on the tops of the cylinders are bad imitations of American practice, being so very unhandy.

3 and 4. I would point out that "up to the date when the tests were made" my engine having made 40,000 more miles than the other, has, of course, more frictional resistance than a brand new engine with tires turned perfectly true.

7. It is admitted that a six-coupled engine is absolutely necessary, and that a four-coupled engine will not do for these lines (at least for the first 200 miles from Sydney in any direction), and although the rigid wheel base is long, my engine will traverse curves with less friction than No. 373 will; and the condition of the flanges of her tires proves this. I doubt if the tires of 373 nine months hence will bear favourable comparison.

I should be glad if it were shown how the same results can be better obtained without "the disadvantage of coupling in a third pair" of wheels. Mr. Roberts himself has been compelled to put a 10-wheeled *six*-coupled engine on the Adelaide and Melbourne line for working passenger trains, the said coupled wheels being 6 inches *smaller* in diameter than my engine, and it has singularly enough the same grave defect as Mr. Scott's engine, viz., not enough weight for adhesion.

8. It has but 28 tons 8 cwt. 3 qrs., although the tractive force is more than either Mr. Scott's engine or mine, and the grades are 1 in 45 there against 1 in 30 here. Mr. Scott unwisely carries 16 tons 10 cwt. on his (four) bogie wheels; Mr. Roberts carries 10 tons 14 cwt. on his (four); and I carry 7 tons only on two wheels when the engine springs are properly adjusted. No. 305 now I notice carries 8 tons 15 cwt., which indicates that the springs required adjusting, and although "the larger percentage of weight available for adhesion" is obtained "at the expense of a longer rigid wheel base," it is admitted that No. 305 "took the curves very easily, and was quite steady" at a speed of 45 miles an hour; and had the judges made templates of the "treads" of all her tires as they are now worn after running 42,000 miles over 8-chain curves, and published diagrams from them, with the diagrams of "general outlines," the information would have been valuable and interesting.

9. Nothing is said about the dangerous height the coal was stacked on 373; it was quite 18 inches higher than the top of the tender, and large lumps had to be specially packed round the sides and end to enable 4½ tons to be carried at all. The weight, too, per wheel, was 5 tons, and often, no doubt, exceeds 8 tons, as the springs are not compensated. My tender wheels have a constant load which never exceeds 4½ tons on any condition of road. Other advantages have been overlooked. The fact of being able to carry coal enough for a trip from Sydney to Bathurst, or Goulburn, and back is very important; this of course saves the haulage of coal to those places in waggons, and also the various loadings and unloadings. On the trial trip my tender ran from Lawson to Eskbank and back (74 miles) without taking water. In these items alone I consider the saving will equal the first cost of the ten engines in a few years.

12. The judges should have said "we were—in opposition to the conditions of test—compelled to allow sand to be used on a dry rail a great many times with No. 373 to enable us to get the engine along." I saw sand used on a dry rail and water used at the same time on the tender tires, which lubricated them and washed the sand off for the train to run easier; I did not use sand or water on the rails, nor was it necessary with 305 engine.

13. In this paragraph it is admitted that the large cylinder power cannot be utilized, proving my words that "their unsuitability will be established on trial." The start at 65½ miles from Sydney would not have been made at all if sand had not been used freely, and at that time the sun had nearly attained its greatest altitude, and the rails were quite dry and clean.

15. I am sorry the judges do not inform you that I pointed out to them that the train was not the weight I expected it would have been, and on the morning of my trial I had another carriage put ready for attaching to the train, but this was not allowed. I then directed my driver to *make good time* at all stations, and to show that my engine could handle such a train with ease and better than it was handled on the previous day by No. 373. This was done, and *sixty-eight minutes* made in a journey which should have taken 272.5 minutes (one-quarter less time than that allowed).

16. Due allowance is not made for the serious nature of the accident in the Eveleigh yard with my engine before it started. I am not surprised that the coal consumption was greater than with 373 under such

such conditions. At 6:20 a.m. my engine was backing out; it ran through a pair of facing-points which had been wrongly left open; the tender was nearly upset, and the driver of course "banked his fire," and never expected to go out at all that day; there was, however, a delay of one and three-quarter hours, and in great confusion another tender was obtained, and a start made at 8:45 from Redfern with a spoiled fire, coal consumed while standing, signals against us, and stops made several times during the first 13 miles; the driver and fireman both disheartened with what had occurred—and yet, with all this and a dirty boiler (which had been in use two and a quarter years), an *odd* tender and a whole set of tires which required turning up, better speed was made than with the new engine, and considering that more work was done in the greater speed run, it is not difficult to see why more coal was consumed. I think that the coal, oil, and tallow consumption for the work done during the past two and a quarter years with my engines will compare favourably with any other engine on the New South Wales lines.

My engine "only slipped occasionally," and that was when starting from one or two wayside platforms, where the driver seemed impatient and to think it unnecessary to stop at all. The load could not only have been increased with "safety," but with advantage, and it is satisfactory to know that time was gained on the *heaviest parts of the road*.

19. The judges must, I am sure, admit upon reflection that the account of coal consumed and water evaporated per lb. of coal burned is most erroneous. A lot of coal was wasted in being shovelled hurriedly (some 8 feet) from the damaged tender to another tender. Indeed, no such accurate account of my coal was kept as was kept with Mr. Scott's engine. I do not see how the water evaporated per lb. of coal is to be accurately accounted for. In my case very little water was wasted by the injectors, whereas the Vulcan engine wasted immense quantities every time the injectors were used. I am not aware that the water which entered the boiler of either engine was accurately gauged, and unless this be done any data concerning evaporation is wrong and misleading.

The quantity of water drawn from each tender was roughly gauged, but all of it did not go into the boilers, and of course, as the Vulcan engine wasted most, the evaporation is said to be the highest. I am inclined to think that, as my boiler did the most work, the evaporation in it was highest.

The oil and tallow consumption is not accounted for in accordance with conditions of test.

21. I cannot conclude without remarking that there is to my mind evidence in the report of partiality, and a desire to tone down the defects in the Vulcan engine, so as not to reflect on the Locomotive Engineer, and this is hardly to be wondered at, seeing that Mr. Scott, some three years ago, thought fit to recommend Mr. Smith for the position of assistant to himself, and subsequently recommended Mr. Roberts for the same position, although I was his assistant at the time.

I beg most urgently to direct your attention to all I have said in my former report (dated 19th April, 1887), and compare the salient points in the report now submitted by Messrs. Smith and Roberts.

THOS. MIDLTON, M.I.M.E., 5/7/78.

REFERENCE to "Engineering" of April 15th and 29th last will show further proof of the correctness of my views. On page 407 there is an illustration of a six-coupled engine, which has 5' 2" wheels and 20" x 24" cylinders, giving off but 14 lb. of power more than my engine. This engine is used for "hauling passenger trains over the mountains, which formerly required two of the (Lehigh Valley Railroad) Company's engines of the ordinary construction." It is also said "there has been of late years a growing demand that heavy trains should be hauled at express speed, and while anxious to comply with this demand, railway managers are unwilling to reconstruct their roads entirely with heavier rails, and to rebuild all their bridges, owing to the enormous outlay of capital that such a course would involve. The object of the design shown is to produce an engine able to cope successfully with very heavy express trains, while keeping the weight per axle much the same as it is on existing engines of the ordinary type." I need hardly say that this has been the object I have had in view for many years.

T.M.

Minute by The Commissioner for Railways.

Subject :—Report of Messrs. A. Smith and T. Roberts, Locomotive Officers, Victoria and South Australia, on certain engines tested by them.

FORWARD copy of report to Mr. Scott for any observation he may wish to make thereon.

I wish the report made not later than the 6th July.

CH.A.G., 2/7/87.

Minute by Mr. Locomotive-Engineer Scott to The Commissioner for Railways.

As desired by the Commissioner, I have looked through the printed report forwarded by Messrs. Alison D. Smith and T. Roberts, the two experts appointed to test the relative merits of locomotive engines belonging to the classes Nos. 305 and 373.

I find page 3 of the printed report is confined principally to a description of the engines. This was so well known by yourself previously that comment is uncalled for.

In the first paragraph on page 4 (after describing the load taken by the Vulcan engine) deductions are drawn which are not quite correct, as will be seen by comparing the time-table prepared by the traffic branch with the "running time" shown on the "report sheets" of the driver and guard. The experts state that the engine lost 6 minutes between Sydney and Penrith. By the time-table, 1 hour 26 minutes was allowed for the run. The actual time taken (according to the statement of the experts themselves) was 1 hour 16 minutes, so that instead of losing 6 minutes the run was accomplished in 10 minutes less than the time allowed. Then the experts state that 8 minutes were lost between Penrith and Katoomba.

The time-table allowed 2 hours 19 minutes for the journey, but the actual running time was 2 hours 18 minutes; therefore, instead of 8 minutes being lost, 1 minute was gained. Again, the experts state that the run from Katoomba to Mount Victoria was accomplished in 18½ minutes less than the allotted time, but seeing that the allotted time was 27 minutes, and the actual time taken was 23 minutes,

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it follows that the time gained was only 4 minutes, and not $18\frac{1}{2}$, as stated. The actual running time from Mount Victoria to Esk Bank was 43 minutes, and the allotted time 48 minutes, so that the journey was done in 5 minutes less than the allotted time, and not $7\frac{1}{2}$ minutes, as stated.

It will thus be seen that the Vulcan engine did the whole journey from Sydney to Esk Bank in 17 minutes less than the time allowed, and not 12 minutes, as stated by the experts.

The second paragraph describes a condition of the road which, at this season of the year, may naturally be expected as of almost daily occurrence; and I stipulated, in accordance with the universal practice, that sand-boxes should be fitted to the engines in order that the difficulty and danger of slipping under such circumstances might be reduced to a minimum. With reference to the free use of sand, which the experts state was absolutely necessary to keep the engine from slipping, I may state only $1\frac{1}{2}$ cubic feet of sand were used.

Water was only applied once (and that was on the *up journey*), and then only for the purpose of cooling the brake-blocks after arrival at Springwood. The condition of the brake-blocks even then did not absolutely demand it.

Paragraph 3 calls for little comment beyond the fact that the engine took a load in excess of that for which it was designed at an expenditure of 7,740 cubic inches of steam in each cylinder for each revolution of the wheel.

Paragraph 4 records an important fact as to the hauling power of the engine. It is clearly demonstrated that on a rising gradient of 1 in 33, and in an 8 and 10 chain reverse curve, the engine (with a normal boiler pressure) started its load without difficulty. Want of proper care and attention on the part of the driver and fireman may have been the cause of the stoppage on the bank. This neglect, however, afforded an opportunity of testing the capability of the engine starting on a grade of 1 in 33, and it is gratifying to know that the result was so satisfactory, for it has established beyond question the correctness of my calculations as to what the engine would do.

With reference to the performance of engine No. 305 on the following day, I note that the experts state the conditions of the road were decidedly in favour of the engine, yet we are told that she slipped occasionally, and that sand was not used. I submit that if the engine slipped under such favourable conditions as regards the state of the road it may fairly be inferred that had the road been in the same state as it was on the previous day the use of sand would have been absolutely necessary. The use of sand for the prevention of slipping cannot be said to militate against the usefulness of either engine.

The steam is said to have been cut off at $70\frac{1}{2}$ per cent. of the stroke. This means that the engine took its load at an expenditure of 9,328 cubic inches of steam in each cylinder for each revolution of the wheel, or 1,588 cubic inches per revolution more than the Vulcan.

In other words, engine 305 used more steam by 440 cubic feet per mile than the Vulcan engine.

The running time of the engine, as stated by the experts, will also be found to be incorrect.

For instance, the time allowed for the run from Sydney to Penrith was 1 hour 26 minutes. The actual time occupied was 1 hour 9 minutes, but the experts in their analysis of running state $50\frac{1}{2}$ minutes, clearly showing that the deduction as to running is incorrect in both cases.

Each engine is stated to have taken the curves easily, and to be steady at all speeds, but the Vulcan is assumed to have run at 40 miles an hour, and the Mogul at 45 miles per hour. I may state no instructions were given by me to run otherwise than in accordance with the time-table, so that nothing can be deduced from the results of these trials to show that the Mogul is superior to the Vulcan as to speed capability.

On page 5 it is clearly shown that in the consumption of fuel the Vulcan engine is decidedly the more economical, viz., 49.5 lb. per mile for the Vulcan, as against 62.17 lb. per mile for the Mogul. I note the experts state that the probable cause of the excessive use of fuel by the Mogul engine was on account of the high average speed at which the ascent of 1 in 52 for 32 miles was made.

I scarcely think that such a deduction would be accepted as conclusive, and in justice to the experts I must say that they do not assert it definitely.

The conclusion drawn that 305 is more suitable for the class of traffic and road on which the experiment was made will, I feel sure, be disappointing, inasmuch as it does not give a decision such as was aimed at in making the trial. The length and grades selected for the test not being anything approaching the average condition of the lines of our system may, however, account for the result.

I might, in conclusion, here repeat that, in recommending the Vulcan engine, I did not look upon the haulage power over 1 in 30 grades for about 32 miles as forming a base on which to recommend an engine adapted to the general traffic and conditions of running on all sections. I aimed at securing an engine capable of hauling equal to twelve vehicles over the steep mountain grades, and taking heavier loads and running at higher speeds on other sections, because I saw at no distant date that much would be aimed at, not only to facilitate trade, but also, if possible, to compete with water-carriage.

I am pleased to add, for the Commissioner's information, that three of the Vulcan engines, which are now running passenger trains between Sydney and Bathurst, are giving proof of their efficiency to haul the stipulated load, equal to twelve vehicles. I feel sure, also, that in the matter of economy the results obtained by the experts will be maintained.

W. SCOTT, 7/7/87.

Minute of The Commissioner for Railways.

THE Minister wishes an experiment made with Redfern type of carriages (2nd class) on the occasion of the Volunteer Firemen special train to Albury on Monday next.

One of Mr. Midelton's engines to be used. Please see that it is in perfect order.

When change of engine is made, another of Mr. Midelton's engines should be used to complete journey.

Let a special account be kept of the consumption of fuel, water, &c.

CH. A. G., 10/2/87.

Loco. Engineer to arrange and consult with Traffic Branch.—D.C.M'L., 10/2/87.

3 20011 S. 131.

Re

Re Express Engines.

CONSUMPTION of fuel, water, and other running stores by express engines with train Sydney to Albury:—

5 tons 2 cwt. 3 qrs. 24 lb. coal = 29·88 lb. per mile.
 8,755 gallons of water.
 31½ lb. castor, 8·8½
 7¼ tallow ... 1·7

10·3¼ = 33d. per mile.

Comparative consumption in lb. per mile if trains were of equal weight:—

American.	Express.
55·13 lb.	45·91 lb.

Comparative consumption in lb. per ton weight of train for the whole journey:—

American.	Express.
180 lb.	154 lb.

GEO. DOWNE, 16/3/87.

Report from Driver S. Campling to The Locomotive Foreman.

I HAVE to report for your information, *re* special passenger train run from Sydney to Albury on the 22nd instant as follows:—This train consisted of equal to 12½ carriages, drawn by engine No. 311. The first stop made after leaving Sydney was Picton Lakes, 59 miles, at 7·46 a.m., departed 7·52½; 6½ minutes taking water; crossed up express at Bundanoon, instead of Wingello, as per time-table. Barber's Creek, 109 miles, arrived 9·37, and departed 9·42; 5 minutes taking water; arriving at Goulburn at 10·16 a.m.—31 minutes late—leaving Goulburn at 10·41—36 minutes late; 20 minutes being allowed for refreshments, 5 minutes more being taken to prepare the engine to go on. A stop of 5 minutes was made at the 141-mile post, in consequence of the road being lifted. Fish River tank, 160 miles; arrived 11·30, departed 11·34, taking water, and found one of the tender axle boxes broke and got very hot. Stopped at the 201-mile post attending hot box, 12·51 p.m., departed 12·54—3 minutes. Binalong, 1·9—1·12; 3 minutes hot box. 202½ miles post, arrived 1·38, departed 1·44; 6 minutes hot box, after which it began to get cool. Harden; 227 miles, 1·58, depart 2·4, taking water. Bethungra, arrived 3·24, departed 3·28½, 4½ minutes taking water. Junee, 286 miles, 4·0 arrived, 4·20 departed. Dinner—Wagga Wagga, arrived 5·0, departed 5·9, taking water, and waiting to cross up mail, instead of Culcairn, as per time-table. Yerong Creek, arrived 5·54, departed 5·56, 2 minutes oiling, arriving in Albury at 7·11 p.m., 2 hours and 11 minutes late. Delays as follows:—1 minute late leaving Sydney, 5 minutes at 141 mile post, 12 minutes through hot tender axle box; had it not been for these delays, the train would have arrived about 6·40 p.m. - About 1 hour 40 minutes was lost by locomotive, the wheel being too small to maintain a greater speed than which was run.

S. CAMPLING,
 Engine Driver.

Referring to the special train which ran yesterday from Sydney to Albury with the fireman, the Commissioner wishes to be furnished as quickly as possible with details of its running. Time of arrival at the different depôts according to time-tables, and actual time of arrival, causes of delay, the time taken at each place for refreshment, or other stoppages, and the actual running time, deducting all detentions. Please give also the approximate weight of the train, including weight of the passengers.—D.C.M'L., 23/2/87. Traffic Manager.

The following table shows the time the train was given to run the journey, in accordance with the Minister's wishes, and the time at which the special passed certain of the principal stations.

As per Time-table.	Actual Running.
Sydney, dep. 6·0 a.m.	6·0 a.m.
Picton	7·28
Mittagong	8·39
Wingello, 8·55	9·28
Goulburn, arr. 9·45	10·16
" dep. 10·5	10·41
Gunning	11·42
Jerrawa	12·3 p.m.
Yass	12·23
Harden, arr.	2·0
" dep.	2·5
Wallenbeen	2·33
Cootamundra	2·53
Bethungra	3·35
Junee, arr. 2·10 p.m.	4·0
" dep. 2·30 p.m.	4·20
Wagga Wagga	5·8
The Rock	5·40
Culcairn, 4·15	6·25
Gerogery	6·45
Albury, arr. 5·0	7·11
Which necessitated a speed of 35 miles per hour throughout, including stoppages.	Giving an actual speed throughout, including stoppages of 29½ miles per hour.

Of course I have not shown any stoppages for water which occurred at places other than those shown above. Indeed, in that respect I have given the actual running the advantage of 5 minutes at Harden, which I did not provide for in the special train notice, leaving it to the driver to make up the time so lost.

The

The only loss of time on the journey which could have been avoided was about 5 minutes, by permanent-way signal, near the 141-mile post. In every other respect it would be simply impossible to give a train a clearer road, and this, I understand, the driver himself admits. Not only was there beautiful weather, and therefore a perfect rail to run upon, but every train, even the express, which was kept back 15 minutes, was made to give way to the special; and so completely was this done that not once throughout the journey had a stoppage to be made to enable the driver to sign for a "train ahead notice;" all he had to do was to pick up one staff or ticket, and deliver the other as he passed.

It will be understood that when I drew out the first time-table, giving the train 15 hours to do the journey, I had no idea that such special efforts were to be made to run it through quickly, consequently I allowed—

30	minutes at Mittagong, for breakfast and for an estimated 350 men.
10	" Goulburn, to change engines, and enable men to get out.
30	" Yass, for dinner.
10	" Harden, to change engines, and enable men to get out.
20	" Junee, for tea.

100 = 1 hour 40 minutes, thus reducing the actual running time, and any other stoppages that might be necessary for water, to 13 hours 20 minutes.

Exclusive of the time actually taken at Goulburn and Junee for refreshments, and at Harden for water, and the time lost near the 141-mile post (55 minutes altogether), we find the actual running time to be 12 hours 16 minutes, but that, as I have said, was attained under the most favourable circumstances. The train kept very fair time as far as Picton, but after that it lost time all the way through.

The following is the load of the train, exclusive of the engine and tender :—

		tons.	cwt.	qrs.
Redfern type	Second-class, No. 203	16	4	3
	" " 194	16	3	2
	" " 202	16	3	1
	" " 196	16	3	2
	" " 189	15	0	0
American car, first-class	" 53	16	10	3
		<hr/>		
		96	5	3
Estimated weight of 300 passengers, at 15 to the ton		20	0	0
Luggage about		0	14	1
		<hr/>		
		117	0	0

W. V. READ, 24/2/87.

The actual stoppages for water, not embodied in the foregoing report, were :—

Picton Lakes	...	...	...	...	...	7	minutes
Barber's Creek	...	...	...	...	...	5	"
Fish River	...	...	...	...	...	4	"
Bethungra	...	...	...	...	...	5	"
Wagga Wagga	...	...	...	...	...	5	"
							<hr/>	
							26 minutes	

I should also mention that, between the 201-mile post and Harden, from 10 to 15 minutes were lost by the tender running hot.—D.K.

I have asked on other papers what engine was used. I see that Mr. Midelton's engine ran quicker to Goulburn than the express does.

Mr. Midelton's engine	...	...	...	...	...	4	hours	16	minutes
Express	...	...	...	...	...	4	"	50	"

Resubmit when Mr. Scott's report is received.—CH. A. G., 26/2/87.

EXTRACT from Traffic Manager's minute of 10/3/87, relative to the subject of accelerating the speed of the morning train from Penrith.

"I HAVE arranged with the Locomotive Engineer to try one of Mr. Midelton's engines on the train.—W. V. READ, 10/3/87."

Hereon Commissioner minuted, 28/3/87, that he "wished the papers to be resubmitted at the end of April, to ascertain whether better time had been made by Mr. Midelton's engine."

Report of Traffic Manager.

Better time has been kept with the Midelton engine. This engine is able to make much better time up the inclines, and starts from the stations much quicker. In new table, now in hands of printer, I am taking 8 minutes off "up" journey, and 3 minutes off the "down."—W. V. READ, 20/5/87.

Minute

Minute by The Commissioner for Railways to The Locomotive Engineer.

New Engine by the Vulcan Foundry Company. * * *

LET me know as early as possible the total weight of the engine, and separately of the tender of the Engine and above class of engines, and also the weight which is upon each wheel, empty, and fully equipped for the tender separately. road.

CH.A.G., 23/5/87.

Please arrange for the new engine now running to be weighed as soon as possible.—W. SCOTT, 25/5/27. Assistant Engineer. Mr. R. Scott;—To have this done, and attach result on separate paper.—GEO. DOWNE, 25/5/87. Details herewith.—W. SCOTT, 30/5/87. Commissioner.

Weight of No. 373 engine empty and loaded * * *

		ENGINE (EMPTY).				Total.
		Left.		Right.		T. c. q.
		T.	c. q.	T.	c. q.	
Front bogie-wheels.....		3 16 2		3 17 3		15 17 2
Hind " ".....		4 0 2		4 2 3		
Driving " ".....		5 19 2		5 11 2		11 11 0
Trailing " ".....		6 16 3		6 12 2		13 9 1
		20 13 1		20 4 2		40 17 3
<hr/>						
		ENGINE (LOADED).				Total.
Front bogie-wheel.....		4 2 2		3 19 3		16 12 2
Hind " ".....		4 4 3		4 5 2		
Driving " ".....		7 4 0		7 0 0		14 4 0
Trailing " ".....		7 0 0		6 19 0		13 19 0
		22 11 1		24 4 1		44 15 2
<hr/>						
		TENDER (EMPTY).				Total.
Front wheels.....		2 14 0		2 0 0	Front axle.....	4 14 0
Middle " ".....		2 3 3		3 0 0	Middle " ".....	5 3 3
Hind " ".....		2 2 2		2 5 0	Hind " ".....	4 7 2
		7 0 1		7 5 0		14 5 1
<hr/>						
		TENDER (FULL).				Total.
Front wheels.....		4 19 0		5 15 2	Front axle.....	10 14 2
Middle " ".....		5 3 0		4 15 0	Middle " ".....	9 18 0
Hind " ".....		4 19 2		4 15 2	Hind " ".....	9 15 0
		15 1 2		15 6 0		30 7 2

W. SCOTT, 30/5/87.

Minute by The Chief Clerk to Mr. Locomotive-Engineer Scott.

Trial of Locomotives.

WITH reference to motion passed in the House on the 11th July, 1887, I should be glad to have a report, showing respectively the total cost to the Government of each of the two engines lately submitted to a trial test of efficiency between Sydney and Eskbank.

D.C.M.L., 21/9/87.

Engine No. 373, Vulcan Foundry Company, £2,479 6s. 9d.; engine No. 311, Baldwin Company, £2,959 19s. 10d. According to information supplied by Superintendent, Stores.—W. SCOTT, 21/9/87.

Minute by The Secretary for Public Works.

Manufacture of Locomotives.

Department of Public Works, Sydney, 30 September, 1887.

A DEPUTATION, comprising Messrs. Garrard, Hawthorne, F. Smith, Jeanneret, M's.P., Hudson, Bloomfield, Franki, Henry Mort, John Morris, Henry Vale, and Edginton, waited upon me to day with reference to the manufacture of locomotives in the Colony. They pointed out that tenders had been received five months ago for this work, but as yet no decision had been come to, and they asked that an early decision might be given. It was rumoured that, owing to the price of the Colonial tender, it was probable the work would be done in the Eveleigh workshops, as it was alleged the work could be done there cheaper than outside. They protested against this proposal as it would be an undue interference with private vested interests, as it would be an impolitic act to increase the number of Government employes unduly, and as it was the general experience that Government work was never carried out so economically as work done by private enterprise stimulated by competition.

They mentioned that at the present time many of their machines were lying idle, and large numbers of workmen were unemployed. Rather than see the work go out of the Colony, or be taken up in the Government shops, they were prepared to allow the work to be divided between them, the manufacture of the engines to be supervised by a Government employe, and the Service paid for at the rate of 5 per cent. on the actual cost price of the materials. They thought the Government should encourage the local makers; the cost of the first service might be high, but as they became familiar with the work, prices

prices would go down to a reasonable limit. This has been the experience in Victoria in private workshops. They pointed out also that in Adelaide, where the cost of Government work had been examined, that the result, when compared with the cost of private working, was unsatisfactory.

I informed them that I could say little that was new. I had stated previously when they and the men waited upon me that the matter largely rested with them, and if they compelled the Government to import the locomotives on this occasion it might be a long time before they would have such an opportunity again of tendering for the supply. The Government had now to face a difficulty in this matter, and it was this difficulty that kept the question so long unsettled. So far as I was concerned, I was favourable to having this work, and in fact all the work, done in the Colony, if it could be carried out at anything like the price we could import, with the addition of incidental charges. I had, when in office previously, arranged for locomotives to be made here, and only on one occasion, and then under exceptional circumstances, had I sent for engines out of the Colony; the local manufacture had benefited the Colony, and I believe if the manufacturers had been as anxious as I had been to have the locomotives made here they would not have had any need to come before me that day. Certainly the engines could be made here as efficiently as in any part of the world, and my desire was to simplify the article we wanted as much as possible. I believed it could then be made as cheaply in the Colony as anywhere else.

It had been said that the Government were about to make the locomotives in our own workshops, but the Government had arrived at no decision whatever in this matter. We certainly would like to be in a different position, as the tenders we received were much higher than we expected and above what would justify us in having them done here if we were going to have them done by contract; if we decided on having them done by contract they must come from the other side of the water. They had referred to work in Government shops, and a demand had been made for an inspection appointed from outside the Service to check the time and expenses. I stated I would be happy to allow such an officer to go into our shops to-morrow as I, with them, courted the fullest publicity. Some misapprehension had arisen with regard to my desire to have everything possible made locally; some said it was protection, but in every instance since I had been in office this time the articles I had made here had been obtained cheaper than if they had been imported, and I was therefore much surprised to find the prices for these engines so much over the English price.

It was not unusual for Railway Companies all over the world to make their own rolling stock, locomotives and carriages, and also materials, and they prove they can supply their own wants cheaper than if the work was done outside. Mr. H. Hudson here stated that I was incorrect in this statement; he knew from personal experience that in England and America the Railway Companies obtained their supplies from outside makers, and instanced the large private workshops, such as the Baldwin Company, Beyer, Peacock, & Co., Dübs, Neillson, and others, from which the Railway Companies obtained their supplies. The most the Railway Companies did was repairs; he knew of only one Company in England, the London and North-western, that made its own stock.

I stated I did not speak from personal experience but from reading the leading English scientific and mechanical journals, and it was stated there that the Railway Companies of the world largely made their own supplies, and even their own rails. I did not want to have the engines made in our shops, but rather than have them go out of the Colony, I would have them manufactured there so as to afford work to our own men. They had every opportunity of tendering, and were aware their prices were much in excess of the English offers, and the question simply was whether the Government would give them a large bonus over the manufacturers abroad. The matter would be for the Cabinet to settle. I would not advise the work going out of the Colony. Their offer to do the work at an increase of 5 per cent. on cost price was a new feature in the matter. They had, however, simply stated it verbally, but if they would put it in writing I would represent the matter fairly to the Government.

JOHN SUTHERLAND.

Messrs. D. & W. Robertson to The Secretary for Public Works.

Sir,

335, Pitt-street, Sydney, 3 October, 1887.

With reference to the manufacture of fifty locomotives in this Colony, as it is reported the local tenders are somewhat above the imported ones, and as there are only a few firms in Sydney who can make a complete locomotive, we would respectfully suggest that fresh tenders be called on something like the following basis:—

1. Locomotive boilers.
2. Wall iron under-frames.
3. Locomotive tenders, complete.
4. Set of boiler mountings, complete.
5. Cast iron-work, including cylinders, axle-boxes, &c.
6. Pistons, piston-rods, connecting-rods, &c., complete in sets.
7. Erecting the different parts at Eveleigh.

The whole work to be made to ten plates to be passed and approved by the Government Engineers during construction.

In getting tenders in this way it would permit of a large number of firms tendering that otherwise would not tender. We ourselves, for instance, could make the boilers and tenders at less than imported firms when it would not suit us to tender for a complete locomotive. In the same way several firms could make the brass work, loco. gear, &c., &c., and if proper supervision was employed it would give full employment for a large number of manufacturers in Sydney and District who otherwise could not share in this important work.

We are of opinion that if our suggestion is tried it will be found the work can be done in the Colony as cheap as the imported article, and thus give employment to the numerous first-class workmen now vainly seeking employment.

We have, &c.,

D. & W. ROBERTSON.

Messrs.

Messrs. Hudson and others to The Secretary for Public Works.

Sir,

33, Pitt-street, Sydney, 3 October, 1887.

We have the honor, in accordance with your request, to put in writing the verbal offer made to you by the deputation of engineering firms on Friday last, the 30th ultimo.

We have now the honor to state that we are prepared to carry out the construction of fifty or more locomotives required by the Government, at the rate of £5 per centum on the cost of same.

We have, &c.,

HENRY HUDSON (for HUDSON BROS., Limited.)

MORRIS BROS.

J. P. FRANKI (for Mort's Dock and Engineering Co.)

HENRY VALE.

JOHN EDGINGTON, Atlas Engineering Co.

I should like report from Mr. Midelton.—J.S., 5/10/87.

This proposal is very different from the original one made by Capt. Broomfield, as reported in the newspapers. On behalf of Mort's Dock Co. he said he was prepared to make these locomotives under the eye of an officer of the Government, and only claim 5 per cent. profit on the cost of material and supervision. This means that he would supply machinery and labour gratis. Now we find five firms who are all prepared to execute the work "at the rate of £5 per centum on the cost." This means the more the engines cost to make the more the firms will profit by it. No Government or railway company would entertain such extravagant proposals, and I am surprised that any firm should have the temerity to make them. It goes to prove that the only object these manufacturers have in view is profit, whereas if the Department does its own work it will have no object in view but that of providing sound, good work at the cheapest rate, and work which will cost but little in maintenance. The proposal of the firms signing the paper is certainly a safe one for themselves, but most unsafe and unsatisfactory for the Government. Messrs. D. & W. Robertson seem to think that the Department require fifty locomotives made simply to give employment to seven different firms, and to all the "unemployed" hands in the Colony. This could be most completely carried out if these firms obtain the work in the way they suggest. The proposals of the combined firms, and Messrs. D. & W. Robertson's are untenable.—THOS. MIDELETON, 10/10/87. Commissioner.

[Two plans.]

Sydney: Charles Potter, Government Printer.—1889.

[2s. 6d.]

1888.

LEGISLATIVE ASSEMBLY.
NEW SOUTH WALES.

RAILWAYS.

(REPORT OF BOARD ON COLLISION AT FISH RIVER TANKS.)

Ordered by the Legislative Assembly to be printed, 21 November, 1888.

Minute by The Secretary for Railways.

I AM directed by the Railway Commissioners to enclose printed copy of the above for the information of the Honorable the Minister for Railways.

The Under Secretary for Finance and Trade.

D. VERNON,
Secretary for Railways.

B.C., 17-19/11/88.

Report on Collision at Fish River Tanks, Great Southern Railway.

Secretary's Office, Phillip-street, Sydney, 2 November, 1888.

WE have the honor to report, for the information of the Commissioners, and in compliance with their order of the 29th ultimo, the result of our inquiry into the cause of the collision which occurred on the 27th ultimo at the Fish River tanks on the Great Southern Railway.

On this occasion what is termed on the service time-table as No. 22 up goods train was running in two divisions. The first division, or train, consisted of engine and tender, fourteen loaded sheep-vans, and composite brake-van; the second was composed of engine and tender, sixteen trucks of wool, and brake-van.

The first of these two trains had just completed taking water at the Fish River tanks when it was run into at the rear by the second train.

Eight passengers in the first train were more or less injured, one, we regret to say, fatally, and the van and six sheep trucks of the same train were practically destroyed. In the case of the second train the engine only was slightly damaged. The total damage resulting from the collision to rolling stock may be estimated at £1,530.

Description.

The Fish River tanks are situated on the Southern line of railway, at a distance of 161 miles from Sydney, and 3½ from Gunning Station, which is a little over 164 miles distant from Sydney. Starting from Gunning for Fish River we have a descending gradient of about half a mile; the line then rises with an almost continuous gradient of 1 in 40 for about 1¼ mile, and then descends with a continuous gradient of from 1 in 46 to 1 in 42 to the Fish River Bridge, 1½ mile. For a sketch of the gradients see Appendix C.

"Up" and "down" distant signals are erected, the former being placed at a distance of 743 yards from the tanks, and the latter at a distance of 946 yards from the same point. These signals were erected and brought into use on the 15th ult., up to which date trains had been accustomed to take water without the protection of fixed signals.

A pumper is stationed at the tanks, but it is not his duty to attend to the signals beyond lighting them at night. They are supposed to be worked by the guards of trains which stop there for water.

The lever of the "up" signal is fixed about 132 yards from the tanks, or as nearly as possible, without being on the viaduct, to where the brake-van of a train taking in water would be likely to stand, and the same with regard to the down signal, the lever of which is 100 yards from the tanks.

Evidence.

The evidence in full will be found attached, but the following is a digest, so far as it bears upon the subject of our inquiry:—

William Patrick Morphy, night officer at Gunning:—The first division of the No. 22 up-goods (referring to train-book) arrived at Gunning at 3:40 a.m. on Saturday, and left at 4:30, as booked by myself; the second division arrived at 4:5, and left at 4:45; the actual departure was a minute or so later, as 4:45 was when the driver got the signal to go; the first division received a staff ticket from me, and the second division also a ticket and a "Train ahead" notice. *Alfred*

Alfred Chandler, engine-driver, states :—I was driver of the first division of the goods train which left Gunning on Saturday morning last at 4:30; the morning was very foggy, and the rails were very greasy; I had to sand a good deal coming out of Gunning; we are not booked at the tanks, and I did not notice the actual time that I came to a stop there, but I noticed the time at which I was about to leave; I had taken my brakes off, and was just about to give the engine steam; this was 4:55; the first thing I heard was two short whistles, and they had hardly been given before I was struck; I had not actually started when the blow took place; I had whistled to start; I believe that I was occupied at the tanks for about five minutes, as I did nothing but take water; there are signals at the tanks; I noticed the one that I passed coming down to the tanks burning a white light brightly, although I could not see it until I got close to it owing to the fog, which was very dense that morning; as far as the actual running is concerned I got on satisfactorily; I had occasion to use sand coming down the bank to the tank; I could have stopped at the signal had it been against me; I did a good bit of slipping coming up the bank from Gunning; I have never passed Fish River on the up journey without taking water; I opened the valve of the Fish River tank, and my mate held the crane over the filling hole.

Robert Walton, fireman to Chandler :—I was firing with driver Chandler on Saturday morning last; I remember noting the time when we were leaving Gunning, and it was about 4:30 a.m.; of course I did not notice particularly; we stopped at the tanks and took water; I filled the tank while Chandler turned it on; he then got up on his engine, told me to release the brakes which I did, and we were then in the act of starting when the collision took place; I heard two whistles immediately before we were struck; it was very foggy, as I could just see the end of the vans which remained attached to the engine; after I went back I remember Evans speaking to me about seeing the second division coming down the hill as he was going back to work the signals; I understood from what he said that he would not have had time to get to the lever before the train had passed the signal, and that he would have been endangering his life if he had stayed on the bridge; we had a little difficulty in some places in coming down the bank holding the train; I think my mate used sand; we could have stopped at the signal if it had been against us.

David Evans, assistant goods guard :—I had charge of the first division of No. 22 up-goods on Saturday morning last; we left Gunning at 4:30, which time I booked immediately before leaving there; the night was very foggy and the rails slippery, as we lost a good bit of time coming up the bank out of Gunning; I did not notice the time we stopped at the tanks; I remember after coming to a stand I jumped out of my brake and went partly back towards the signal lever; before I had time to get to the lever I heard two whistles; I turned and went partly back, and sang out to the passengers to clear out, as "she was into us;" I also called out and whistled to my driver to clear out, but I do not suppose he heard me; I do not think my train had started before the collision took place; as I was not in the brake I could not say positively whether she was moving or not; I did not hear my driver whistle to start; before I had finished shouting to my driver the collision took place, and I was engaged in releasing the passengers, being assisted by those who had got clear as well as by both drivers and firemen and guards of the second division; after we had got all cleared away, Driver Hill, of the second division, spoke to me; he said, "Dave, those signals were off," and I said, "Yes, I hadn't time to go back and put them up;" I said, "If all the signals in Goulburn yard had been against you, Charlie, I do not think you would have been able to pull up;" he said, "No, I don't think they would have been of any use;" I remember about a fortnight ago signing a general order informing of the signals being erected for use; I understood that guards were to work these signals, as they were so placed as to be nearest the vans; I looked at my watch immediately before my van was struck and it showed 5 o'clock; I remember comparing my watch with the driver's while waiting at Binalong, and I believe he was a little faster than mine; it was daylight from the time we left Gunning only that there was such a thick fog; the levers were, I should say, about 50 yards behind my van when it stopped; I did nothing but take the brake off after coming to a stand at the tanks before jumping out to go back; the average running time from Gunning to Fish River tanks, is 15 minutes; I could not say how long we were on this occasion, but longer than usual owing to slipping coming up the bank.

Charles Hill, engine-driver :—I was driver of the second division of No. 22 up-goods on Saturday morning; I arrived at Gunning at 4 o'clock on Saturday morning; I got the staff-ticket from the officer-in-charge at 4:45 a.m. and the "train ahead" notice, but I did not actually start for five minutes afterwards, as I did not get the signal from the guard; it was a very foggy, greasy morning; after leaving Gunning I got on very well, being benefited from the sand of the previous train; I had sixteen of wool on, beside the brake; after turning the top of the hill I told my fireman, who is a young hand and wanted tuition, to put on the brake, and remarked to him that the preceding train might be at the tanks, and to be careful; I also whistled for the guard's brakes; when I came to the signal I said to my fireman, "It is all right;" I said this to give him confidence, and he eased off his brakes slightly; I don't think I was more than 2 or 3 chains from the signal when I first saw it that morning; I saw the light clearly but not the post, owing to the fog; after the fireman easing the brakes, and the speed slightly increasing, I cautioned him to put them on again, which he did, and it was not until I was on the point of getting on the bridge that I first saw the tail lamps of the train ahead; I could have stopped at the signal if it had been against me; I immediately whistled and reversed, and as soon as I had reversed I struck the train; I think the guard assisted me with his brake all he could down the bank; I gave my engine, which was then reversed steam, and within a distance of about 161 feet, came to a dead stand; I asked the other driver how he came to be there, and he said he had been slipping coming up the bank; that was all that passed between us; I was aware that it was incumbent upon the guards to work these signals, and that there was no man stationed there for the purpose; the time I was struck the brake-van was 5.5 by my watch; my watch is a splendid one, and I have had no reason to regulate it since it was last cleaned, over 12 months since; I had compared it with that of my guard before leaving Harden, and also with Guard Evans after the accident, but I think I was 5 minutes in advance of him; the average running time between Gunning and Fish River I estimate to be about 15 minutes; that is, I reckon to have taken water and ready to start in 20 minutes from leaving Gunning; I challenged the distant signal and then whistled again when I saw the collision inevitable.

George Hutchinson, fireman :—I was firing with Hill on Saturday last, the morning of the accident; I do not carry a watch, and am not sure what time we left Gunning on Saturday morning with No. 22 up goods; it was a very foggy morning, and we could not see anything more than 50 yards ahead of us; we had a little slipping when starting from Gunning and had to use the sand pretty freely, but had no particular difficulty in travelling up the bank; it was pretty greasy coming down the bank, and we had to

use

use the sand; I know the bank coming down to the tanks and the driver said to me "Now, we'll have to go down here very cautiously, those chaps have had plenty of time to get away, but in case they haven't gone we will have to go steady;" upon this caution I put on my tender brake, and he said "Let the sand run," and he put on his steam brake; this seemed to hold the train very well while the sand was running; when we got down to where we could see the signal, he said, "They must be gone as the signal was off;" I was looking out for the signal, and so far as I could say we were about 40 or 50 yards away from it when we saw it; I eased off the tender brake until we were near enough to ease up to take water, and we were just about on the end of the bridge when we saw the tail lights of the train ahead; I sang out to my mate, screwed on the tender brake, he put on the steam brake, reversed his engine, and before we had time to give her steam we struck the brake; after we struck we went, as near as I could say, about 45 yards; my driver challenged the signal with a long whistle, and he whistled for brakes down when he got on to the end of the bridge, where we could see the tail signals of the train ahead; I don't remember any other whistling; I think we had our train under control coming down the bank; I am not sure that we could have stopped at the signal if it had been at danger, but we might have been able to do it, or we might have been obliged to run a little past it.

Richard William Davies, guard:—I was in charge of the second division of No. 22 up-goods on Saturday morning; the watch I am supplied with is a very good one; we reached Gunning at 4.15 and left at 4.45; I gave the signal to the driver to start; I gave it him three times, once out of the van which he did not see, finally I had to get out of the brake to give him the signal as the wool prevented his seeing it; the Station-master drew my attention to the fact that he could not see my signal; I booked the time directly after I gave him the first green light; we had very good steady travelling between Gunning and the tanks; at the top of the bank I had my brake, as is usual, hard on; when about 300 yards from the signal the driver whistled for brakes; I knew I could not put it harder on than I had it so I called to a man named Kundson who was in the brake to come and give me a hand with it; my wheels were not skidding; he gave me a hand and we got a few more turns out of the wheel; we were just inside the signal, which I did not see, when he whistled again, (two pops), and then before he got to the bridge he whistled again; meantime Kundson and I were hanging on to the brake; I said, "Hang on we are in for a smash;" just afterwards the collision happened, I jumped out of my brake, and looked at the signal lever and it was down or showing clear; the signal lever was between my brake and the first truck; it was 5.5 when we struck as I looked at my watch when I was running towards the engine; the collision first took place at a spot a little on the Goulburn side of the middle of the bridge.

George Benfield, pumper, at the Fish River:—As I was in bed on Saturday morning, I heard driver Hill's whistles for the guard's brakes; I heard it I think twice, at any rate, which made me jump-up and go to the window just in time to see the collision take place; no damage was sustained to the pumping gear in any way; I heard the second division coming down the hill, and from the driver's repeated whistles I knew he was in trouble; I did not see Chandler arrive at the tanks, but I was awake, and the impression upon my mind is that he must have been there from 5 to 7 minutes before I heard driver Hill's whistling; I remember thinking to myself that Chandler was there longer than usual.

Charles Stanger, locomotive inspector:—I was on the site of the accident about 2½ hours after it occurred, and the rough sketch prepared by Mr. Laughrey is, I think, fairly correct (*see Appendix D*); with regard to the two trains concerned in the accident, the first train was provided with engine steam-brake, tender hand-brake, and brake-van hand-brake, all in good order; the weight of engine and tender was 52 tons, and the weight of the brake-van 12 tons; I consider the brake-power was ample to secure safety in working; the second train had the same amount of brake-power, and engine, tender, and brake-van were of corresponding weights.

Conclusion.

It will be seen that there is no disagreement between the officer-in-charge at Gunning, and the driver and guards of the two trains as to the time of their departure from that station. The driver and guard of the first train agree with the Gunning officer, that they left his station at 4.30 a.m.; the driver evidently derived the same result as to time from his watch, as the Gunning officer did from his time-piece. The same may be said of the driver and guard of the second train. They both agree with the officer-in-charge, that the signal was received to start from Gunning at 4.45 a.m., although, from the delay which the driver experienced in getting this signal from the guard, owing to the intervening loading, the train did not actually start until a little later than 4.45 a.m.

Now, it may be fairly assumed that the watches of the drivers of these two trains, seeing each agreed with Gunning time, practically agreed with each other. When we come however, to inquire for the time at which the collision occurred, we find a discrepancy of 10 minutes between the drivers' statements; the driver of the first train giving it as 4.55 a.m., and the driver of the second train giving it as 5.5 a.m. It is important to ascertain if possible, the actual time at which the collision did take place. There can be no doubt, we think, as to the time of the departure of the trains from Gunning. The second train did not get away, the driver says, until 4.50 a.m. The officer-in-charge says, he did not leave until a minute or so after he gave him permission at 4.45 a.m., and the guard also testifies that he could not get his signal taken by his driver at first and until *after* he had booked the time as 4.45. We may safely conclude therefore that the second train did not leave Gunning until 4.46 or 4.47. Under any circumstances therefore it is not reasonable to suppose that it reached Fish River at 4.55 a.m. The testimony of the driver and guard of the first train, who give this as the time of the collision, cannot be accepted as correct. If, as we have seen, the second train did not leave Gunning until 4.46 or 4.47, 5 o'clock would be the earliest time it could reasonably be supposed to reach Fish River. A goods train usually occupies about 20 minutes from the time it leaves Gunning until it finishes taking water at the tanks. When, therefore, the driver of the second train reached Fish River he reasonably might, and no doubt did, expect the other train would have left the tanks. When labouring under this impression he found the signal "all clear;" he no doubt concluded that such was the case, and brought his train down the bank unprepared to stop short of the tanks.

Owing

Owing to the dense fog, which all testify to, he did not obtain a sight of the standing train or of its tail and side lights until too close upon it to avoid a severe collision. Considering all the circumstances of the case, we do not think that the responsibility of the accident can fairly be charged against the men with the second train. At the same time the evidence of guard Davies and pumper Benfield as to the early repeated whistling of the driver afford strong indication that the train was not under that perfect control, which, seeing he was carrying a "train ahead" notice, and the dense fog obscuring his view, the circumstances called for.

The severity of the blow with which the other train must have been struck also points to the same conclusion.

Seeing, as we have been obliged to conclude, that the collision did not take place until say about 5 a.m., it follows that the driver of the first train must have taken more than the ordinary time in making the run, or occupied more time than usual at the tanks. The evidence does not disclose whether this arose from dilatoriness at the tanks or was legitimately required on the road.

It is also clear from the evidence that the train had completed taking water, and was just in the act of starting when the collision occurred. Under any circumstances, therefore, and notwithstanding his statement to the contrary, the guard had ample time to perform his duty of working the signal. This duty he is clearly responsible for neglecting.

But for the failure of duty on the guard's part, the accident might have been modified, or perhaps altogether averted. Had he put the signal up on his arrival he would not have been required to pull it off until his train was *ready to start*, or until nearly the moment of collision, when we find the second train more than 600 yards *inside* the signal. The presumption is, therefore, that had it been put up it would have been showing danger when the driver of the second train sighted it and checked his progress. At the same time there is a possibility under this system of working signals by guards that the signal might have been showing "clear," even had the guard not failed in his duty, as under this system the signal has to be pulled off just when it is most required.

The collision we conclude therefore must be regarded in this instance as principally attributable to the guard's neglect to use the means which were at his disposal for the protection of his train. It becomes a question however whether the Commissioners will be inclined to incur the expense of providing day and night men at all watering tanks and sidings where the signals are now worked by guards, or dispense with the signals altogether and rely upon a standing order to be issued that all drivers carrying a staff ticket or a "train ahead" notice must approach such places at all times as if a train were standing in front of them.

With respect to the Fish River tanks, at which trains regularly take water and which are approached by steep and difficult gradients, we consider that it would be desirable to appoint men there for the purpose of attending to them. In fact, we think that home as well as distant signals should be provided, and thus secure more effectually the safety of the traffic.

D. VERNON.
W. V. READ.
THOS. MIDELTON.

APPENDIX.

(A.)

FISH RIVER ACCIDENT, 27/10/88.

ENGINE No. 202: Tyre of R. D. wheel shifted, left main frame bent, smoke-box front smashed, brake-gear damaged, steam-pipe damaged, cylinder cocks, lubricators, and sand-pipes broken, three springs broken, one sand-box.

Approximate cost of repair	£100
Brake-van No. 91 destroyed	850
Sheep van „ 56 „	100
„ „ 57 „	100
„ „ 188 „	100
„ „ 273 „	100
„ „ 153 „	90
„ „ 110 „	90

£1,530

C. H. STANGER,
31/10/88.

Evidence in full.

*To Mr. Vernon: William Patrick Morphy, night officer at Gunning:—*I have been five and a half years at Gunning, for nearly the last four as night officer in charge; I was on duty last Friday night; the first division of No. 22 up goods (referring to train book) arrived at Gunning at 3:40 a.m. on Saturday, and left at 4:30, as booked by myself; the second division arrived at 4:5, and left at 4:45; the actual departure was a minute or so later, as 4:45 was when the driver got the signal to go; these trains were detained at my station to allow of the crossing of the down mail, which was running about half an hour late that morning; the first division, which left at 4:30, received a staff-ticket from me, and the second division also a ticket and a "train ahead" notice, made out in the usual form and the driver's signature taken.

W. P. MORPHY.

*To Mr. Vernon: Alfred Chandler, engine-driver, states:—*I have been driving for four years next January; I was driver of the first division of the goods-train which left Gunning on Saturday morning last at 4:30; I booked my time immediately on leaving; the morning was very foggy, and the rails were very greasy; I had to sand a good deal coming out of Gunning; we are not booked at the tanks, and I did not notice the actual time that I came to a stop there, but I noticed the time at which I was about to leave; I had taken my brakes off, and was just about to give the engine steam; this was 4:55; the first thing I heard was two short whistles, and they had hardly been given before I was struck; the blow was very sharp,
and

and knocked me into the coal-bunker; at a rough calculation I think it must have driven my engine 10 or 12 yards: the first thing I did after being struck was to put my engine and tender brakes on, which brought me to a stand; I was very nearly stopped when I did this; my fireman then got off between me and the hand-rail, and went to see what had happened; as soon as I got my engine to a stand I went back myself, and assisted to lift the passengers out; I saw the guard of my train and the guard of the train that had run into me, and Charles Hill, its driver; the only remark that was passed concerning the accident was that of my own guard—Evans—that I had been 25 minutes coming from Gunning to clearing the tank, although I do not know how he knew that I had finished at the tank, as I had not actually started when the blow took place; I had whistled to start, and he may have guessed it from that; I believe that I was occupied at the tanks for about 5 minutes, as I did nothing but take water; there are signals at the tanks; I noticed the one that I passed coming down to the tanks burning a white light brightly, although I could not see it until I got close to it, owing to the fog, which was very dense that morning; I am not certain how long the signals have been there; I remember seeing a circular in the general order book in the Goulburn shed with respect to these signals; the usual way in which we receive information as to new signals being brought into operation is by notification in the general order book, which we are expected to sign.

To Mr. Read: I believe my watch was showing correct time, as I compared it with the clock at Binalong, where we were standing on the same trip for 1 hour and 35 minutes; I have compared my time on several occasions since the accident with others, and I have not meddled with it since the accident.

To Mr. Middleton: I was due to leave Gunning at 1:10 a.m. with No. 22 up goods; I left at 4:30 on this occasion; I take charge of the train at Harden, where I had to wait 1 hour and 45 minutes for the train as it did not arrive; I lost 10 minutes at Galong waiting for No. 1 down goods and 1 hour 25 minutes at Binalong waiting for down express; I lost 55 minutes at Gunning waiting arrival of down mail; as far as the actual running is concerned I got on satisfactorily.

To Mr. Middleton: Driver Chandler re-called:—I had occasion to use sand coming down the bank to the tank; I could have stopped at the signal had it been against me; I did a good bit of slipping coming up the bank from Gunning; I have never passed Fish River on the up journey without taking water; there was about a foot of water in the sieve at Fish River; don't think I could have come to Goulburn light without replenishing at Fish River, which I did; I opened the valve of the Fish River tank, and my mate held the crane over the filling hole.

To Mr. Vernon: After being struck I went back to give assistance, and I should say there was a gap of some 3 or 4 yards between the end vehicle which remained attached to my engine and the first of the vehicles which had been damaged by driver Hill's engine; there were about seven or eight damaged vehicles, and they lay about in all directions, and driver Hill's engine was in the brake-van; my engine was not moved after being brought to a stand following the collision until she was cut off by the guard and left for Bredalbane.

ALFRED CHANDLER.

To Mr. Vernon: Robert Walton, fireman:—I have been firing about six weeks, and was firing with driver Chandler on Saturday morning last; I carry a watch; I had not compared mine with the driver's; I merely looked at it at Binalong to see how long we should have to wait for the express, which we were instructed to wait there for; I remember noting the time again when we were leaving Gunning, and it was about 4:30 a.m.; of course I did not notice particularly; I used my watch again at the tanks, but not until the accident was over; we stopped at the tanks and took water, I filled the tank while Chandler turned it on; he then got upon his engine; told me to release the brakes, which I did; and we were then in the act of starting when the collision took place; I heard two whistles immediately before we were struck; I may say that after I had filled the tank I had put a fire on, and had just finished this when we heard the whistles; I think my driver had given the engine steam, but could not positively say whether he had done so or whistled to start; the blow knocked my mate down in the bunker, and me also; I think that immediately after we were struck my mate gave the engine steam, or it may have been given before, as I noticed the regulator open, and we went about 50 yards ahead; as soon as we picked ourselves up my mate put the brakes on, and I went back; it was very foggy, as I could just see the end of the vans which remained attached to the engine; after I went back I remember Evans speaking to me about seeing the second division coming down the hill as he was going back to work the signals; I understood from what he said that he would not have had time to get to the lever before the train had passed the signal, and that he would have been endangering his life if he had stayed on the bridge.

To Mr. Middleton: We had a little difficulty in some places in coming down the bank holding the train; I think my mate used sand; we could have stopped at the signal if it had been against us.

R. WALTON.

To Mr. Vernon: David Evans, assistant goods guard:—I have been out as assistant guard twelve months last August; I had charge of the first division of No. 22 up goods on Saturday morning last; I took charge at Harden; I left Harden 1 hour 45 minutes late; we were detained at Binalong about 1 hour and 20 minutes waiting for the express; we were also detained at Gunning about 45 minutes waiting for down mail; we left Gunning at 4:30, which time I booked immediately before leaving there; the night was very foggy, and the rails slippery, as we lost a good bit of time coming up the bank out of Gunning; I did not notice the time we stopped at the tanks; I remember, after coming to a stand, I jumped out of my brake and went partly back towards the signal lever; before I had time to get to the levers I heard two whistles; I turned and went partly back and sang out to the passengers to clear out as "she was into us;" I also called out and whistled to my driver to clear out, but I don't suppose he heard me; I don't think my train had started before the collision took place as I was not in the brake, I could not say positively whether she was moving or not; I did not hear my driver whistle to start; before I had finished shouting to my driver the collision took place, and I was engaged in releasing the passengers, being assisted by those who had got clear as well as by both drivers and firemen, and guards of the second division; after we had got all cleared away driver Hill of the second division spoke to me; he said, "Dave, those signals were off;" and I said, "Yes, I had'n't time to go back and put them up;" I said, "If all the signals in Goulburn yard had been against you, Charlie, I don't think you would have been able to pull up;" he said, "No, I don't think they would have been of any use;" I don't remember making any remark to my own driver beyond asking him why he had not cleared out; he replied he could not hear me; I was a good deal confused; I don't remember anything else being said; I remember, about a fortnight ago, signing a general order informing of the signals being erected for use—I understood that guards were to work these signals, as they were so placed as to be nearest the vans; I am pretty well acquainted with the rule-book, but I don't remember any rule which requires guards to work such signals; I always understood it to be the duty of the guards to work these signals, and have worked them myself on several occasions since they were erected; I was employed eleven months as signalman in the Goulburn yard before going out as assistant guard; I looked at my watch immediately before my van was struck and it showed 5 o'clock; I remember comparing my watch with the driver's while waiting at Binalong, and I believe he was a little bit faster than mine.

To Mr. Middleton: I had fourteen trucks of sheep and a composite brake-van on my train; we lost time coming up the Gunning bank; I had my brake hard on from the top of the bank coming down to the tanks, and the train worked down satisfactorily; I had no occasion to use any sand, and the driver stopped at the tank; it was daylight from the time we left Gunning, only that there was such a thick fog; the levers were, I should say, about 50 yards behind my van when it stopped.

To Mr. Vernon: I did nothing but take the brake off after coming to a stand at the tanks before jumping out to go back.

To Mr. Middleton: I had five or six passengers in the van with me, and the two second-class compartments were full; with regard to the passengers in my van, they were travelling "O.S.," with the exception of a drover; the others in the van were coming to a pic-nic.

To Mr. Read: The average running time from Gunning to Fish River tanks was 15 minutes; I could not say how long we were on this occasion, but longer than usual, owing to slipping coming up the bank.

DAVID EVANS.

To Mr. Vernon: Charles Hill, engine-driver:—I was driver of the second division of No. 22 up goods on Saturday morning; I took charge at Harden; it is ten years since I first went out driving; the most of my running has been between Goulburn and Harden; I arrived at Gunning at 4 o'clock on Saturday morning; I got the staff ticket from the officer in charge at 4:45 a.m., and the train ahead notice, but I did not actually start for 5 minutes afterwards, as I did not get the signal.

signal from the guard; it was a very foggy, greasy morning; after leaving Gunning I got on very well, being benefited from the sand of the preceding train; I had sixteen of wool on, beside the brake; after turning the top of the hill I told my fireman, who is a young hand and wanted tuition, to put on the brake, and remarked to him that the preceding train might be at the tanks, and to be careful; I also whistled for the guard's brakes; when I came to the signal I said to my fireman, "It is all right"; I said this to give him confidence, and he eased off his brakes slightly; I don't think I was more than 2 or 3 chains from the signal when I first saw it that morning; I saw the light clearly, but not the post, owing to the fog; after the fireman easing the brakes, and the speed slightly increasing, I cautioned him to put them on again, which he did, and it was not until I was on the point of getting on the bridge that I first saw the tail lamps of the train ahead; (I could have stopped at the signal if it had been against me); I immediately whistled and reversed, and as soon as I had reversed I struck the train; I think the guard assisted me with his brake all he could down the bank; I gave my engine, which was then reversed, steam, and within a distance of about 161 feet came to a dead stand; I at once sent my fireman back to protect my train, and myself went to the fettle's house close by to get some one to send back to Gunning to stop the express, and get a doctor; this I carried out, and then returned to the scene of the accident, and gave what assistance I could; I asked the other driver how he came to be there, and he said he had been slipping coming up the bank; that was all that passed between us; the signals have only recently been erected; I was informed of this by usual means of a circular in the general order book which I saw and signed for; I was aware that it was incumbent upon the guards to work these signals, and that there was no man stationed there for the purpose; I have not been stopped hitherto by this signal, but I have had occasion to use a similar signal at Rocky Ponds; I used it instead of the guard being nearer to the lever than he was; I also pulled it off when ready to start; I have only been informed in writing of the signals being there, but not of the precise means by which they were to be worked; this was a matter of inference, as we have other similar signals; the time I struck the brake van was 5.5 by my watch; I did not see the guard of the first division until after I struck his train.

By Mr. Read: My watch is a splendid one, and I have had no reason to regulate it since it was last cleaned over twelve months since; I had compared it with that of my guard before leaving Harden, and also with guard Evans's after the accident, but I think I was 5 minutes in advance of him; the average running time between Gunning and Fish River I estimate to be about 15 minutes, that is I reckon to have taken water and ready to start in 20 minutes from leaving Gunning; I challenged the distant signal, and then whistled again when I saw the collision inevitable.

CHAS. HILL.

*To Mr. Vernon: George Hutchison, fireman:—*I am 26 years of age; I have been firing a month last Tuesday with driver Charles Hill; I was firing with him on Saturday last, the morning of the accident; I do not carry a watch, and am not sure what time we left Gunning on Saturday morning with No. 22 up goods; it was a very foggy morning, and we could not see anything more than 50 yards ahead of us; we had a little slipping when starting from Gunning, and had to use the sand pretty freely, but had no particular difficulty in travelling up the bank; it was pretty greasy coming down the bank, and we had to use the sand; I know the bank coming down to the tanks, and the driver said to me, "Now, we'll have to go down here very cautiously. Those chaps have had plenty of time to get away, but in case they haven't gone, we will have to go steady." Upon this caution, I put on my tender brake, and he said let the sand run, and he put on his steam-brake; this seemed to hold the train very well while the sand was running; when we got down to where we could see the signal he said they must be gone as the signal was off. I was looking out for the signal, and, as far as I could say, we were about 40 or 50 yards away from it when we saw it; I eased off the tender brake until we were near enough to ease up to take water, and we were just about on the end of the bridge when we saw the tail lights of the train ahead; I sang out to my mate, screwed on the tender-brake, he put on the steam-brake, reversed his engine, and before he had time to give her steam we struck the brake; after we struck we went as near as I could say about 45 yards; after coming to a stand my mate sent me back with a red flag signal to protect us from any following train; I went back about 400 yards past the signal, where I remained for about half-an-hour until one of the fettle's came back from Gunning; the rule book is the only source of information respecting signals that I have been supplied with; beyond this, information has been supplied by my driver, which I have had the benefit of.

To Mr. Read: My driver challenged the signal with a long whistle, and he whistled for brakes down when he got on to the end of the bridge, where we could see the tail signals of the train ahead; I don't remember any other whistling; I think we had our train under control coming down the bank.

By Mr. Vernon: I am not sure that we could have stopped at the signal if it had been at danger, but we might have been able to do it; or we might have been obliged to run a little past it.

GEORGE HUTCHISON.

*To Mr. Vernon: Richard William Davies, guard:—*I have been running as goods guard between Picton and Harden for about five years; I was in charge of the second division of No. 22 up goods on Saturday morning; I took charge at Harden; the watch I am supplied with is a very good one; we left Harden at 10.45; I compared with the driver and Harden clock before leaving; I agreed with the driver, but there was a difference of a minute or a minute and a half—I forget which way—between my watch and the clock; we reached Gunning at 4.15, and left at 4.45; I did not see the staff or staff ticket given to the driver; I gave the signal to the driver to start; I gave it him three times, once out of the van, which he did not see; finally I had to get out of the brake to give him the signal, as the wool prevented his seeing it; the station-master drew my attention to the fact that he could not see my signal; I booked the time directly after I gave him the first green light; we had very good steady travelling between Gunning and the tanks; at the top of the bank I had my brake, as is usual, hard on; when about 300 yards from the signal the driver whistled for brakes; I knew I could not put it harder on than I had it, so I called to a man named Kundson, who was in the brake, to come and give me a hand with it; my wheels were not skidding; he gave me a hand, and we got a few more turns out of the wheel; we were just inside the signal, which I did not see, when he whistled again (two pops) and then before he got to the bridge he whistled again; meantime Kundson and I were hanging on to the brake; I said, "Hang on, we are in for a smash;" just afterwards the collision happened; I jumped out of my brake and looked at the signal-lever, and it was down, or showing clear; the signal-lever was between my brake-van and the first truck; this was after we came to a stand; I ran forward and saw two men under the bridge on the ground, and two others in the brake-van of the train in front in a corner, under the iron plates; Kundson, Walton, and I released them; I got a couple of buckets of water for them and then I ran away to protect my train from the express which was to follow; it was 5.5 when we struck, as I looked at my watch when I was running towards the engine; Hutchison the fireman went back with me; I planted some fog signals at the usual distances; I left the fireman with a red flag, about 200 yards outside the signal, the other man—fettle Hodges—went on to Gunning with a red flag which I gave him out of my pocket; after that I returned and got some lotion from Benfield the pumper, with which I rubbed the limbs of some of the injured men; Benfield had the lotion ready; I am not a member of the Ambulance Corps, but I have had some lessons; the application seemed to be very acceptable to all who had the benefit of it; I saw driver Hill, and he helped me to get the buckets of water; he told me he had sent the fireman back, but I told him I knew all about that, as I had been with him and left him with a red flag; the collision first took place at a spot a little on the Goulburn side of the middle of the bridge; after the collision, when my engine had come to a stand it and the brake-van into which it had run stood just at the Goulburn end of the viaduct; to the brake-van was attached a sheep-truck or two; then I remember another lying between this and the tanks; there were ten ahead of the platform,—seven in pretty good order, and the three others were more or less injured.

R. W. DAVIES.

*To Mr. Vernon: George Benfield, pumper at the Fish River:—*As I was in bed on Saturday morning I heard Driver Hill's whistle for the guard's brakes; I heard it, I think, twice at any rate, which made me jump up and go to the window just in time to see the collision take place; I saw the sheep-vans moving forward from the effect of the blow, and tumbling over, and the sheep escaping; I slipped my clothes on and went out; the position where the blow was first given was about the middle of the bridge; I rendered what assistance I could taking the ladies and children up to the house and supplied some lotion which I had in order to relieve pain; no damage was sustained to the pumping gear in any way; just as I got up to the window Chandler put on steam, making the engine slip violently; after the concussion I saw Chandler's engine and train moving away, and when I got outside ten vehicles were standing about 20 yards clear of the Goulburn end of the platform; the brakes had been put down and the engine had gone away to Bredalbane; I noticed there were two waggons attached to the van, and the other two were opposite the platform somewhere near the waiting room.

To

To Mr. Midelton: I heard the second division coming down the hill, and from the driver's repeated whistles I knew he was in trouble, which made me jump up immediately, which made me just in time to see the blow and the trains spread; I did not see Chandler arrive at the tanks, but I was awake and the impression upon my mind is that he must have been there from five to seven minutes; before I heard Driver Hill's whistling I remember thinking to myself that Chandler was there longer than usual; before taking charge of the pumps I had twenty-eight years' experience on the foot-plate on the Midland, twenty-one of which was as driver, two years as deputy foreman, locomotive sheds, Derby; I had to surrender this position of driver on account of suffering from bronchitis.

GEORGE BENFIELD.

To Mr. Vernon: *Isaac Davies*, ganger:—I reside about 100 yards from the Goulburn end of the Fish River platform; I was at home, and up, on Saturday morning last, when the collision took place; I saw nothing before I heard the crash, on hearing this I ran out; saw the sheep tumbling about, and the driver of the first division of the train steaming in the direction of my house, which he passed with vehicles (sheep vans) attached, and he came to a stand about 50 yards this, Goulburn, side of my house; I subsequently met driver Hill, who wanted me to go for a doctor at once; I went then to where some of my gang were living, and sent off a man to Gunning accordingly; I then returned and rendered what assistance I could at the scene of the accident.

ISAAC DAVIES.

To Mr. Vernon: *Charles Stanger*, locomotive inspector:—I am aware of the signals at Fish River, provided for the protection of the tanks; they have been in operation about a fortnight; I was instructed by circular from running foreman, Sydney, respecting these signals being brought into use; we have what we call a signal notice book, in which all such notices are pasted, the book being kept in the shed-inspector's office, with the appearance book, for the information of drivers, who sign the book in the case of every circular received; I was on the site of the accident about two and a half hours after it occurred, and the rough sketch prepared by Mr. Loughrey is, I think, fairly correct.

C. H. STANGER.

With regard to the two trains concerned in the accident, the first train was provided with engine steam-brake, tender hand-brake, and brake-van hand-brake, all in good order; the weight of engine and tender was 52 tons, and the weight of the brake-van was 12 tons; I consider brake-power was ample to secure safety in working; the second train had the same amount of brake power, and engine, tender, and brake-van were of corresponding weights.

C. H. STANGER.

To Mr. Vernon: *Alexander Crawford*, traffic inspector:—I received notice from the Traffic Manager on the 13th instant of the erection of the signals at Fish River; it is our custom to paste all such notices in the Guards' Order Book, and get the guards to sign them; this was done in the present instance, and I held the signatures of both guards for the circular in question; the circular does not prescribe the exact manner in which the signals are to be worked, but in previous cases such as, for instance, those at Picton Lakes and Wingecarribee, entered in the Guards' Order Book on 11th October, such instructions do appear and are signed for by the same guards; it was perfectly understood by the guards that it was their duty to work them.

ALEX. CRAWFORD.

(B.)

FISH RIVER ACCIDENT.

SIGNALS erected at Fish River Tank—160 m. 77 c. south—to be brought into use on Monday, 15th instant.

THE following is a description of the new signals erected for the protection of trains taking water at Fish River Tank, which will be brought into use at noon on Monday, the 15th instant:—

Down distant is a signal 28 feet in height erected on down side of line 846 yards from lever and 946 yards from tank.

Lever working this signal is fixed on up side of line 100 yards from tank.

Up distant is a signal 22 feet in height erected on up side of line 611 yards from lever and 743 yards from tank.

Lever working this signal is fixed on up side of line (at the down end of bridge) 132 yards from tank.

These signals work to "Danger" and "All Clear" only.

Acknowledge receipt at once.

W. V. READ,
Traffic Manager.

Board's decision.

THE Board of Commissioners, having had the Report of the officers appointed to inquire into the cause of the collision which took place at Fish River on the 27th ultimo under consideration, direct as follows:—

1. That Guard Evans be disrated from the position of guard for his manifest neglect of duty.
2. That home as well as distant signals are to be erected, and the latter placed at least 1,000 yards back from the tanks.
3. That signalmen be appointed to attend to these signals. The question of signalmen attending to the pump to be taken into consideration by Traffic Manager and Locomotive Engineer.

D. VERNON, 10/11/88.

Traffic Manager, Engineer Existing Lines, and Locomotive Engineer will please note and return.

[Two plans.]

APPENDIX C

FISH RIVER ACCIDENT

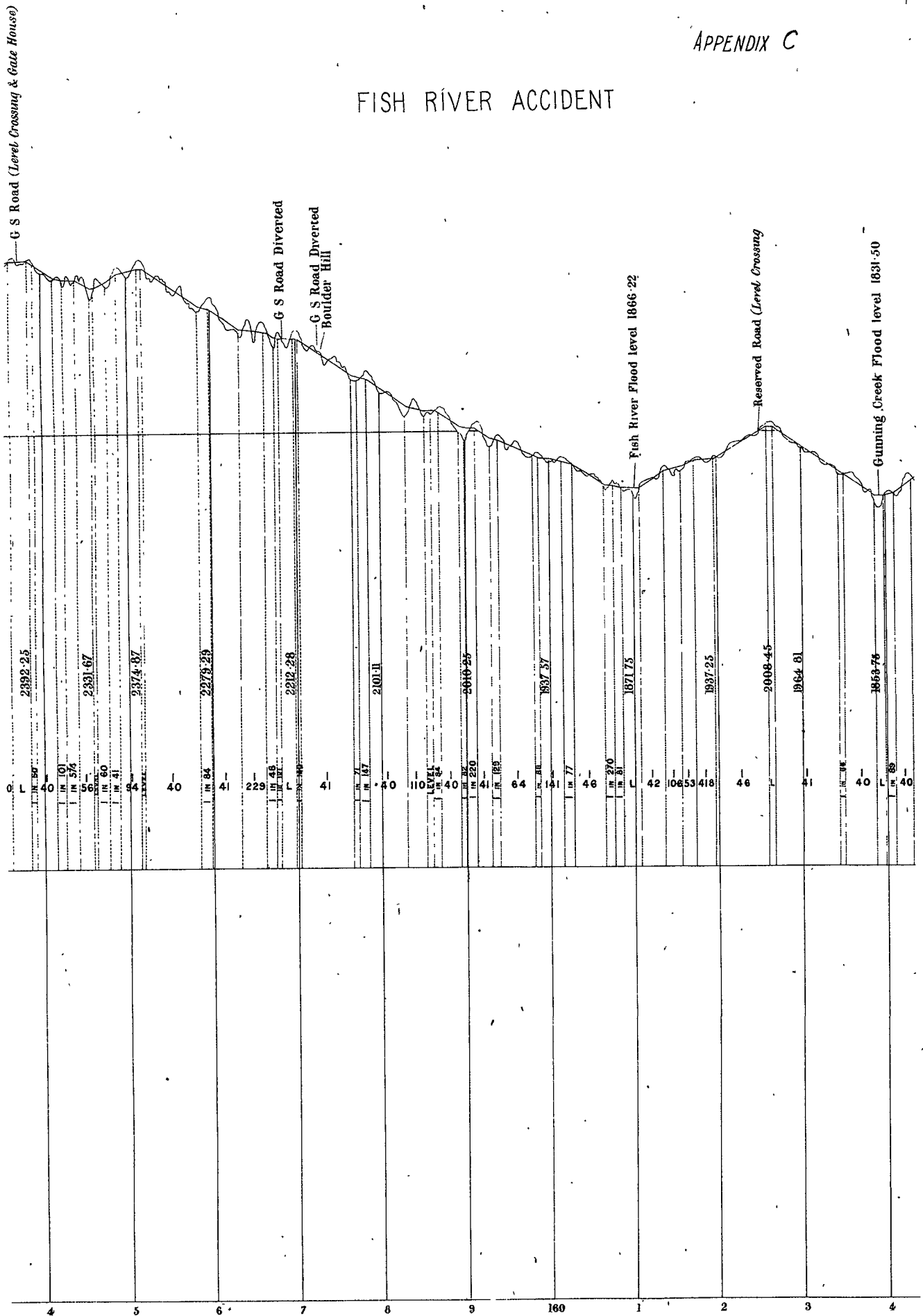
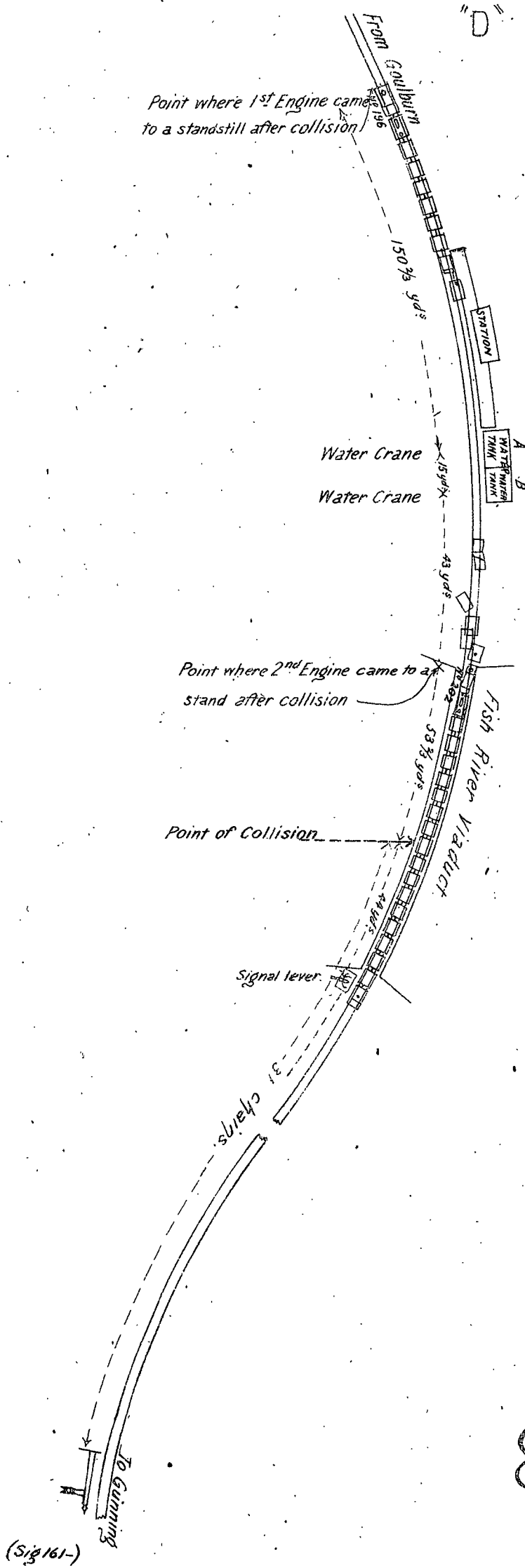


Fig 161

PHOTO-LITHOGRAPHED AT THE GOVT. PRINTING OFFICE, SYDNEY, NEW SOUTH WALES.



Point where 1st Engine came to a standstill after collision

Water Crane
Water Crane

Point where 2nd Engine came to a stand after collision

Point of Collision

Signal lever

Fish River Viaduct

31 chains

To Gunning

E. A. Langley
27-10-88

(Sig 161-)

Handwritten scribbles and faint markings at the bottom left of the page.

1888.

LEGISLATIVE ASSEMBLY.
NEW SOUTH WALES.

RAILWAY ACCIDENT AT PETERSHAM BRIDGE.

(CORRESPONDENCE, &c., IN REFERENCE TO.)

Ordered by the Legislative Assembly to be printed, 1 November, 1888.

RETURN to an *Order* of the Honorable the Legislative Assembly of New South Wales, dated 5th October, 1887, That there be laid upon the Table of this House,—

“Copies of all correspondence, minutes, reports of officials, &c., in reference to the accident to the train at the Railway Bridge, Petersham.”

(*Mr. Day, for Mr. McElhone.*)

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RAILWAY ACCIDENT AT PETERSHAM BRIDGE.

No. 1.

Telegram from The Station-master, Sydney, to The Commissioner for Railways.

Down express goods, which left here at 4.40 a.m. to-day, has been wrecked at Petersham viaduct. A steel axle of one of the trucks broke just before reaching the place named and caused about eleven trucks and a carriage of the latter portion of the train to be thrown off the road and over the viaduct. The engine and three or four trucks of the fore part of the train, as well as the two brake-vans at the rear, remained on the road, but the latter and most of the trucks and contents together with the carriage have been burnt by a fire that broke out amongst them shortly afterwards. The timber work of the bridge, too, has been damaged by fire, but not seriously. No one injured. Traffic at present is being conducted over the up road between Ashfield and Petersham, but both roads were blocked for some time.

F.J., 9/8/87.

No. 2.

Report by Driver Matthews.

At 4.40 a.m. I left Sydney with this train, which consisted of seventeen loaded waggons, one composite carriage, and two brake-vans. Nothing unusual occurred until passing over Petersham viaduct at 4.50 a.m., when suddenly I felt a jerk from the train, and upon looking back I noticed fire coming from underneath it.

I was travelling at a speed of about 25 miles an hour at the time. I immediately whistled for the guard to apply his brakes, and also applied the engine-brakes and pulled up. I looked back and saw the train was in flames.

I sent the fireman on to Ashfield as quickly as possible to inform the authorities of the accident that they might block the road.

When I ascertained that the road was safe I went back, when I discovered that the train had parted at the sixth waggon from the engine.

I examined the sixth, which was a "C" van, No. 128, and found that the trailing wheels were missing; also that part of the train had been precipitated over the viaduct and was completely wrecked.

The only way that I can account for this disaster is that an axle of one of the waggons must have broken, and that some combustibles in the train had ignited by the concussion. Fortunately no persons were injured by this accident.

The up and down main lines were blocked two hours and four hours and thirty minutes respectively.

HENRY MATTHEWS.

Assistant Locomotive Engineer.—J.C., 9/9/87. Locomotive Engineer.—G.D., 9/9/87.

No. 3.

The Traffic Manager's Report.

I REGRET to report that an accident of a serious nature occurred to the fast goods train this morning between Lewisham and Summer Hill.

The train, which consisted of six C vans, ten D and one B waggon, one carriage, and two goods brake-vans, left Redfern at time-table time, 4.40 a.m. When passing Lewisham platform the axle under C van, No. 128, appears to have broken close in to the wheel, which was found a few yards away. The couplings, however, appear to have held the train together until it got within a few yards of the viaduct, where there is every indication that the couplings gave way in several portions of the train, for the engine, with the first six vehicles (including the one with the broken axle), passed safely over the bridge, while three vehicles in the middle of the train toppled over the embankment at the Sydney end of the viaduct, and all the remainder of the train fell over the bridge near the southern end.

To add to the severity of the accident the train caught fire, and seven D waggons, one B waggon, and two brake-vans, with their contents, were demolished and consumed. The carriage was also completely destroyed, but strangely enough its only occupant, a man, escaped unhurt, and was seen two or three minutes afterwards clambering up the embankment with his portmanteau in his hand. He went on to Mittagong by the 9.6 a.m. passenger train.

The two D waggons and C van which toppled over the embankment at the Sydney end of the bridge were also pretty well ruined, and their contents to a larger extent destroyed.

The driver and guard and assistant guard heard one or two reports, and it is therefore believed that the fire was caused by the gas in the carriage reservoir exploding; but the whole thing occurred in such a short space of time that it is not possible to say with absolute certainty that that was really the cause of the fire. The explosion may have come from gasoline tins which were in a truck. The guard says that the first sensation he experienced was a severe bumping of the train, which threw him amongst the newspapers; and he had no sooner recovered his feet than another jolt pitched him out of the brake-van upon the bridge.

The assistant guard says that the moment he felt something was wrong he rushed to his hand-brake and put it on.

Fortunately no one sustained any injury.

The trucks which were smashed contained about 52 tons of general goods. Senders have been advised of the loss.

In

In addition to the damage to the rolling stock the woodwork of part of the bridge was a good deal charred and knocked about.

The van with the broken axle contained 6 tons 1 cwt. 2 qr. of sugar; and as all trucks conveyed by the fast goods are subjected to more than ordinarily careful inspection before leaving I cannot see that anyone is to blame, because no one could have seen any indication of the possibility of such a disaster.

W.V.R., 9/9/87.

Memo. to the Assistant Locomotive Engineer *re* accident to the express goods.

DRIVER Henry Matthews states that he left Sydney with the express goods train at 4:40 a.m. to-day (consisting of engine No. 312, 17 loaded trucks, 1 composite carriage, and 2 brake-vans). Nothing unusual occurred until the train arrived at Petersham viaduct at 4:50 a.m. When the engine reached the south end of the viaduct we felt a jerk, and on looking back saw fire flying out from underneath the train. We whistled for the guard and applied the brakes, and on looking back a second time saw that the train had parted, and that the back part was in flames. After stopping, found that six trucks were attached to the engine, and that the last one (C. 128) had only one pair of wheels, the end of the van resting on the rails. The remainder of the train was very much smashed up, some portion having fallen over the viaduct, and all were more or less in flames. The timber top of the viaduct was somewhat damaged by fire. The up line however was cleared for traffic by 7:15, and the down train by 6 a.m. It appears that the axle of a truck broke, possibly that under C. 128, near the Lewisham platform, as there were evident traces on the road at this spot, and the broken wheel was found lying close by; the axle had broken off close to the top of the wheel. The axle is a steel one, "Brunswick brand." From the place where the driver first felt the jerk to the spot where the engine stopped is 230 yards. The distance from where the wheel alluded to was lying to where the other part of the axle was found is 288 yards. The total distance from where the axle is supposed to have broken, to the place where the engine stopped, is 615 yards.

J.C.

Locomotive Engineer.—G.D., 9/9/87. Forwarded for the information of the Commissioner. Mr. Braid's report shewing estimated cost of repairing damaged stock attached.—W. SCOTT, 9/9/87.

Locomotive Engineer's Office, Sydney, 10 September, 1887.

Memo. to the Locomotive Engineer.

HEREWITH please find estimated cost of vehicles damaged at Petersham viaduct on the 9th inst. :—

Estimated cost, £1,600.
 1 Composite carriage, totally destroyed;
 2 Do brake-vans, do.
 1 B truck, do.
 1 C van, do.
 9 D trucks, do.
 1 C van, damaged.

T. BRAID.

Seen.—W. SCOTT, 10/9/87. Commissioner.

Memorandum from The District Engineer to The Engineer for Existing Lines.

Accident to express goods at Petersham, on Friday, the 9th inst.

I HAVE to report for your information that an accident occurred at Petersham viaduct on the 9th instant, at about 5 a.m. It appears that an axle broke between the platforms at Lewisham Station. The train, after running about 200 yards, separated, and the rear portions left the rails, three trucks going down the embankment, and the balance of the disconnected trucks proceeded to the viaduct, when all but three went over the side, and at once took fire, the three trucks on the viaduct also taking fire.

The damage done to the road and viaduct is as follows:—About forty or fifty chains broken, four rails badly bent, and some thirty of the main deck timbers badly charred, and the deck planting for about a quarter of the length of the viaduct destroyed, also the iron hand-rail carried away for about half of the length of the bridge. One of the main piers of the bridge was badly scorched by the fire, and the face of the brickwork burnt off. Although this does not improve the appearance of the pier it does not in any way affect its stability.

I have carefully examined the ironwork of the bridge, but beyond the paint being slightly blistered in places no damage has been done.

W.S., 12/9/87.

No. 4.

Minute by The Commissioner for Railways to The Secretary for Railways.

Inquiry into accident to the express goods train at Petersham viaduct, on the morning of the 9th September, 1887.

THE cause of the accident cannot be questioned; the evidence of the broken axle is clear and decisive on that point, but inquiry is desirable in the public interests in regard to the supervision exercised, the frequent examination of axles to ascertain their soundness, the oiling of boxes, &c.

Inquiry should also be directed into the measures taken by the Department to secure the best axles for our rolling stock.

The report of the Board to be appointed to inquire into this matter should be accompanied by a return showing the number of axles which have broken on our Railways during the last five years, the cause of breakage, the material used, the name of the maker, the number of axles of that particular make in use, and the measures taken by the Department to reduce accidents arising from defective axles to a minimum.

The

The Board should also inquire into the origin of the fire which broke out at the time of the accident and destroyed the goods carried by the train, and a portion of the wood work of the viaduct.

I would suggest, for the consideration of the Minister, that the Board of Inquiry should consist of gentlemen unconnected with the Railway Department, to give assurance to the public that the investigation will be freed from the suspicion of being influenced by *esprit de corps*.

In this respect the inquiry will be on a parallel with those conducted by the Engineer Officers of the Board of Trade, into accidents which occur on English railway lines.
The Minister. CH. A. G.,
10/9/87.

Minute of The Secretary for Public Works.

Ask the Treasurer if Mr. Cruickshank would be permitted to perform this duty.

I should be glad if this were done as soon as possible, and a diagram made of axle showing fracture. J.S., 12/9/87.

Write to U.S. Treasury.—CH. A. G., 12/9/87. Ask Mr. Scott for diagram. Make personal inquiry at Treasury.—CH. A. G., 20/9/87. The Colonial Treasurer has no objection to offer to the appointment of Mr. Cruickshank, but it is necessary to obtain the assent of the Marine Board. This has been asked for, and a reply will be sent to our letter to-day.—D.C. McL., 21/9/87.

No. 5.

The Commissioner for Railways to The Under Secretary for Finance and Trade.

Sir,

Department of Railways, Sydney, 13 September, 1887.

In connection with the recent accident to the express goods train at Petersham viaduct, it is deemed desirable that an independent inquiry should be made; and I am desired by Mr. Secretary Sutherland to ask if the Honorable the Colonial Treasurer has any objection to the appointment of Mr. Cruickshank, of your Department, to undertake this duty.

I have, &c.,

CH. A. GOODCHAP,

Commissioner for Railways.

Sir,

The Treasury, New South Wales, Sydney, 21 September, 1887.

I have the honor to acknowledge your letter of the 13th instant, 87-3,841, and to inform you, in reply, that the Colonial Treasurer has no objection to the appointment of Mr. William Cruickshank as a member of the proposed Board to inquire into the recent accident to the express goods train at Petersham viaduct.

I am to add that as Mr. Cruickshank is very much engaged with his duties under the Marine Board Department, the President (Captain Hixson) requests that the time during which he may be employed in the duty above referred to may be limited as much as possible.

The Commissioner for Railways.

I have, &c.,

G. BAGAR.

Please prepare letter to Mr. Cruickshank (for the signature of the Minister), appointing him to inquire into the cause of the accident, to call for witnesses and papers, and to report the result of his investigation. Instruct all officers concerned.—CH. A. G., 24/9/87. Attended to, 26/9/87.

No. 6.

The Secretary for Public Works to W. Cruickshank, Esq.

Sir,

Department of Railways, 26 September, 1887.

With reference to the accident which happened to the express goods train at Petersham viaduct on the morning of the 9th instant, I have the honor to inform you that it is considered desirable that the cause of this mishap should be inquired into by some one unconnected with the Department; and with the concurrence of the Honorable the Colonial Treasurer, I hereby appoint you to conduct the inquiry and report to me the result of your investigation. You are empowered to call for witnesses and any papers which you may deem necessary; and the officers of the Department have been directed to afford you every assistance.

I have, &c.,

JOHN SUTHERLAND,

Secretary for Public Works.

No. 7.

Report by The Chief Engineer Surveyor, Marine Board, to The Secretary for Public Works.

Sir,

Marine Board Office, Engineer Surveyor's Department,

Sydney, 24 October, 1887.

In accordance with your instructions, I have the honor to submit the following, relating to the accident which happened to the express goods train on the 9th of September, 1887:—

Have carefully and personally examined both officers and men who were likely to give such information as would assist me in coming to some definite conclusion. (Evidence attached.)

All the evidence taken goes to prove—and prove very conclusively—that the primary cause of the accident was the breaking of the axle under No. 128 C van.

This axle (made of Brunswick steel) shows a true flaw, equal in extent to about 25 per cent. of the entire sectional area.

The grain of the steel where the break took place (both ends) is very coarse, and, judging from its appearance, looked more like bad cast-iron than anything else.

It has been running seven years, being branded August, 1880.

Acting

Acting up to the letter of my instructions—that the inquiry was to be conducted entirely outside the Department—and to thoroughly satisfy myself as to the true nature of the material, I took the axle away, and gave Mort's Dock the necessary directions to prepare suitable "test pieces," cut from various parts, and which were all carefully tested by Professor Warren in my presence at the Sydney University. (See tables and particulars of tests attached.)

The results of the tests clearly prove the material to be neither harmonious nor homogeneous—some parts hard, others soft; some extending 5, others 15 per cent., others nil; in fact, everything connected with the experiments clearly shows the material to be unreliable, unworthy of confidence, and certainly unfit for the work intended.

This is prominently seen in comparing the breaking strain of two pieces cut from the same axle, where one broke at 36.5 tons, while the other (they were only separated by 1/8") stood 45.3 tons, representing a difference of over 9 tons in the same bar.

Again, in noting the stretching or extension of the specimens, their behaviour is anything but satisfactory. Two strips were prepared from the "flawed" end of the axle (the piece that was in the wheel boss); one was tested just as it was, the other, annealed and cooled in ashes.

The breaking strain of the first, marked A, was 82,000 lbs., equal to 36.6 tons; the contraction of area, 3.7 per cent.; and the extension in 10 inches, 5.6 per cent. The other, marked A¹, stood 89,000 lbs., equal to 39.7 tons; contraction of area, 19.4 per cent.; extension, 14.5 per cent.

Two similar specimens were taken from opposite end of axle (the piece in wheel boss), one tested as it was, the other annealed in ashes.

The first, marked B, stood a strain of 101,500 lbs., equal to 45.3 tons, the contraction and extension being 8.8 and 9.6 per cent. respectively. The other, marked B¹, went at 100,000 lbs., equal to 44.6 tons; contracted, 11.7 per cent., and extended, 11 per cent.

Four other strips were cut from the body of the axle; two were annealed in ashes and two in water, but all the results obtained are bad, being most irregular and uncertain.

I also tested two strips prepared from a Vickers' steel axle which broke under a D waggon, No. 2,454, at Lapstone, on 10/8/87.

The results obtained in this case show a most decided superiority over the Brunswick steel. The breaking strain was 30.8 and 31.2 tons respectively; the contraction of area in both cases, 49.6 per cent., and the extension, 25.5 and 21.2 per cent.

As regards suitability, this test is almost perfect, the behaviour of the material being precisely the same as what is expected and insisted upon by the Board of Trade, Lloyds, and the Marine Board, in all steel plates intended for the manufacture of high-pressure boilers.

It appears that Sir John Fowler's limit of tensional strength for steel axles is from 27 to 30 tons per square inch; anything over that would, or at all events, should, be rejected, being far too hard and brittle for the work. How it comes that the Brunswick axle went up to 45 tons is not easily explained. Of course this may be an exceptional case, but it may not, and I think the chances are they will be found far too hard to be trusted.

Again the design of this axle is very faulty, so is "Taylor's," both having a square cut shoulder close to the wheel boss. Why this is so nobody seems to be able to explain, but everybody agrees it is a bad thing, and the principal cause of all the trouble.

There is no necessity or advantage in making an axle this way—on the contrary it simply amounts, in my opinion, to a premium to make it break, as it is in very much the same condition as a bar of iron which a blacksmith nicks on his anvil before he attempts to break it.

On the Home and Continental lines axles made in this fashion receive due consideration; they are not allowed to carry the same weight as others of superior design, although of the same material and dimensions; and on the German and other lines a very considerable reduction in the weight carried is made, viz., 25 per cent. for iron, and 33 per cent. for steel. This shows that steel, when shouldered, is more treacherous than iron—a lesson they have no doubt learnt from experience.

According to evidence the number of axles of the Brunswick brand now in use is 395, and I certainly think it highly desirable that although it is just possible this particular axle may be the only bad one amongst the lot, still there is every reason for testing some of the others—the results of which may or may not justify condemnation.

The measures taken by the Locomotive Engineer to remedy and rectify the faults in constructive design are at once sensible and commendable; they have been materially increased in size, have no shoulders at all, no keys or key-ways, and from a personal practical examination of the axles recently fitted they are entitled to all confidence, provided they are made of the best and most reliable material.

There are 16,000 axles in the service, and twenty-three have broken (when running) during the last five years. The cause of breakage is as follows:—17 by flaws, 4 by collisions, and 2 through the breaking of other axles.

As to the material, 19 were made by Taylor (of iron), 2 of Vickers' steel, 1 of Brunswick steel, and 1 by Cooper & Co., of Leeds.

From the above it appears the average breakage in five years is about 1 in 700; and as 19 out of the 23 were "flawed," it is very clear that if soundness of material were possible, a broken axle would be a novelty, or at all events the danger of such would be reduced to the lowest possible minimum.

Respecting the most suitable material, the evidence is exceptionally strong and quite unanimous as to the superiority of Vickers' steel. This is specially so from the men who work it, both at the forge and lathe. They describe it as being by far the best and most reliable steel—a material in which they have the most perfect confidence, and which they all recommend should be used, even if the Department have to pay a higher price for it. This opinion is the outcome of a large experience, and is certainly entitled to due consideration, besides being fully borne out by the tests.

In answer to inquiries as to what means were adopted to ascertain the work done or the mileage run by any axle, I find there is none; and the opinion is general that it is scarcely possible to do it. This may be so, and no doubt would entail some difficulty and trouble; but it is very necessary, and if attention were specially directed to it some feasible plan might be proposed by those who are thoroughly conversant with this particular branch, as I understand the mileage run by the "goods" is checked on the European lines.

The system of "numbering," which has only been introduced since April, 1886, gives the officers a good idea of the what, when, and where of the repairs done, but it does not go far enough, and can give no definite idea of the actual work done by any axle or wheel.

Respecting

Respecting the instructions given to the various officers as to the examination of axles, &c., the evidence is very satisfactory; every possible care seems to be taken to prevent any defective material being used, and none of those examined had any suggestions to offer which in their opinion would have any tendency to improve the method of inspection.

I note, however, that as regards annealing, the instructions given are confined to iron axles only (Taylor's); this, in my opinion, is a mistake—it is quite as necessary—in fact, more so—to anneal the steel axles, and it is very desirable that some practical experiments should be made to determine two things:—1. The best method of annealing. 2. The effect of annealing on the steel.

I would mention that in working steel plates for general purposes, and especially boiler work, annealing is one of the principal items, about which we are very particular, and which in all cases (when carefully and properly done) has a most beneficial effect in restoring the original ductility of the material, which is always disturbed and injured by punching, flanging, or continuous working.

Returning now to the express goods train, I find it commenced to run in May of the present year. Its speed is practically the same as the mail, and its average weight about double; the approximate weights are 100 tons and 200 tons respectively. At first it consisted of twenty-five vehicles, but it could not keep time, and the number was reduced to twenty. The brake-power, at first, consisted of engine and tender fitted with air-brake, also one brake-van with hand-brake, just the same as the ordinary goods, running about half the speed, and it was left to the engine-driver and guard to find out that the brake power was insufficient, as in their evidence they distinctly state “that when the signals were against them they were unable to control the train.”

In answer to my inquiry “if there was any rule or regulation in the Department for getting out the brake-power in proportion to the speed and weight of any train?” I received the following:—“The brake-power of any vehicle must not exceed the weight of itself when empty.” This is not a satisfactory reply, as there is no mention made of the weight or speed, nor the slightest reference to the road being level or having steep grades, &c.

Again, to the question, “Who is the officer that determines the amount of brake-power that has to be put on any particular train?” The answer was, “*It is the duty of the station-master, and, of course, of engine-drivers and guards, to point out if they should consider the brake-power insufficient.*” (The Italics are mine.)

It is scarcely credible that the determining of the brake-power in any train, and especially in this, should be left to the consideration of the engine-driver and guard, and yet the evidence is very conclusive on that point.

On the morning of the accident, the weight of the train was 192 tons, exclusive of engine and tender. The weight of the mail train on the same date was 100 tons, so that here is a train nearly double the weight of the mail, running at the same speed, and its insufficiency of brake-power is only found out after the engine-driver and guard report “they can't control the train.”

I must respectively submit that this system (if it can be called so) is simply dangerous, and certainly not conducive to public confidence, for it is not only possible but very probable that in exceptional cases like this, the insufficiency of brake-power would only be discovered after a serious accident.

It is therefore highly desirable that some engineer possessing the necessary theoretical and practical knowledge—one who is thoroughly acquainted with the New South Wales lines—should be instructed to prepare suitable tables for the standard regulation of the brake-power, in which the weight, speed, and road would be duly considered. This would be a guide for all station-masters and guards, and would certainly commend itself as being immeasurably superior to the present method.

Regarding the amount of damage done to the train on the 9th September, the evidence is most conclusive that if it had been fitted with an automatic brake, the injury sustained would, in all probability, have been confined to the broken axle, and also that when the train parted the brakes would have gone on and prevented the trucks from going over the embankment and bridge.

In this I concur—also in the opinion expressed by all capable of judging—that this train should be fitted with a continuous automatic brake at once.

In connection with the accident, I made a careful examination of the Petersham Bridge. The main structure has sustained no injury whatever, all the damage being confined to the charring of sleepers, decking, hand-rails, &c., which have been efficiently repaired.

Respecting the fire, all the evidence taken is mere assumption and conjecture, its true origin will, so far as I can judge, always remain unexplained.

In conclusion I beg to acknowledge with thanks the kindness and courtesy of the officers who assisted me in every possible way to obtain the necessary information.

I have, &c.,

WM. CRUICKSHANK, M.I.M.E.,

Chief Engineer Surveyor to Marine Board.

EXPLANATION of Test Tables.

Nos. 1 and 2.—Cut from a Vickers' steel axle, which broke under a D waggon, No. 2,454, at Lapstone, 10/8/87. Branded July, 1880.

A.—Cut from “flawed” end of axle which broke at Petersham, 9/9/87; tested as it was. Brunswick steel. Branded, August, 1880.

A¹.—Cut from “flawed” end of same axle, but annealed in ashes.

B.—Cut from opposite end of same axle, but tested as it was.

B¹.—Cut from opposite end of same axle, but annealed in ashes.

C.—Cut from body of same axle (flawed end), and annealed in ashes.

C¹.—Cut from body of same axle (flawed end), but annealed in water of 80° Fahr.

D.—Cut from body of same axle (opposite end), and annealed in ashes.

D¹.—Cut from body of axle (opposite end), but annealed in water of 80° Fahr.

Vickers' specimens, 8-inch centres; all the others were 10-inch centres.

University

UNIVERSITY OF SYDNEY.
SPECIMEN of Steel tested for Mr. Cruickshank.
Tested October 12th, 1887.

Test number.	Description.	Original dimensions.			Strain in pounds.		Strain in tons.	Contracted dimensions.			Contraction of area per cent.	Elongation per cent.	Remarks
		Breadth	Thick-ness.	Area.	Total.	Per sq. in.		Breadth	Thick-ness.	Area.			
2	Cut from broken axle ..	1.00	1.00	1.00	69000	69000	30.8	.71	.71	.504	49.6	25.5	Limit of elasticity = 36,000 total.
		1.00	1.00	1.00	70000	70000	31.2	.71	.71	.504	49.6	21.2	, = 36,000 ,
A	Cut from the axle which broke on the Petersham viaduct.	2.00	.50	1.00	82000	82000	36.6	1.99	.484	.963	3.7	5.6	, = 43,000 ,
A ¹		2.00	.50	1.00	89000	89000	39.7	1.80	.448	.806	19.4	14.5	, = 37,000 ,
B		2.00	.50	1.00	101500	101500	45.3	1.90	.480	.912	8.8	9.6	, = 36,000 ,
B ¹		2.00	.50	1.00	100000	100000	44.6	1.88	.470	.883	11.7	11.0	, = 34,000 ,

NOTE.—Specimens A¹ and B¹ were annealed in ashes.

Tested October 18th, 1887.

C ¹	Cut from the axle which broke on the Petersham viaduct.	1.50	.50	.752	64000	85108	37.9	1.34	.446	.597	20.6	15	Limit of elasticity = 35,000 total.
		1.505	.50	.752	30000	40000	17.8	Immeasurable.					
D ¹	Cut from the axle which broke on the Petersham viaduct.	1.510	.50	.755	67000	88741	39.6						, = 34,000 ,
D		1.505	.50	.752	66500	88430	39.4	1.335	.442	.590	21.5	15	, = 34,000 ,

NOTE.—1. C and D were annealed in ashes; specimens C¹ and D¹ were annealed in hot water.

2. The total elongation measured on 10 inches in specimen D¹ was not more than $\frac{1}{8}$ inch.

3. The loads recorded for specimen C¹ are in excess, as the steel-yard was not quite raised when the specimen fractured.

W. H. WARREN, Wh. Sc., M.I.C.E.,
Professor of Engineering,
University of Sydney.

Evidence of Mr. W. V. Read, Traffic Manager:—

The average weight of the express goods train? The average weight of the express goods train between Sydney and Picton, exclusive of engine and tender, is about 180 tons. The actual weight on the day of the accident was 192 tons.

The average weight of the passenger mail train running over the same ground? The weight of the mail train in the same section is about 100 tons.

The average speed of both? The speed of the goods is about 26 $\frac{1}{2}$, and the mail 27 $\frac{3}{4}$ miles an hour.

The brake-power fitted to both? Apart from the engine and tender, in each case, there are two brake-vans (one of them loaded) on the goods, while on the mail every vehicle is braked.

A list of the combustibles which were likely to explode, or by concussion cause a fire? There was a large quantity of spirits, and some gasoline, kerosene, and six tin-lined cases of vestas, and some dynamite, but there is every reason to believe that the fire was not caused either by the matches, gasoline, or dynamite. Your opinion as to whether it is desirable or necessary to have such a train fitted with an automatic and continuous brake? I am decidedly of opinion that such a train as the express goods should be fitted with a continuous and automatic brake.

Your opinion if this particular train had been so fitted would the damage done be confined to the breaking of the axle, or do you think it would have prevented the trucks from going over the bridge? I can hardly say that the damage would have been solely confined to the breakage of the axle if there had been a continuous and automatic brake throughout the train, but I quite believe it would have prevented a number, at all events, of the trucks from falling over the bridge.

Any information you may have that would tend to assist me in forming an opinion as to the origin of the fire? It is impossible to say whether the fire was caused by the combustible material which was in the trucks, or whether it was due to an explosion of gas in the carriage which was on the train.

Who is the officer that determines the amount of brake-power that has to be put on any particular train. Has it been found necessary to increase the brake-power in this express goods train since it commenced to run? It is the duty of the station-master, and of course of engine-drivers and guards, to point out if they should consider the brake-power insufficient. The train ran for some time with one brake-van only, the same as other trains, but it was pointed out to me that the brake-power was insufficient, and I therefore gave directions for another brake-van to be attached.

Evidence of Mr. Scott, Loco. Engineer:—

The number of axles which have broken on our railways during the last five years? During the last five years twenty-three axles have broken whilst in service.

The cause of breakage? Seventeen by flaws, four by collision, two by the breaking of other axles.

The material of which they were constructed? Two steel (Vickers & Sons), nineteen Taylor Bros., one Patent Shaft and Axletree Company, and one Cooper & Co., Leeds.

The age and number of axles now in use by same maker as the one that broke? We have in use 395 axles by the same makers (Patent Shaft and Axletree Company) as the one that broke. Until about three years ago no record was kept of the service of axles.

The measures taken by the Department to reduce accidents arising from defective axles to a minimum?

With regard to the measures taken by the Department to reduce to a minimum accidents arising from defective axles, I have to state that instructions have been issued to all carriage and waggon examiners and lifters that they are held responsible for the "tapping" and proper examination of all wheels, tires, axles,

axles, axle-boxes, springs, couplings, &c., and that no vehicle is to be allowed to run unless it be in a perfectly safe condition. Instructions have also been issued to the foreman blacksmith and foreman turner, that when wheels with iron axles are taken in for the purpose of having their tires or journals turned up, they must be thoroughly examined, and if the journals are found to be worn $\frac{1}{8}$ " below the original size, or any flaw detected in the axle, it must be replaced by a new one. Iron axles when taken out must be annealed before being put in the wheels again. All axles dated 1870, and prior to that year, to be stopped, the wheels pressed off, and the axles thoroughly examined and annealed before being pressed on the wheels again; any that may be found to have the slightest defect to be replaced by new ones. In April, 1886, instructions were issued that all axles were to be marked with a distinguishing number, since which time about 3,000 have been so numbered, and a careful record kept of their service. All keys were dispensed with in wheels and axles ordered during and since 1880, and the wheels have been pressed on by hydraulic power, no shoulder being allowed on the axles at the boss. Two of these have broken—one in consequence of a flaw in the centre, and the other in the journal. In ordering wheels and axles during and since 1883 provision has been made for increasing by $\frac{1}{4}$ in. the diameter in the wheel-seat and journal respectively, and by $\frac{1}{4}$ in. in the centre of the axle. Up to date none of these have broken.

The total number of axles in the service, and the means adopted (if any) of ascertaining the amount of work they do, and the mileage run—how often you lift and examine them? We have about 16,000 axles in service, and a record is now kept of when they were placed under vehicles, &c. The axles are not allowed to run for a longer period than two years before they are lifted and thoroughly examined.

The speed of this particular train as compared with the mail, its average weight and its brake-power? The average speed of the express goods train is 24.6 miles per hour, and that of the mail train 25.6. Average weight of express goods is, including engine and tender (say) 250 tons; its brake power amounts to 80 tons, in addition to which hand-brakes are fitted to each truck, which can be utilized if necessary.

Do you consider it is a desirable thing, or is it safe, to run this express heavy goods train (say) at 40 miles per hour without being fitted with an automatic brake? I do not consider it desirable to run heavy goods trains at excessive speed without the assistance of an automatic brake.

From your knowledge of all the circumstances in connection with this mishap, do you think it would have been prevented if it had been fitted with the vacuum or Westinghouse brakes? I am not of opinion that the accident would have been prevented had the train been fitted with the vacuum or Westinghouse brakes, but think that the subsequent results might have been minimised had either been available.

As it is considered desirable to have the broken axle tested in various ways, will you kindly forward same to Mort's dock (the middle part and the two ends), as I prefer conducting the tests myself? I have forwarded the broken axles to Mort's Dock and Engineering Company, as requested.

Are you quite satisfied it was the breaking of the axle that was the primary cause of the accident, or do you think it possible or probable of its being due to an explosion first, the breaking of the axle following as a natural consequence? In my opinion the primary cause of the accident was due to the breakage of the axle.

Any other information you may have which would tend to assist me in this inquiry? I am not in possession of any fresh information.

What is the age of the axle that broke? The age of the broken axle is seven years, being brandèd August, 1880. [Photograph herewith].

Who is the officer that determines the necessary amount of brake power in any train? The requisite brake-power in any train is decided by the Traffic branch.

Is there any rule or regulation in the Department for getting out the brake-power, in proportion to the speed and weight of the train? Rule for brake-power is, that the brake-power of every vehicle must not exceed the weight of itself empty.

What is, in your opinion, the safe load that could be put on each wheel of any goods truck? The safe load that could be put on each wheel of any goods truck is as follows:—Iron axles, with $3\frac{1}{2}$ " journals and $4\frac{1}{2}$ " diameter in nave, can have $2\frac{1}{2}$ tons gross weight per wheel; steel axles, with 4" journals and 5" diameter in nave, can have 4 tons gross weight per wheel. [See also lists attached.]

Have you any regulation limiting the weight on each wheel? Regulations limiting weight on each wheel, weight of a waggon, and carrying capacity, are printed on its side.

What is the standard practice in the old country, and in other Colonies, respecting the weight allowed on each wheel of a goods truck? The accompanying list shows the standard Continental practice on both State and private railways, and is made obligatory for all new rolling stock. The weights and dimensions are similar in English practice.

AXLES with journal centres not exceeding 6 ft. 6 in. must have the following dimensions at journal, and in the nave carry the undermentioned maximum gross loads per axle.

Minimum diameter of journal.		Minimum diameter in the nave.		Maximum.		Gross Loads.		Remark
				For Goods Stock and Tenders.		For Passenger Stock.		
mm.	inches.	mm.	inches.	Steel axles.	Iron axles.	Steel axles.	Iron axles.	
62	$2\frac{1}{2}$	100	4	4.3	3.6	3.44	2.88	Standard Continental practice on both State railways and private railways. The axles to be of best material of their respective kinds, and of proper design, otherwise the loads must be decreased.
66	$2\frac{3}{8}$	105	$4\frac{1}{8}$	5.0	4.2	4.00	3.36	
70	$2\frac{7}{16}$	110	$4\frac{7}{16}$	5.8	4.84	4.64	3.87	
74	3	115	$4\frac{3}{4}$	6.6	5.5	5.28	4.4	
78	$3\frac{1}{8}$	120	$4\frac{3}{4}$	7.5	6.25	6.00	5.00	
82	$3\frac{1}{4}$	125	5	8.5	7.1	6.8	5.68	
86	$3\frac{3}{8}$	130	$5\frac{1}{8}\frac{1}{16}$	9.6	8.0	7.68	6.4	
90	$3\frac{1}{2}$	135	$5\frac{3}{8}$	10.7	8.9	8.56	7.12	
94	$3\frac{5}{8}$	140	$5\frac{1}{2}$	12.0	10.0	9.6	8.00	
98	$3\frac{3}{4}$	145	$5\frac{3}{4}$	13.2	11.0	10.56	8.8	

Evidence of Mr. Shellshear, District Engineer:—

Your opinion on the primary cause of the accident? I am of opinion that the primary cause of the accident was the breaking of an axle, which threw the rear trucks off the rails.

Any information you may have relating to the origin of the fire? I can give no information on this point beyond the fact that there was a large amount of combustible matter in the train, which was probably ignited either by the concussion or perhaps from direct contact with the train lamps.

The difference in speed between this particular train, the mail, and an ordinary goods train? This train is timed to run at practically the same speed as the mail train, and about twice the speed of an ordinary goods train?

What, in your opinion, is a safe load on the wheel of a goods truck running (say) at 30 miles per hour? This depends very much on the design of wheel and axle, and would vary from 5 to 10 tons per axle, according to design.

In standard practice what is the maximum load allowed on each wheel? I am not aware of any standard practice limiting the maximum load, except in the case of locomotive axles, the greatest weight on which should not exceed 15 tons, with our weight of permanent way. For other stock this limit is only approached in special cases, but for ordinary waggon axles the limit ranges between 5 and 8 tons, as a general rule.

What is the standard weight in other Colonies and Countries? The average weight in England on waggon stock is about 7 tons on an axle, but it varies from about 5 tons a minimum to 8 tons for a maximum in the case of loaded trucks.

Do you think it safe to run this express goods train without a continuous automatic brake? I do not consider it safe to run any train at the speed the express mixed train is timed to run, unless it is fitted with a continuous automatic brake, the same as our other passenger trains.

Had the train been so fitted would the damage have been confined to the broken axle, and would the brake have prevented the trucks from going over the embankment? I am of opinion that if the train had been fitted with the automatic brake, the same as other passenger trains, the damage done by the broken axle would have been greatly reduced, and that the train would have been pulled up before the trucks reached the bridge, and that they would probably not have gone over the embankment.

Who is the officer who determines the amount of brake-power required for any train? I presume this matter rests with the Traffic Manager and Locomotive Engineer.

Is there any recognized rule or regulation by which the brake-power is in proportion to the weight and speed of train? I am not aware of any such rule in the Department.

Can you suggest anything having a tendency to increase the safety of this train? The safety of this train would be greatly increased if it were fitted with the continuous automatic brake, the same as the other passenger trains.

Evidence of Mr. Pratt, Foreman of Turning Shop:—

Had many years experience in the examination and repairing of axles and wheels.

Has strict instructions from Mr. Scott to exercise the greatest care and caution when inspecting them, and if the slightest doubt exists as to their suitability or safety, to reject them.

Has no reliable means of knowing what amount of work or mileage any axle has done.

Since the 1st of April, 1886, a system of numbering has been established by means of which they could tell how, when, and where any axle or wheel was repaired. The number of axles and wheels numbered up to date is not more than 3,000 to 4,000—about 25 per cent. of the entire stock. This was done at Mr. Scott's suggestion, and thinks it a very sensible and necessary thing to do.

The original finished size of the axle journals is $3\frac{1}{4}$ inches. Have instructions when they are worn down to $3\frac{1}{8}$ inches to discard them.

The wear which takes place in the axles is almost always due to the "heating" of the journals, and but for that the axles run for years and give no trouble.

Cause of heating due principally to want of lubrication, dirt, &c.

Axles made and supplied by different makers used in the Department are—

Vickers'—Of steel.	Cooper's—Steel.
Taylor's—Double fagoted, all iron.	Brunswick steel—(the one that broke).
Brown, Bailey, & Dixson—Steel.	

Have no hesitation in stating that Vickers' steel axles are the best suited for the work. Have more confidence in them than any other.

Many of the axles—Taylor's and the Brunswick—have a square shoulder cut in close to wheel boss; thinks it a bad plan, and has had instructions during the last four or five years to turn and round the shoulders off. They stand much better since. These instructions apply to iron axles only (Taylor's).

No orders to turn the shoulders off steel axles, but thinks it would be a decided improvement if all the axles were served in the same way.

Does not think cutting key-ways in axles hurts them much; never saw any break through the key-way; but the most recent axles are forced on by hydraulic pressure, and have no keys or shoulders; they seldom or never come loose.

Considers the present method of examination the best possible, and can suggest no improvement.

Note.—Asked Mr. Pratt to make out a written statement, giving a practical description of his examination.

Memorandum to W. Cruickshank, Esq., Engineer.

Sir,

Eveleigh Station, 6 October, 1887.

I beg to report to you as per request *re* instructions given me by the Loco. Engineer as regards wheels and axles under my immediate supervision; the instructions are as follows:—

To examine every wheel and axle now running on our lines as they come through the turning-shop for repairs, &c. If found to be worn small, or cut below the size stated to run, to have them taken out and replaced with new axles, and not to allow any doubt to exist whatever.

The stated size to run waggon wheels, $7\frac{1}{2}$ journals, is $3\frac{3}{8}$ " and no less.

Carriage axles, 8 in. journals, $2\frac{7}{8}$ " and no less.

Further

Further examinations are as follows :—

When bent axles come in (iron do) we take them out, and if not bent badly we anneal them, put them through the furnace until dark hot, afterwards place them in ashes and let them remain until cool ; after they are cold they go to the lathe, and are strung up and sounded ; if the sound is good we turn back the shoulders and leave a good fillet, so that in the future we can more easily detect any flaw there may be in the shoulders or elsewhere.

The axles are thoroughly examined as regards the fillet of the same after they come out of the furnace.

I might state there are no new axles put in with square shoulders ; all axles are left with long round fillets.

I may further state that all axles and wheels from April 1st, 1886, up to the present, have been numbered, and will continue to be so until the whole are numbered—some 15,000 pairs up to date running.

I may also remark that I am very particular in examining all wheels and axles, as I consider the wheels and axles are one of the most important items on a railway.

WM. PRATT.

Evidence of Mr. Braid, Carriage Superintendent.

Had considerable experience in the examination of rolling stock ; pays particular attention to axles and wheels, and in all cases, if there is the slightest sign or indication of a flaw or defect, they are invariably condemned.

Does not know who the officer is who determines the amount of brake-power for this or any other train. Is decidedly of opinion this train should be fitted with a continuous brake ; thinks it is scarcely safe to run at the speed without it.

Of opinion that the damage done would in all probability have been confined to the broken axle, and is almost sure the trucks would not have gone over the bridge, if an automatic brake had been fitted.

Believes the desirability of having this train fitted with a continuous brake has been represented to the Minister.

Can suggest no improvement in the *method* of inspection ; only as the work is increasing two more men are required, as the present staff have rather too much to do.

In two and a quarter years four (4) axles have broken ; one of Vickers' broke in the journal, the other three close to wheel boss—don't remember the brands.

Thinks the square shoulder is very bad ; it practically nicks the axle ; present, that is recent, axles, are made much stronger, and are put on by hydraulic pressure, without keys or shoulders.

Considers this a great improvement ; have had no broken axles since this system was adopted.

Has no doubt it was the axle which broke first ; nothing to lead anyone to assume or believe an explosion took place first.

There was a considerable amount of combustible goods in the train.

Evidence of Mr. Lennox, Foreman Blacksmith :—

Had a large and varied experience in the handling, repairing, and annealing of axles (14 years).

The annealing is done by heating them in a slow furnace to a dark red, covering them with ashes, and allowing them to cool.

Has no other guide but the eye in heating them ; believes this annealing restores the original structure of the material.

With continuous hard running and vibrations the axles become crystallized in places only—some parts are hard and brittle, other parts remain soft and ductile ; but when properly annealed, the harmony of the particles is brought back to its original form.

Thinks the plan of annealing the best known. Did not know the method adopted by the Board of Trade and Lloyd's was to heat the steel cherry-red and cool it out in water, whose temperature was 80° Fah.

Vickers' steel is by far the best supplied to the Department, and is best suited for our work. The most reliable material he has ever worked ; you can depend on it.

Would always have Vickers' steel, even if he paid more money ; it would be the cheapest in the end.

Large percentage of broken axles always go close to wheel-boss ; the square sharp shoulder nicks the axle in a somewhat similar fashion to what a smith does when he nicks an iron bar to break it.

Thinks that all axles after doing a certain amount of work should be taken out and annealed, but can suggest no plan by which the mileage run could be ascertained.

Could never rely on Cammell's steel ; has little confidence in the material—not only axles, the spring steel is bad ; has often found it so.

Of opinion the system carried out by the Department is the best possible for ensuring the soundness and safety of the rolling-stock, especially as regards axles and wheels.

Could think of nothing that would be likely to improve it.

Considers the material (Brunswick steel) of which the broken axle is made, is very much inferior to Vickers'.

Has strict instructions to reject all doubtful axles ; if they show the slightest defect they are condemned.

Evidence of Henry Matthews, driver of train :—

Been ten years in the service ; four years driving ; and has driven this train ever since it started, which was in May, 1887.

At first took twenty-five trucks, but found it too much ; reduced to twenty, because they could not keep time ; engine couldn't do it.

Average speed about 30 miles per hour—sometimes goes quicker than that when we require to make up time.

This train runs at the same speed as the mail ; it is much heavier.

The brake-power was insufficient at first ; had air-brake on engine and tender (Westinghouse) ; American engines only have air-brakes on engines ; found this with one brake-van ; could not control the train ; but, on reporting same, another brake-van was put on at once—in fact anything for this particular train is attended to at once.

When driving other goods train the speed ranges from 18 to 20 miles per hour ; this express goods goes 50 per cent. faster.

Difference between the brake-power of this and the mail train : Mail would have air-brake connected to every carriage, also tender and engine, whereas this train has only air-brake on engine and tender, and the hand-brakes on the two brake-vans.

When the train first ran, found, when the signals were against me, the power was insufficient to stop the train : hence my application for additional brake-power.

Was

Was pretty certain it was the axle that broke first; there is no evidence which would justify anyone assuming that an explosion took place first, the axle breaking afterwards. Think the fire was caused by concussion, but there can be no certainty about its origin. Was of opinion that if this train had been fitted with an automatic brake the damage done would have been comparatively small, and in all probability the cars would not have gone over the bridge.

Evidence of Charles Dunn, guard of the train:—

Has had considerable experience as guard; often watches the men examining the train before it starts; they do their work carefully and well.
 Examiner Selby is very attentive and painstaking in his inspection.
 Tools used in examination; trusts to his eye principally; makes good use of his hammer, lamp, &c.
 Was in the brake-van when the accident happened—it was lighted up with gas; the brake-vans are generally charged afresh before starting; don't know the pressure in gasholders when charged.
 This train runs as fast as the mail; fastest speed from 35 to 40 miles per hour; average about 30 miles per hour.
 Quite satisfied the accident was caused by the axle breaking, and that the fire took place afterwards; quite sure the explosion took place afterwards.
 Only one axle broke in the train; never heard of any more than one breaking.
 Of opinion that nobody can say with any certainty what caused the fire.
 Had no difficulty in breaking the train in ordinary running, but when signals were against us the brake-power was not sufficient to control the train.
 When application was made for extra brake-power it was granted at once.
 Of opinion that this train should be fitted with a continuous air-brake (automatic).
 If this train had been so fitted the damage done would not have been so great, and think it would have prevented the cars and trucks from going over the bridge.
 Twenty cars are as much as the engines can pull to keep time; took twenty-five at first, but had to discard five.
 This train takes twenty trucks to Picton, then sixteen to Mittagong (with two engines), then sixteen through to Albury with one engine.
 Difference between the speed of this and other goods trains? This travels about 30 miles, the ordinary goods about 20 miles per hour.
 This is the only axle that has broken in any train that he had been on.
 The officers take every care and precaution in making up this train.
 Who determines the amount of brake-power in any train? Does not know.

Evidence of Mr. Harper, Goods Superintendent:—

Has had 17 years experience at this work; has the entire supervision of all the loading.
 The weight of each truck is distinctly marked on it, also the maximum load it is allowed to carry.
 About 90 per cent. are marked, the other 10 per cent. are not; but any truck is quite safe with a load of 6 tons, whether marked or not.
 Knows nothing of what axles may be under any particular truck.
 The Loco. Engineer determines the weight to be carried.
 No truck is marked to carry less than 6 tons or more than 8 tons (with four wheels).
 Double trucks, with six and eight wheels, carry from 10 to 18 tons.
 The system of weighing goods, is by making every thing pass over the weigh-bridge, when the correct weight is taken; the weight of the cart or trolley being always deducted afterwards.
 Have special instructions to always distribute the weight as equally as possible; every allowance is made for overhanging weight, the object being that no matter how any truck may be loaded, the maximum shall not exceed the direct load marked on the truck.
 The C van, No. 128 (under which the axle broke) was loaded with sugar (all 70 lb. bags) and weighed about 6 tons; the sugar was uniformly distributed, and there was practically the same weight on each wheel.
 Of opinion the trucks would carry more weight with safety; the tendency of the Department is to under-load, but when loaded by the owners of the goods, the tendency is sometimes the other way, but strict orders are always given to prevent that.
 Can give no information as to the origin of the fire.

Evidence of Mr. Baker, Examiner in Waggon and Goods Department:—

Been 16 years at this work. Has had considerable experience in examining goods rolling stock, and pays considerable attention to the axles and wheels.
 Has all to do with the making up of the goods trains; made up the one in question.
 Has particular and special instructions regarding this train; all the trucks, cars, brake-vans, &c., are always of the best, and no car or truck is put in that train but what has been examined and lifted within a period of two years.
 This is done because of the great speed, weight, sharpness of curves, and length of journey, which this express goods train has to contend with.
 Axles with square shoulders are bad; they almost always break short off by them, close to wheel boss; they are the cause of all the trouble.
 Axles seldom or never break in the journals; they sometimes get hot and cut, when they are condemned; cause of heating is the want of oil principally; takes place more in the country than about Sydney.
 A special examination consists in selecting the very best and most reliable of the rolling stock for this train; anything that is in doubtful order is never put in it.
 The system of lifting has been in force since 1884; before that no record was kept of when or where the examination and repairs were carried out; had nothing to guide us previous to that date, only experience.
 Do not think the method of examination could be improved; could not suggest anything. Have to trust to the eye to detect any flaw, also the sound of the hammer to detect loose wheels, &c.
 No man could have seen the flaw in the axle that broke; it was not possible to tell by sounding whether any axle was sound or not.
 Vickers' steel axles are by far the best; they never break; they are the most reliable.

Evidence

Evidence of Mr. Staunton, Carriage-lifter:—

Been many years at it (27 years).

In lifting, examines axles, wheels, &c.; has instructions to be very particular; any defects or flaws are always duly marked and sent into turning shop.

All axles that have been examined and found all right, are painted in journals. This indicates they have been inspected, are sound, and fit to go to work; they are also numbered and a record kept for reference. Heated journals often caused by mischief—boys and evil-disposed persons; also by neglecting to oil the boxes; dirt, &c. If the axle-boxes are properly attended to they will give no trouble.

Has recently received instructions that all axles made previous to 1870 are not to be used.

Some of the axles now in use have been running over twenty years; believes there are some dating back to 1860. The first axles sent out was in 1855—they were of iron, and made hollow, having a $1\frac{1}{2}$ in. hole through them, made by Wright, of Birmingham.

Is of opinion that, considering the total number of axles now in use, the number that break is very small. Vickers' steel axles never break; have no doubt they are by far the best.

Brunswick steel axles are not reliable; some parts are hard, some soft. Think the square shoulder has a good deal to do with the breaking.

Don't think the mode of examination could be improved.

Consider that every possible care and precaution is taken.

Whenever the slightest defect shows in either axles or wheels they are rejected; the order to do so came from Mr. Braid.

Evidence of Charles Selby, Examiner of Night Trains:—

Examined the train in question; always inspect this train; his principal duty.

His examination takes place after the train is made up.

Has instructions to pay particular attention to all the gear about this train.

All the best rolling-stock is always picked out to make it up.

Being subjected to special inspection is owing to its weight and the great speed it runs at.

When examining the train on the 9th September, went all round and under it; could see nothing wrong.

No man could detect the flaw in the axle—it could not be seen.

Considers the method of examination as good and as complete as can be made; does not think it could be improved.

No. 8.

Minute by The Commissioner for Railways.

RESPECTING Mr. Cruickshank's report on the causes which led to the Petersham accident on 9/9/87, and his condemnation of the Brunswick steel axles, these axles must be removed.

Instead of removing them at once, would it not do to lighten the loads of trucks so axled by 25% till the traffic slackens sufficiently to admit of the axles being removed altogether?

CH.A.G., 2/11/87.

Instructions have been given for ten axles to be tested, and unless the test demonstrates exceptional and imminent danger, the loading of the trucks with these axles must be reduced by 25% (from 6 tons to $4\frac{1}{2}$ tons).—J.S.

No. 9.

Issue of Writ, &c.

6/12/87.

MESSRS. CHRISTOPHER NEWTON & Co. issued a Supreme Court Writ to recover £250 for goods damaged in the accident at Petersham viaduct.

No. 10.

The Secretary of Railways to Messrs R. Chalmers and Others.

Gentlemen,—

Department of Railways, Sydney, 7 December, 1887.

With reference to your claim for goods consigned to J. Kennedy, Jerilderie, and destroyed by accident to the express goods train at Petersham, on 9th September last, I am desired by the Commissioner for Railways to explain that the refusal to recognise liability is based on the ground that the Government are not insurers of goods entrusted to them for transit, but where negligence can be established they are liable for loss or damage. In this case liability is denied, as the accident was due to a cause exhibiting no carelessness or neglect on the part of the Railway Department.

I have, &c.,

A. RICHARDSON,

(*pro* Secretary of Railways).

Sir,

Department of Railways, Sydney, 6 January, 1888.

Referring to your letter of the 18th ultimo, in which you intimate that a consignment to you by Campbell Bros., Sydney, was destroyed in the railway accident at the Petersham viaduct, and that you have been called upon to pay for the goods, on account of this Department having asked the consignors to repeat the order, I have the honor, by direction of the Commissioner for Railways, to inform you that, after a consideration of the question involved, he is not prepared to accept any liability in respect of claims through the accident in question, and I am to add that no instructions were given by the Department to Campbell Bros. to duplicate your order.

I have, &c.,

A. RICHARDSON,

(*pro* Secretary of Railways).

Gentlemen,

H. N. Scott, Esq., Surveyor, Junee.

Gentlemen,—

Department of Railways, Sydney, 7 January, 1888.

I have the honor to acknowledge your letter of the 28th ultimo, with further reference to your claim for goods lost in the railway accident at Petersham, in which you ask, before taking further steps, whether the Department is willing to make any compromise with a view to avoiding legal expenses.

In reply, I am desired by the Commissioner for Railways to say, that he is unable to compromise the case, as he is quite certain that negligence cannot be established against the Department. The Commissioner would be sorry to learn that your firm have been advised to take legal action, as success is improbable, and the result can only be greater loss. Altogether, apart, however, from any consideration of this kind, it will be his duty to defend the action on principle.

I have, &c.,

D. VERNON,

Secretary of Railways.

Messrs. Atcherley & Dawson, Sydney.

Gentlemen,—

Department of Railways, Sydney, 10 January, 1888.

With reference to your claim for compensation in respect of goods damaged in the recent railway accident at the Petersham viaduct, I have the honor, by direction of the Commissioner for Railways to inform you that, after careful consideration of the question involved, he is not prepared to accept any liability.

I have, &c.,

A. RICHARDSON,

(*pro* Secretary of Railways).

Messrs. Wickham & Martin, Clarence-st., City.

No. 11.

Minute by The Commissioner for Railways.

Action at law.—Recovery of value of goods destroyed at Petersham viaduct accident.

It is reported that we are in jeopardy of losing this test action from several causes. I shall be glad to see the Traffic Manager about it. Who was it went to the consignors of the goods immediately after the accident? Were any letters written? I wish to see with Traffic Manager the officer who gave intimation to the consignors, and also copies of any written communications which were made.

CH.A.G., 10/1/88.

No. 12.

Minute by The Commissioner for Railways.

Axles, &c.

STEEL axles were first brought under the notice of the Department by Mr. G. N. Vickers in the end of March, 1880.

An order had previously gone to England for 800, made of Yorkshire iron, but it was altered to "half Vickers and half Patent Shaft" steel, so that the relative merits of both might be tried. These arrived in the Colony several months afterwards, and were immediately put in use as required.

In January, 1881, another order was sent for 750 of each, so that we have or had 1,150 Brunswick steel axles altogether.

In December, 1881, one of them broke under a van containing 5 tons 17 cwt. 3 qr. of meat while running over the Mountains. It had been running thirteen months, and where it broke there was no sign of flaw. It was afterwards tested, and Mr. Scott reported that it was of "an inferior and coarse-grained metal, and did not prove so satisfactory as the iron axles."

Immediately afterwards another test was made of a Vickers and another Brunswick steel axle, and the latter gave very satisfactory results; indeed, it was found to be better than that made of Vickers' steel. Still it has been generally admitted that the Vickers' steel is the most reliable, and although no danger was apprehended from the continued use of the Brunswick steel axles the preference was given to Vickers' in all orders since January, 1881.

In November, 1882, a second Brunswick steel axle broke at Granville under a waggon loaded with timber, which weighed 4 tons. The axle had been running twenty-five months, and bore evidence of an old flaw.

The only other Brunswick steel that has broken was in the Petersham accident in September, 1887, four years and ten months after the previous one. The grain was very coarse, and a flaw (which however was not noticeable) existed equal in extent to about 25 per cent. of the entire sectional area. The van under which the axle broke in the Petersham accident contained 6 tons 0 cwt. 2 qr. of sugar. It had been running 7 years and one month.

The first Vickers' steel axle broke in May, 1885, under an empty goods brake-van on the Mountains, after having been in use twenty-three months. It exhibited a bad flaw right across.

In August, 1886, a flaw was detected in another axle, which was under a waggon loaded with wool; and to prevent accident the waggon was unloaded and the axle removed. On being tested it exhibited clear evidence that the flaw had existed from the time of its manufacture. It had been running three years and three months.

In August, 1887, another Vickers' steel axle broke under D 2,454, while running over the Mountains. The waggon contained 6 tons 10 cwt. 1 qr. of maize. The axle had been running six years and seven months. The locomotive officers reported that although no defect could be discovered they thought one must have existed.

In November, 1887, a flaw was detected in a Vickers' steel axle under a cattle waggon, and to prevent accident was removed. It had been in use five years and three months.

Mr. Scott is satisfied that although since he has known their relative merits, he has always preferred the Vickers' steel to that of any other make, and has repeatedly written to that effect, he has never condemned those made of Brunswick steel, nor has he ever apprehended any risk beyond the ordinary risk from their continued use. The strongest minute he has written about them was in May, 1884, when he said, "Our experience of this Company's axles shows that they are not reliable, three having broken under our waggons whilst running." Every search has been made in the Locomotive Office, but the records only show two to have broken up to the time of Mr. Scott's report.

As

As regards the inspection of axles Mr. Cruickshank admits that the evidence shows that "the instructions given to the various officers as to the examination of axles, &c., is very satisfactory; every possible care seems to be taken to prevent any defective material being used, and none of those examined had any suggestions to offer which in their opinion would have any tendency to improve the method of inspection."

Speed of Train.

As regards the speed of the train and the brake-power I cannot see how a case tried before the Court could be against the Department. No doubt the mail train is controlled by a continuous brake, although its weight is only half that of the goods train, but there is no analogy between the two.

It will not be disputed that it is very desirable to have the express goods fitted with a continuous automatic brake, but it is not between Sydney and Picton (where the average speed is only 26½ miles an hour) where such a brake is required, but on descending gradients or the level country in the interior where the speed is very high (as much as 45 to 50 miles an hour) in order to make up for the time lost on the ascending grades.

In England goods trains without any continuous brake and with only one brake-van (we have two) are run at upwards of 30 miles an hour including stoppages, and on our own lines, the South-Western and Western, between Nyngan and Bourke, our mixed trains, which have no continuous brakes, run at a greater speed than the express goods between Sydney and Picton, and they have only one brake-van.

Question of Liability as Insurer.

Since it is evident that the axle which broke on the express goods was duly examined, and no sign of a flaw detected, and as moreover there has never been any reason to apprehend danger from the use of the Brunswick steel axles the next question to consider is whether the Commissioner for Railways as a common carrier is an insurer of goods entrusted to his care.

In "Ivatt's Carriers' Law," pages 878, 879, and 880, will be found particulars of cases *Stokes v. Eastern Counties Railway Company* and *Lee v. Cork and Bandon Railway Company*, both of which were decided in favour of the Companies, and they are very similar to ours. Again, on page 881, *Readhead v. North Midland Railway Company*, and page 884, *Phelps v. Great Eastern Railway Company*, judgment in both cases was in favour of the Companies.

But all these were cases of personal injury. In the case of *Readhead v. North Midland Railway Company* the Judges spoke as follows:—

Mr. Justice Lush:—The Courts have drawn a clear distinction between the liability of a carrier of goods as an insurer and the liability of a carrier of passengers for negligence.

Mr. Justice Mellor:—Why carriers are held to be insurers is founded on the danger of carriers (in old times) colluding with thieves if they were allowed to set up robbery or loss by accident as an excuse for failure to deliver goods, and—

Mr. Justice Blackburn:—I quite agree with my two brothers that the carrier of passengers is not like the carrier of goods, an insurer who undertakes to carry safely at all events unless prevented by exceptional perils.

Then again on page 880, in the cause *Dawson v. Manchester, Sheffield, and Lincolnshire Railway Company*, where the passenger was injured through the breaking of an axle which had exhibited no visible sign of flaw, justice was given against the Company. The Company appealed, and the appeal was heard before Chief Baron Pollock, who said—"We have held where an accident happens as in this case to a passenger in a carriage on a line of railway, either by the carriage breaking down or running off the rails, that it is *prima facie* evidence for the jury of negligence on the part of the Company.* There was such *prima facie* evidence of negligence here, and it was not rebutted by any evidence on the part of the Company."

Judgment against Company.

There are no cases of goods lost or damaged in transit where such loss or damage arose through the breaking of an axle or tyre, or similar cause.

Mr. Harper, the Goods Superintendent, and Mr. Price, of this office, went round and saw the consignors of the goods on the day of the accident and informed them what occurred, but nothing was said about duplicating the orders—that was left to the option of the senders.

The position of the Department was fully discussed in the Traffic Manager's Office before Mr. Harper and Mr. Price started on their mission, and it was held then that the Department would not entertain responsibility.

They were told, however, to get a look of the senders invoices so as to see the value of the goods in case of the Department being held responsible.

*The Company it would seem omitted to give evidence that they had used care throughout. They pleaded they were not the makers of the axles; it was held, however, that their obligation went beyond this—they were bound to use every precaution to secure good axles, and they had submitted no evidence that they had taken these precautions. In our case we shall be able to show that the axles (one of which breaking was the cause of the accident) were selected with due care—not only were they purchased from a well established firm of great repute, but their manufacture was supervised by our inspecting engineer in England, in accordance with a specification which provides for such inspection and also for tests. We should not fail on any grounds of want of proper care.—CH.A.G.

Will Mr. Badham draw up from this paper a minute, for my signature, submitting the case for the consideration and advice of the Crown Law Officers? The cases quoted may be given pretty fully. The question of liability will depend upon the legal position of common carriers in regard to the delivery of goods. If they are insurers of goods in regard to safe delivery (the act of God and the Queen's enemies excepted), we shall be clearly liable in the case of the Petersham viaduct. That there is force in this view seems to me evidenced by the fact that there is no case in the books showing that any claim for the recovery of the value of goods lost under similar circumstances has been resisted, although there are several instances in which claims for *personal* injury have been successfully resisted. It seems to me that common carriers are insurers of goods, and the only relief afforded them is that given by Lord Campbell's Act (adopted in this Colony by Judge Windeyer's Act), requiring that, as regards certain classes of goods, an insurance fee over and above the ordinary or regulated charge for carriage shall be paid. Any goods lost (coming within the category) which were not insured as provided we shall not be liable for.—CH.A.G., 24/1/88.

No. 13.

The Commissioner for Railways to The Crown Solicitor.

Question of Commissioner's liability for goods damaged in Petersham accident.

In the accident which happened to the express goods at Petersham viaduct on the 9th September last, goods of various kinds, to a considerable value, delivered to the Department for conveyance, in its capacity of common carrier, were destroyed, and actions are now pending against the Commissioner for the recovery of the value of such goods.

I wish, therefore, to submit, for the consideration and opinion of the Crown Solicitor, the question, whether we can resist, with any prospect of success, the claims thus made against the Department?

I am satisfied that no imputation of negligence can be fairly sustained against the Department.

The primary cause of the accident was the breakage of an axle under one of the waggons, and it cannot be disputed that the fracture was due to a flaw in the axle, which Mr. Cruickshank, in his report on the subject, describes as equal in extent to 25 per cent. of the sectional area of the axle.

Now there are none of our appliances to which more attention is given than the axles. Only the most approved makes are purchased, and the axles, before being put into use, are subjected to the most rigid examination and test. Every effort, in a word, is made to secure the best quality of material and superior workmanship.

Upon this point Mr. Cruickshank, in his report above referred to, states that "respecting the instructions given to the various officers as to the examination of axles, &c., the evidence is very satisfactory; every possible care seems to be taken to prevent any defective material being used."

As regards the speed of the train to which the accident happened it may be stated that it did not exceed $26\frac{1}{2}$ miles an hour.

The train was controlled by *two* brake-vans, while in England goods trains are run at upwards of 30 miles an hour with *one* brake-van only.

It being thus clear that there was no negligence on the part of the Department; that the axle which broke was thoroughly examined without any flaw being detected; that the speed of the train was moderate, and that the brake-power was ample, the question presents itself whether the Commissioner for Railways as a common carrier is an insurer of goods entrusted to his care.

In Ivatt's Carriers' Law, pages 878, 880, particulars will be found of the cases—*Stokes v. the Eastern Counties Railway Company*, and *Lee v. the Cork and Bandon Railway Company*, both of which were decided in favour of the Companies, and they are very similar to our case. Again (page 881) *Readhead v. the North Midland Railway Company*; and (page 884) *Phelps v. the Great Eastern Railway*, in which also judgment was given for the Companies.

But all these were cases of personal injury. In *Readhead's* case the Judges spoke as follows:—Mr. Justice Lush—"The Courts have drawn a clear distinction between the liability of a carrier of goods as an insurer, and the liability of a carrier of passengers for negligence." Mr. Justice Mellor—"Why carriers are held to be insurers is founded on the danger of carriers (in old times) colluding with thieves if they were allowed to set up robbery or loss by accident as an excuse for failure to deliver goods." And Mr. Justice Blackburn—"I quite agree with my two brothers that the carrier of passengers is not like the carrier of goods, an insurer who undertakes to carry safely at all events unless prevented by exceptional perils."

In the case of *Dawson v. the Manchester, Sheffield, and Lincolnshire Railway Company* (page 880), where a passenger had been injured by the breaking of an axle which exhibited no outward sign of flaw, judgment was against the Company. The Company appealed, but the appeal was dismissed on the ground that the Company had produced no evidence to rebut the *prima facie* evidence of negligence. The Company, it would seem, omitted to give evidence that they had used care throughout. They pleaded that they were not the makers of the axle, but it was held that their obligation went beyond this, that they were bound to take every precaution to secure good axles. The Company, however, submitted no evidence that they had taken such precautions.

But in our case we shall be able to show that the axles were selected with due care. Not only were they purchased from an established firm of great repute, but their manufacture was supervised by our Inspecting Engineer, under a specification which provides for such inspection, and also for tests. We should not fail on any ground of want of proper care.

It seems to me from the cases quoted that the Commissioner, as a common carrier, is an insurer of goods entrusted to his care, except those mentioned in *Windeyer's Act*, for which he would not be liable unless a premium in excess of the ordinary carriage rate was paid.

CH. A. GOODCHAP,
1/2/88.

No. 14.

The Crown Solicitor to The Commissioner for Railways.

Newton v. You.

Sir,

Crown Solicitor's Office, Sydney, 13 February, 1888.

I have the honor to forward herewith declaration herein, received by me to-day, and to request that you will cause me to be instructed as to the nature of the defence you wish me to set up, not later than Thursday, 16th instant.

I have, &c.,

JOHN WILLIAMS,

Crown Solicitor.

I think this letter has been written under some misapprehension of the facts of the case. I am asked to say what defence is to be set up. On the 2nd instant I forwarded for advice a very exhaustive *résumé* of the facts of the case, quoting decisions in English Courts, and asking that it might be determined upon the facts therein set forth whether I had any defence to these actions, expressing my own belief that there was no defence, and that the Commissioner under the law was an insurer of goods entrusted to his care, except in certain specified and specially legalised cases. An officer from this Department

Department has called almost daily since the 8th instant at the Crown Law Department to ascertain whether a reply could be given, without any satisfactory result. This letter from the Crown Solicitor asking me to say what defence I wish set up takes me therefore by surprise, and induces me to conclude that it has been written in forgetfulness of the action already taken by me.—CH.A.G., 14/2/88.

Write to Crown Solicitor, and say that I cannot reply to his letter of the 13th until he replies to the case for advice on this very subject which I sent to him on the 2nd instant.—CH.A.G., 14/2/88.

Newton v. The Commissioner.

Sir,

Department of Railways, Sydney, 14 February, 1888.

With reference to your letter of the 13th instant, forwarding declaration in the above matter, and asking the nature of the defence to be set up therein, I have the honor to inform you that I cannot reply to your communication of yesterday's date until you answer the case for advice on this very subject which I sent to you on the 2nd instant.

I have, &c.,

CH. A. GOODCHAP,

Commissioner for Railways.

The Crown Solicitor, Sydney.

No. 15.

The Crown Solicitor to The Commissioner for Railways.

Sir,

Crown Solicitor's Office, Sydney, 16 February, 1888.

I have the honor in reply to your letter of yesterday, respecting the case of Newton v. The Commissioner, to state that I submitted the case mentioned in it to Mr. Attorney-General for his advice thereon, and that I have this morning received his opinion, a copy of which I send herewith.

The Act referred to in Mr. Attorney-General's opinion as 41 Vic. No. 21 is the Common Carriers' Act of 1878, and will be found at page 134 of Oliver's Edition of the Statutes. The Section 1 referred to limits the liability of a common carrier for loss of the goods of the description therein named above the value of £10 unless declared, and an extra charge paid for same.

The concluding paragraph by you at the foot of the minute submitted, correctly states the difference between a contract for the carriage of goods and for the carriage of passengers. In respect of the carriage of goods you are an insurer with full liability, excepting so far as it is limited by the Common Carriers' Act, but with respect to passengers you are only liable for damage occasioned by negligence either direct or implied.

From the opinion now sent, you will be able to instruct me as to the defence in the action Newton v. You; it is necessary that the papers sent and instructions for the defence should be forwarded with as little delay as possible.

I have, &c.,

JOHN WILLIAMS,

Crown Solicitor.

[Enclosure.]

COPY OPINION.

I AM of opinion that in the absence of any special contract limiting the liability of the Commissioner as a common carrier, he is responsible for injury to the goods during transit, although such injury was not caused by any negligence of the Railway Department. The Commissioner is an insurer of all goods not coming within Sec. 1 of 41 Vic. No. 21. If the goods are injured which do come within that Section, the Common Law liability is taken away unless the requirements of that Act are complied with. I am not aware whether there is any special contract in the case.

G. B. SIMPSON.

15 February, 1888.

No. 16.

Minutes by Mr. J. Harper.

Petersham Accident Claims.

I HAVE a list showing the invoice value of most of the packages damaged or destroyed in this accident, but in order to determine the extent of our liability it will be necessary to know the description and value of the articles. There are some seventy consignees concerned, and it will occupy some little time in obtaining this information, but every effort will be made to procure it at once, a trustworthy officer having been specially detailed to do it.

JNO. HARPER, 18/2/88.

Traffic Manager.

I HAVE been able to get the necessary information from all concerned except Messrs. Wright, Heaton & Co., who have referred us to their solicitor, Mr. M'Laughlin. I called on the latter gentleman with a view of obtaining the necessary particulars, and have been promised a detailed list in a few days.

I may state that on the morning of the accident I was able to get a sight of the invoices of goods sent through them by Sydney houses, but several of the consignments came from other Colonies, and I was unable at that time to ascertain their value.

I gathered from Mr. M'Laughlin that steps were taken by him to institute proceedings against the Department, and it was suggested that if we intended to adjust the claims it would be as well if he was formally apprised of the fact by the Crown Solicitor, so that further legal expenses might be avoided.

Traffic Manager.

JNO. HARPER, 24/2/88.

But where is the list asked for by the Commissioner?—D.K., 25/2/88. Goods Superintendent, Now herewith, 3/3/88.

Accident

Accident at Lewisham Viaduct.

I now forward the list required by the Commissioner, which is as complete as I can make it.

In a number of instances the senders refer us to Messrs. Wright, Heaton, and Co., and the latter decline to give us any particulars, but refer us to Mr. M'Laughlin, solicitor.

Mr. M'Laughlin has been seen, with the result stated in my minute of 24th ultimo.

I attach the accounts which I have been successful in obtaining; and where I have given a reference to Commissioner's papers on the list, accounts will be found attached to the papers quoted.

The figures shown in the columns "value of goods" were obtained by me from senders at the time of the accident, and in those cases where erasures have been made the accounts now obtained differ slightly in amount.

So far, the only items for which the Département is not responsible are:—

£15 10s. Goodlet and Smith, for one case glass.

£11 18s. M'Arthur and Co., for silk handkerchiefs, &c.

Regarding Chris. Newton and Co.'s account for £79 9s. 7d., there were twelve out of the fifteen cases of samples returned to them. Particulars of the goods which they received back we are unable to get from them.

JNO, HARPER, 5/3/88.

Traffic Manager.

No. 17.

Claims, &c.

CLAIMS made for goods lost or damaged in the Petersham accident.

Station to which goods were consigned.	Truck No.	Senders.	Consignees.	Value of goods.
Wagga Wagga	D 3108	Wright, Heaton, & Co.	Wright, Heaton, & Co.	£ s. d. 0 16 0
Do	do	do do	do do	
Do	do	do do	do do	11 1 3
Do	do	do do	do do	2 8 0
Do	do	do do	do do	5 13 7
Do	do	do do	do do	7 5 0
Do	do	do do	do do	9 11 3
Do	do	do do	do do	14 13 10
Do	do	do do	do do	101 9 6
Do	do	do do	do do	22 0 0
Do	do	do do	do do	
Do	do	do do	do do	12 12 0
Do	do	do do	do do	362 18 1
Do	do	do do	do do	
Do	do	do do	do do	14 1 10
Do	do	do do	do do	3 12 0
Do	do	do do	do do	3 12 0
Do	do	do do	do do	3 0 0
Narrandera	D 3078	do do	do do	
Do	do	do do	do do	6 2 0
Do	do	do do	do do	5 0 6
Do	do	do do	do do	8 18 0
Do	do	do do	do do	9 5 7
Do	do	do do	do do	6 16 5
Do	do	do do	do do	27 2 9
Do	do	do do	do do	12 0 0
Do	do	do do	do do	
Do	do	do do	do do	38 2 3
Do	do	do do	do do	
Do	do	do do	do do	11 6 0
Do	do	do do	do do	2 8 0
Do	do	do do	do do	2 8 0
Do	do	do do	do do	1 8 6
Do	do	do do	do do	
Do	do	do do	do do	68 6 7
Jerilderie	D 3101	do do	do do	
Do	do	do do	do do	29 6 10
Do	do	do do	do do	
Do	do	do do	do do	
Do	do	do do	do do	
Do	do	do do	do do	9 10 0
Do	do	do do	do do	39 16 0
Do	do	do do	do do	32 18 6
Do	do	do do	do do	12 13 0
Do	do	do do	do do	109 17 11
Do	do	do do	do do	9 11 8

Station to which goods were consigned.	Truck No.	Senders.		Consignees.		Value of goods.
Jerilderie ...	D 3101	Wright, Heaton, & Co.		Wright, Heaton, & Co.		£ s. d.
Do ...	do	do	do	do	do	5 8 0
Do ...	do	do	do	do	do	19 11 6
Do ...	do	do	do	do	do	45 0 0
Do ...	do	do	do	do	do	10 11 10
Do ...	do	do	do	do	do	15 0 0
Do ...	do	do	do	do	do	3 18 6
Do ...	do	do	do	do	do	34 16 4
Do ...	do	do	do	do	do	20 1 4
Hay ...	D 3097	do	do	do	do	20 1 11
Do ...	do	do	do	do	do	17 13 1
Do ...	do	do	do	do	do	12 6 0
Do ...	do	do	do	do	do	4 11 0
Do ...	do	do	do	do	do	40 16 0
Do ...	do	do	do	do	do	11 10 3
Do ...	do	do	do	do	do	9 5 6
Do ...	do	do	do	do	do	130 16 6
Do ...	do	do	do	do	do	
Do ...	do	do	do	do	do	5 17 0
Do ...	do	do	do	do	do	
Do ...	do	do	do	do	do	143 4 6
Do ...	do	do	do	do	do	
Jerilderie ...	B 34,	A. B. Chane ...		M. Curtin ...		2 8 0
Do ...	"out of."	Chris. Newton		W. Hamilton		79 9 7
Do ...	do	J. Frazer		J. & H. Harris		6 14 2
Do ...	do	Australian Drug Company		R. Gartman		3 16 4
Do ...	do	Holdsworth & Co.		W. M'Vittie...		3 4 0
Coomong ...	do	De Lissa & Phillips		A. G. Warren		17 18 0
Colombo ...	do	do		W. Morris		52 3 0
Yathong ...	do	W. S. Friend & Co.		T. M'Farland		11 7 3
Narrandera ...	do	Goodlet & Smith		S. Richards & Co.		15 10 0
Wagga Wagga ...	D 3670	E. Vaughan		W. Warren		2 6 0
Do ...	do	T. Williams		D. Copland		6 13 6
Do ...	do	— Blackburn		J. J. M'Grath		18 14 10
Do ...	do	W. Lysall		W. Warren		4 10 0
Do ...	do	Geo. Robertson		Morrison & Daly		12 10 10
Do ...	do	On Chong		On Zuen Lee		11 10 0
Do ...	do	T. Edginton		W. Warren		18 10 9
Junee ...	D 594	Townsend		Walmsley		4 9 0
Do ...	do	Hoffnung		Davis & Lynington		11 3 9
Do ...	do	G. Griffiths		E. H. Williamson		4 15 0
Do ...	do	Campbell Bros.		W. M. Scott		37 10 7
Do ...	do	J. R. Love		J. L. Castner		2 2 0
Cootamundra ...	D 2788	De Lissa & Phillips		H. Ryan		20 6 0
Do ...	do	do	do	M. Solomon		50 10 0
Do ...	do	Biddell Bros.		T. Chambers		8 14 5
Do ...	do	Mason Bros.		T. Mangan		19 4 10
Do ...	do	John Pope		W. M. Campbell		3 7 0
Do ...	do	Saywell's Tobacco Co.		T. Mangan		21 13 7
Do ...	do	A. Rowan & Co.		Matthews Bros.		18 15 0
Do ...	do	Elliott Bros.		Johnson		2 14 2
Do ...	do	C. Bath		J. Treacey		158 15 0
Coolac ...	C 64, out	Atcherley & Co.		Glasscock		7 0 0
of.						
Gundagai ...	D 2,009	Saunders		Rev. Finnegan		10 6 10
Do ...	C 64	Wickham & Martin		Ah Chee		24 4 0
Do ...	do	Holdsworth & Co.		Ah Chee		5 16 2
Do ...	do	Darcy & Co.		L. Mandelson & Co.		93 6 6
Do ...	do	Tucker & Co.		J. Leary		18 15 0
Do ...	do	Chris. Newton		Ah Chee		26 13 10
Do ...	do	Atcherley & Co.		A. Smith		21 3 0
Do ...	do	do		L. Lenahan		22 18 0
Do ...	do	do		Fraser		5 19 0
Do ...	do	H. S. Bird		Rev. Finnegan		1 14 0
Do ...	do	John Keep		W. Bibb		10 17 3
Albury ...	BV 61	G. A. Moorhouse		F. O'Brien		5 0 0
Do ...	do	do		W. B. Wilson		2 0 0
Do ...	do	Weymark		Dulley		17 17 6
Jerilderie ...	D 2,684	Gibbs, Bright, & Co.		J. & H. Harris		141 16 11

No. 18.

Minute by The Traffic Manager.

Newton v. Commissioner for Railways.

THE action is for recovery of the value of fifteen cases of samples which were in the accident at Lewisham viaduct on the 9th September, 1887.

Twelve of the cases apparently were not damaged, and were taken possession of by Newton. The remaining three cases were partially destroyed.

Several attempts have been made to obtain an inventory of the contents of the cases, but Newton is not inclined to supply it.

As the case is understood by me, there is no plea to set up. The decision of the Attorney-General is that the Commissioner is responsible except for such articles as are exempted under the Common Carriers' Law; therefore it seems that the only thing to be done is to arrange a compromise of the matter.

The Commissioner.

D.K., 6/3/88.

No. 19.

Memo.

TOTAL amount paid for claims in connection with the accident at Petersham viaduct, £4,029 14s. 10d.

1888.

LEGISLATIVE ASSEMBLY.
NEW SOUTH WALES.

RAILWAYS.

(RETURN SHOWING TRAFFIC AND REVENUE AT CERTAIN SUBURBAN STATIONS.)

Ordered by the Legislative Assembly to be printed, 5 December, 1888.

[Laid upon the Table of the Honorable the Legislative Assembly of New South Wales information in reply to Question No. 1, of the 5th December, 1888.]

RETURN of Total Traffic and Revenue and Total Traffic Expenditure at the undermentioned Stations for October, 1888.

Stations.	Revenue.								Expenditure.		
	No. of Daily Tickets issued.	No. of Weekly Tickets issued.	No. of Season Tickets issued.	Total Tickets issued.	Total Coaching Revenue.	Tonnage.	Total Goods Revenue.	Revenue (grand total).	Salaries and Wages.	Stores, Uniforms, &c.	Expenditure (grand total).
					£		£		£	£	£
Macdonaldtown ...	8,645	1,230	29	9,904	186	.....	.....	186	56	14	70
Stanmore	7,142	303	94	7,539	295	.....	.....	295	83	15	98
Lewisham	10,337	425	132	10,894	519	.....	.....	519	58	12	70
Marrickville.....	9,276	689	93	10,058	345	1,277	234	579	70	8	78
Tempe	4,375	444	62	4,881	189	.....	.....	189	45	6	51
Rockdale	7,922	738	100	8,760	489	572	100	589	62	8	70
Kogarah	7,126	800	88	8,014	446	200	23	469	57	9	66
Hurstville	4,963	225	45	5,233	409	463	68	477	86	6	92

1888.

—
LEGISLATIVE ASSEMBLY.
NEW SOUTH WALES.

—
RAILWAYS.

(RETURN SHOWING OVERTIME WORKED BY DRIVERS AND FIREMEN, PICTON DISTRICT.)

—
Ordered by the Legislative Assembly to be printed, 5 December, 1888.
 —

[Laid upon the Table of the Honorable the Legislative Assembly of New South Wales, information in reply
 to Question No. 3 of the 5th December, 1888.]

—
Questions.

- (3.) Railway Drivers and Firemen, Picton District :—Mr. McCourt asked the Colonial Treasurer,—
 (1.) The names of the drivers and firemen in the Picton District who have worked ten hours and over per day, from 1st September to 31st October, 1888?
 (2.) Have any drivers or firemen, during same period, been called upon to resume work after having left off work only eight hours or under?

—
Answers.

<i>Drivers.</i>	<i>Firemen.</i>
Kennedy, James	Masters, Henry
Moon, Henry	Deneen, Denis
Graham, John	Cracknell, Joseph
Tildsley, John	M'Innis, Hector
Quinn, John	Sykes, James
Edwards, John	Brown, Gbl.
Scott, William	M'Innis, Jonathan
Hogan, Michael	Knox, Andrew
Burges, Henry	Kearney, David
Blatch, George	Hill, Arthur
Ridgway, Alfred	Kennedy, William
Davidson, James	Cahill, Thomas
Mathews, Frederick	Wall, James
Murray, John	Mathews, George
Larcude, Fredk.	Sell, Henry
Reeves, John	King, Albert
Kitching, Thomas	Leighton, Thomas
Tallintur, William	M'Innis, Alex.
M'Innis, Lachlan	Hodges, George
Gillaid, James	Mathews, George
	Fraser, James
	Fletcher, James

—
 NOTE :—A driver's and fireman's work is 55 hours per week, equal to 10 hours per day for 5 days, and a shed day of 5 hours.

1888.

LEGISLATIVE ASSEMBLY.
NEW SOUTH WALES.

RAILWAYS.

(RETURN SHOWING STOCK VEHICLES ORDERED TO LOAD MORE THAN ONE WEEK AHEAD FOR SIX MONTHS ENDING 30 NOVEMBER, 1888.)

Ordered by the Legislative Assembly to be printed, 21 November, 1888.

[Laid upon the Table of the Honorable the Legislative Assembly of New South Wales, further information in reply to Question No. 5, of 21 November, 1888.]

RETURN showing number of Stock Vehicles ordered to load more than a week ahead, from date of order, for six months ending 30th November, 1888.

Date Ordered.	Ordered by.	Number Trucks.	Owner.	Loading Station.	Date Loading.
23 May...	Trebeck & C.	17 C. waggons	Pearson & C.	Old Junee	4 June.
24 " "	Graves	1 S. van	W. Honey	Whitton	5 "
28 " "	Hill & C.	14 S. vans	A. Gibson	Young	5 "
28 " "	do	28 C. waggons		Dubbo	5 "
28 " "	Crossing	1 C. waggon		Mudgee	5 "
29 " "	Inglis	2 S. vans	F. Gibson	Young	5 "
29 " "	Hill & Co.	3 C. waggons		Dubbo	5 "
23 " "	Goldsbrough & C.	6 S. vans	Squatting Co.	Jerilderie	5 "
28 " "	Wilson & C.	11 do	Namoi P. Co.	Rylstone	6 "
30 " "	Cooper	2 do		Tarago	6 "
30 " "	Hill, C., & Co.	5 do	M'Intosh & C.	Kelso	6 "
30 " "	do	5 do	Cobb & Co.	do	6 "
30 " "	Wilson & C.	3 do	Namoi P. Co.	Rylstone	6 "
30 " "	Goldsbrough & C.	10 do	J. Simpson	Nevertire	8 "
1 June..	Pitt & Co.	6 C. waggons	W. Sly	do	8 "
1 " "	Hill & Co.	6 do	do	do	8 "
1 " "	Leeds & Co.	22 do	Pain Bros.	do	8 "
1 " "	Goldsbrough & C.	12 do	M. Doyle	Cowra	8 "
29 May...	do	4 S. vans	Perillie	Nyngan	11 "
4 June..	J. Bridge	19 do	Rigney & Son	Mudgee	12 "
28 May...	Graves	18 do	J. Peacock	Dubbo	13 "
29 " "	do	10 do	do	do	13 "
5 June..	Goldsbrough & C.	12 C. waggons	Doyle	Cowra	15 "
5 " "	Graves	10 S. vans	M'Culloch	Nyngan	15 "
8 " "	do	28 do	J. Peacock	Capertee	16 "
1 " "	M'Kellar & C.	1 S. van	Dickson Bros.	Byrock	19 "
12 " "	Graves	12 S. vans	J. Peacock	Dubbo	20 "
11 " "	do	28 do	W. Baird	Nevertire	21 "
12 " "	do	14 do	J. Peacock	Dubbo	21 "
1 " "	M'Kellar & C.	1 S. van	Dickson Bros.	Bourke	22 "
11 " "	Graves	1 do	W. Baird	Nevertire	22 "
14 " "	Hill, Clark, & C.	13 C. waggons	Hill, C., & Co.	Dubbo	23 "
18 " "	Leeds & C.	15 do	Leeds & Co.	Nevertire	26 "
16 " "	Wilkinson & C.	5 S. vans	J. Lackey	Moss Vale	27 "
19 " "	Pitt, Son, & B.	5 do	Cunningham	Queanbeyan	27 "
20 " "	Wilkinson & C.	5 do	M'Kay	Mullengudgery	28 "
18 " "	Goldsbrough & C.	26 do	Scott & Perry	Rylstone	29 "
19 " "	J. Bridge	15 do	Rigney & Son	Mudgee	30 "
20 " "	Graves	15 do	J. Peacock	do	30 "
21 " "	Mort & C.	1 S. van	Armstrong	Hay	3 July
26 " "	Pitt, Son, & C.	4 S. vans	Austin & M.	Jerilderie	3 "
26 " "	Hume	5 do		Young	3 "
27 " "	Graves	22 do	F. W. Bacon	Nevertire	3 "

Date Ordered.	Ordered by.	Number Trucks.	Owner.	Loading Station.	Date Loading.
27 June..	Hill, Clark, & C.	22 C. waggons		Dubbo	3 July.
27 "	J. Pitt	1 C. waggon		Rylstone	4 "
27 "	Inglis & Son	1 do	Loseby	Marulan	4 "
27 "	Anderson & C.	14 S. vans		Bourke	4 "
28 "	Leeds & C.	10 C. waggons	Stevenson	Wellington	4 "
28 "	do	3 S. vans	Humphrey & C.	Tarana	4 "
25 "	Gardiner	14 C. waggons		Dubbo	5 "
28 "	Graves	14 S. vans	W. W. Baird	Nyngan	5 "
29 "	H. A. Cox	1 C. waggon		Mudgee	5 "
25 "	Lee	1 C. car		Molong	6 "
26 "	Somer & C.	8 S. vans		Trangie	6 "
28 "	Hill, C., & Co.	21 C. waggons		Dubbo	7 "
30 "	do	14 S. vans	J. Rundle	Rylstone	10 "
30 "	do	13 C. waggons	Richardson	Nyngan	10 "
2 July..	Wilkinson & L.	2 S. vans	J. Matchett	Whitton	10 "
2 "	Ellis	1 C. waggon	W. Nobbs	Dubbo	10 "
4 "	Hill, C., & C.	14 C. waggons		do	12 "
4 "	Richards	22 do	Bootle	Rylstone	13 "
5 "	Hill, C., & C.	5 do	Shaw & Co.	Bourke	13 "
4 "	Bolton	5 do		Wagga	16 "
6 "	do	3 do		do	16 "
7 "	Wilkinson & L.	13 do		Bourke	16 "
3 "	Hill, Clark, & C.	16 do	R. Ridge	Nevertire	17 "
30 June..	Wilkinson & L.	1 S. van	Donnelly Bros.	Gunning	18 "
7 July..	Hill, Clark, & C.	5 C. waggons	Tindale Bros.	Rylstone	18 "
10 "	Anderson & C.	42 S. vans		Bourke	18 "
7 "	Hill, Clark, & C.	14 C. waggons	Shaw & C.	do	19 "
11 "	do	14 do		Dubbo	20 "
10 "	do	15 do		do	21 "
6 "	Bolton	8 do		Wagga	23 "
14 "	Trebeck & C.	5 do		Byrock	23 "
9 "	Graves	1 S. van	M'Caffney	Whitton	24 "
10 "	Wilkinson & L.	3 S. vans	R. Bridges	Jerilderie	24 "
16 "	Anderson & C.	14 do		Bourke	25 "
16 "	Pitt, Son, & B.	5 do	Cooper	Tarago	25 "
14 "	Hill, C., & C.	14 C. waggons	Richardson	Grilambone	26 "
16 "	do	14 S. vans		Nevertire	26 "
16 "	do	14 C. waggons		do	26 "
17 "	Pitt, Son, & B.	14 S. vans	Walhallow	Blayney	26 "
18 "	do	2 C. waggons	P. M'Farland	Jerilderie	26 "
18 "	Graves	14 S. vans	W. W. Baird	Nyngan	26 "
18 "	do	28 do	J. Peacock	Dubbo	26 "
16 "	Hill, C., & C.	4 do		Nevertire	27 "
17 "	Pitt, Son, & B.	7 do	W. Doyle	Bourke	27 "
18 "	Graves	2 do	J. Peacock	Dubbo	27 "
18 "	Bolton	11 C. waggons		Wagga	27 "
19 "	Griffiths & C.	14 do	J. F. & H. White	Wellington	27 "
19 "	Pitt, Son, & B.	22 S. vans	Cook	Rylstone	28 "
23 "	Graves	3 do	J. Innes	Colombo	31 "
23 "	Harrison & C.	1 S. van	N. Flynn	Jerilderie	31 "
17 "	Wilson & C.	11 S. vans	Campbell & Co.	Rylstone	1 Aug.
18 "	Richmond	8 do		Hay	1 "
21 "	Graves	34 do	J. Peacock	Mudgee	1 "
23 "	do	28 do	A. & W. Pidham	Rylstone	1 "
23 "	M'Lean Bros.	2 do		Capertee	1 "
23 "	Gardiner	3 C. waggons		Trangie	1 "
24 "	Harrison & Co.	7 S. vans	A. Hall	Rylstone	1 "
19 "	Griffiths & Co.	1 S. van		Whitton	2 "
19 "	do	2 S. vans		Bundure	2 "
20 "	Graves	28 do	W. Baird	Nevertire	2 "
23 "	Hill, C., & Co.	14 C. waggons		Narramine	2 "
23 "	Lea & Co.	33 S. vans		Bourke	2 "
24 "	Graves	14 do	J. Peacock	Dubbo	2 "
24 "	Hill, C., & C.	10 C. waggons	Shaw & C.	Bourke	2 "
25 "	do	14 do		Nyngan	2 "
24 "	Graves	14 S. vans	J. Peacock	Dubbo	3 "
25 "	Trebeck & Co.	2 do	M'Williams	Cowra	3 "
26 "	Wilkinson & L.	3 do	M'Queen & C.	Hay	3 "
26 "	Hill, C., & C.	10 do	Cooper & Co.	Nevertire	3 "
27 "	Griffiths & W.	5 C. waggons	Osborne	Cowra	3 "
27 "	Goldsbrough & C.	11 S. vans	J. Simpson	Nevertire	3 "
27 "	Leeds & C.	5 do	C. Johnson	do	3 "
27 "	do	22 do	G. A. & P. Mein	Nyngan	3 "
24 "	Richards	24 do	Hopkins	Rylstone	4 "
26 "	Griffiths & W.	24 do	J. F. & H. White	Wallerawang	4 "
26 "	Pitt, Son, & C.	20 do	Evans Bros.	Capertee	4 "
25 "	Richards	35 do	T. Evans	Nevertire	6 "
27 "	Horwood & C.	4 C. waggons		Wagga	6 "
23 "	Wilkinson & C.	14 do	F. W. Armytage	Bourke	6 "
30 "	do	44 S. vans	J. Elliott	Byrock	6 "
30 "	do	12 do	R. Carter	Murrumbudgery	6 "
26 "	Wilkinson & L.	2 do	E. English	Darlington	7 "
26 "	do	2 do	T. Coutts	do	7 "
27 "	Goldsbrough & Co.	18 do	J. English	Dubbo	7 "
27 "	Wilkinson & L.	1 S. van	Chard & Co.	Carrathool	7 "
27 "	do	1 do	M'Kay Bros.	Murrumbudgery	7 "
28 "	Hill & Co.	1 do	P. Cahill	Jerilderie	7 "
28 "	Graves	2 S. vans	H. Cully	do	7 "
30 "	Leeds & Co.	5 do	J. M'Alman	Murrumbudgery	7 "
30 "	Graves	1 S. van	J. M'Caffney	Whitton	7 "

Date Ordered.	Ordered by.	Number Trucks.	Owner.	Loading Station.	Date Loading.
30 July	Wilkinson & L.	1 S. van	Mills & Co.	Uardry	7 Aug.
30 "	Leeds & Co.	2 S. vans	Todhunter	Nevertire	7 "
30 "	Pitt & Co.	31 C. waggons	Christian & G.	do	7 "
31 "	do	1 C. waggon	do	do	7 "
31 "	Hill & Co.	8 C. waggons	A. Amos	Wallerawang	7 "
28 "	Rand	1 S. van		Wagga	8 "
30 "	Pitt & Co.	20 S. vans	Evan Bros.	Wallerawang	8 "
31 "	Powers & Co.	27 do		Dubbo	8 "
31 "	Hill & Co.	14 C. waggons	A. Amos	Wallerawang	8 "
27 "	Griffiths & W.	14 S. vans	J. F. & H. White	do	9 "
30 "	Gordon & C.	14 C. waggons		Nevertire	9 "
30 "	Hill & Co.	14 S. vans		Narramine	9 "
30 "	do	13 C. waggons		Dubbo	9 "
30 "	Wilkinson & L.	4 S. vans	R. Carter	Murrumbudgery	9 "
31 "	Wilkinson	16 do		Nevertire	9 "
31 "	Hil, C., & C.	14 C. waggons		do	9 "
31 "	Pitt, Son, & Co.	34 S. vans	Christian J. & W.	do	10 "
1 Aug.	Graves	15 do	W. Peacock	Dubbo	10 "
1 "	Hill, C., & C.	15 do	T. Cornish	Nyngan	10 "
27 July	Griffiths & W.	10 do	J. F. & H. White	Wallerawang	11 "
1 Aug.	do	14 do	J. L. Brown	do	11 "
1 "	Hill, C., & Co.	5 do	D. Leahy	Bungendore	11 "
1 "	Pitt, Son, & C.	11 do	do	do	11 "
3 "	Sullivan	7 do	A. & E. Bowman	Rylstone	11 "
1 "	Graves	14 do	W. Peacock	Dubbo	13 "
2 "	Trebeck & Co.	14 C. waggons	Pearson & Co.	Old Junee	13 "
3 "	Wilkinson & L.	44 do	Noranside	Bourke	13 "
3 "	Bate	1 C. waggon		Queanbeyan	13 "
3 "	Hill, C., & C.	1 do	E. H. Jamieson	Marulan	13 "
3 "	do	22 C. waggons	Fisher & Hill	Dubbo	13 "
2 "	Leeds & C.	27 S. vans	G. A. & P. Mein	Nyngan	14 "
3 "	Wilkinson & L.	3 do	Miller	Uardry	14 "
3 "	Harrison & C.	2 do	Robertson	Jerilderie	14 "
3 "	Wilkinson & L.	9 do	Miller	do	14 "
1 "	Griffiths & W.	10 do	T. Bossley	Bourke	14 "
3 "	Thucker	2 do		Colombo	14 "
3 "	Hill, C., & Co.	2 do	R. Fuller	Nevertire	14 "
3 "	Griffiths & C.	2 C. waggons		Bomen	14 "
4 "	Leeds & Co.	1 S. van	F. A. Byrne	Nevertire	14 "
6 "	Wilkinson & L.	7 S. vans	J. Little	Bourke	14 "
6 "	do	1 S. van	J. M'Williams	Carrathool	14 "
6 "	Harrison & C.	7 S. vans	J. Little	Bourke	14 "
6 "	Graves	2 do	Howlong	Carrathool	14 "
6 "	Pitt, Son, & B.	3 do	F. P. Gordon	Nevertire	14 "
6 "	Nash	2 do		Gundagai	14 "
1 "	Graves	14 do	J. Peacock	Dubbo	15 "
1 "	do	14 do	do	do	15 "
3 "	Trebeck & C.	16 C. waggons	Pearson & C.	do	15 "
4 "	Leeds	25 do	F. P. Morris	Trangie	15 "
4 "	Pitt, Son, & C.	22 S. vans	T. Cook	Rylstone	15 "
6 "	M'Intyre	4 do		Wellington	15 "
6 "	Anderson & C.	14 C. waggons		Bourke	15 "
31 July	Pitt, Son, & C.	38 S. vans	Christian & G.	Nyngan	16 "
2 Aug.	do	14 C. waggons	Christian & H.	Wellington	16 "
2 "	Douglas	28 S. vans		Wellington	16 "
2 "	Griffiths & W.	14 do	J. F. & H. White	Wallerawang	16 "
2 "	Horwood & C.	3 do		Wagga	16 "
6 "	Leeds & C.	12 C. waggons	H. Smith	Nevertire	17 "
7 "	Wilkinson & L.	18 do	H. Brown	Nyngan	17 "
7 "	do	7 S. vans	Lindsay Bros.	Byrock	17 "
7 "	Hill, C., & C.	18 C. waggons	W. K. M'Millan	Nyngan	17 "
7 "	do	10 S. vans	Cooper & C.	Nevertire	17 "
7 "	do	2 C. waggons		do	17 "
8 "	Harrison & C.	12 S. vans	Bloomfield & C.	Molong	17 "
9 "	Horwood & C.	4 C. waggons		Wagga	17 "
9 "	Muller	3 do		Nevertire	17 "
9 "	Graves	5 S. vans	C. Bloodsworth	Trangie	17 "
9 "	J. Lee	2 C. waggons		Rylstone	17 "
3 "	Griffiths & W.	10 S. vans	J. F. & H. White	Wallerawang	18 "
7 "	Hill, C., & C.	21 C. waggons	J. J. Underwood	Mudgee	18 "
8 "	Leeds	18 S. vans	D. M'Master	do	18 "
8 "	Richards	23 C. waggons	Richards	Wellington	18 "
9 "	Anderson & C.	4 do		Nyngan	18 "
6 "	Graves	3 do	G. A. Murray	do	20 "
7 "	do	14 S. vans	W. W. Band	Dubbo	20 "
8 "	Wilkinson & L.	14 C. waggons	F. W. Armytage	Bourke	20 "
9 "	Graves	28 S. vans	J. Peacock	Dubbo	20 "
9 "	Hill, C., & Co.	14 do	A. F. Gibson	Wallerawang	20 "
8 "	Wilkinson & L.	19 C. waggons	F. W. Armytage	Bourke	21 "
8 "	Leeds	4 S. vans	J. M'Calman	Mullengudgery	21 "
8 "	do	30 C. waggons	Campbell & C.	Bourke	21 "
9 "	Graves	1 S. van	J. Peacock	Dubbo	21 "
9 "	Pitt, Son, & C.	4 C. waggons	W. Sly	Bourke	21 "
10 "	M'Farland	7 S. vans		Jerilderie	21 "
10 "	Manning & C.	1 S. van		Bundure	21 "
10 "	Wilkinson & L.	1 do	T. W. Bull	Bundure	21 "
11 "	do	1 do	R. Nelson	Carrathool	21 "
13 "	Goldsbrough & C.	5 S. vans	Ostler	Wellington	21 "
13 "	do	4 do	Meers	do	21 "
13 "	Hill & C.	17 do	Hill & Son	Narramine	21 "

Date Ordered.	Ordered by.	Number Trucks.	Owner.	Loading Station.	Date Loading.
13 Aug..	Wilkinson & L.	1 S. van	W. P. Manly	Carrathool	21 Aug.
9 "	Pitt, Son, & B.	10 C. waggons	R. & W. Roberts	Rylstone	22 "
9 "	Anderson & C.	14 do		Bourke	22 "
10 "	Hill & C.	14 S. vans	W. K. M'Millan	do	22 "
11 "	Graves	17 do	Murray	Dubbo	22 "
4 "	Pitt, Son, & C.	14 C. waggons	R. Gibson	Wellington	23 "
7 "	do	23 do	T. Hungerford	Blayney	23 "
8 "	Hill & C.	20 do	M'Donald & C.	Byrock	23 "
9 "	Pitt, Son, & C.	10 do	T. Hungerford	Bourke	23 "
15 "	Horwood & Co.	2 S. vans		The Rock	23 "
8 "	Hill, C., & C.	27 C. waggons	M'Donald & C.	Byrock	24 "
11 "	Ryrie	6 do		Trangie	24 "
11 "	Campbell	2 do		Nevertire	24 "
14 "	H. Brown	13 do		do	24 "
15 "	Goldsbrough & C.	12 S. vans	H. Murray	Bourke	24 "
13 "	Douglas	18 do		Wellington	24 "
13 "	Chenery Bros.	11 do		Yass	25 "
14 "	Griffiths & W.	23 do	J. F. & H. White	Mt. Victoria	25 "
16 "	Chenery Bros.	10 C. waggons		Yass	25 "
16 "	do	9 do		Wagga	25 "
13 "	Anderson & C.	23 do		Bourke	27 "
11 "	Sullivan	1 C. waggon		Coolac	28 "
13 "	Pitt, Son, & C.	7 C. waggons	Hungerford	Bourke	28 "
13 "	Union M. & A. Co.	3 S. vans	O'Shanassy	Jerilderie	28 "
18 "	Graves	4 do	W. H. Watts	Carrathool	28 "
20 "	Wilkinson & L.	3 do	Singleton	Groongal	28 "
20 "	Pitt, Son, & B.	14 do	Learmonth	do	28 "
20 "	Webb	1 S. van		Tarana	28 "
13 "	Hill, C., & C.	14 C. waggons		Dubbo	29 "
13 "	Pitt, Son, & B.	28 do	Christian & G.	Nevertire	29 "
13 "	Hill, C., & C.	14 do		Orange	29 "
20 "	do	8 S. vans	Dowling	Lue	29 "
4 "	Pitt, Son, & C.	14 C. waggons	Christian & H.	Wellington	30 "
11 "	do	34 do	Tobin & Son	Nyngan	30 "
11 "	Hill, C., & C.	28 S. vans	M'Millan	Bourke	30 "
13 "	do	20 C. waggons		Dubbo	30 "
21 "	Harrison & C.	1 S. van	Wright	Michelago	30 "
11 "	Hill, C., & C.	5 S. vans	M'Millan	Bourke	31 "
16 "	Pitt, Son, & B.	9 C. waggons	Christian & G.	Nevertire	31 "
17 "	Hill, C., & C.	9 S. vans	M'Millan	Bourke	31 "
18 "	Anderson & C.	2 C. waggons		do	31 "
16 "	do	3 do		do	1 Sept.
17 "	Hill, C., & C.	12 do		Dubbo	1 "
16 "	do	8 do		do	1 "
17 "	Wilkinson & L.	20 do	J. Grieve	do	3 "
17 "	Ryan & C.	42 do		Bourke	3 "
23 "	Graves	14 S. vans	J. Peacock	Dubbo	3 "
23 "	do	21 do	do	do	3 "
27 "	Brain & Co.	1 S. van		Albury	3 "
27 "	Devlin	1 do		Cootamundra	3 "
27 "	do	1 C. waggon		do	3 "
13 "	Bradford	2 S. vans		Colombo	4 "
13 "	Pitt, Son, & C.	16 C. waggons	Darling D. Co.	Nevertire	4 "
17 "	Hill, C., & C.	5 do	W. Sly	Bourke	4 "
17 "	do	13 S. vans	Wiseman	Mudgee	4 "
20 "	Brain & C.	4 do		Jerilderie	4 "
23 "	do	1 S. van		do	4 "
24 "	Graves	5 S. vans	Watts	Carrathool	4 "
25 "	Leeds & C.	17 do	G. A. & P. Mein	Nevertire	4 "
27 "	Harrison & C.	3 do	Jones	Jerilderie	4 "
27 "	Wilkinson & L.	2 do	Fraser	Darlington	4 "
27 "	Sanger	1 S. van	Sanger	Jerilderie	4 "
27 "	Robertson	2 S. vans		Colombo	4 "
28 "	Wilkinson & L.	1 S. van	Nelson	Carrathool	4 "
28 "	Holloway	1 do		Narrandera	4 "
14 "	M'Kay	1 C. waggon		Carrathool	5 "
16 "	Anderson	28 C. waggons		Bourke	5 "
22 "	Griffiths	2 S. vans		Albury	5 "
23 "	Graves	3 do	Peacock	Dubbo	5 "
23 "	do	28 do	do	do	5 "
24 "	Anderson & C.	28 do		Bourke	5 "
10 "	Pitt, Son, & C.	14 C. waggons	Christian & H.	Wellington	6 "
16 "	Anderson & C.	34 do		Bourke	6 "
27 "	Hebden & Son	3 S. vans		Whitton	6 "
17 "	Wilkinson & L.	19 do	Molten Plus	Byrock	7 "
17 "	Hill, C., & C.	20 C. waggons	Richardson	Bourke	7 "
18 "	Leeds & C.	17 do	Rouse & Co.	do	7 "
20 "	Besnard	18 do		Gunning	7 "
22 "	Pitt & Co.	38 S. vans	Christian & H.	Nyngan	7 "
28 "	Graves	4 do	Hay	do	7 "
17 "	Hill & Co.	13 do	Wiseman	Rylstone	8 "
26 "	Chenery Bros.	16 do		Yass	8 "
20 "	Wilkinson & L.	28 C. waggons	J. Grieve	Trangie	10 "
20 "	Anderson & C.	35 do		Bourke	10 "
29 "	Griffiths & C.	39 S. vans		June	10 "
30 "	Chenery Bros.	1 S. van		Narrandera	10 "
30 "	King & Co.	26 S. vans		Wagga	10 "
18 "	Leeds & C.	18 C. waggons	Rouse & Co.	Bourke	11 "
20 "	Pitt, Son, & C.	28 do	Christian	Nevertire	11 "
21 "	Pitt & C.	5 do	F. Brook	Bourke	11 "

Date Ordered.	Ordered by.	Number Trucks.	Owner.	Loading Station.	Date Loading.
21 Aug..	Hill & Co.	16 C. waggons	Fitzpatrick	Dubbo	11-Sept.
21 "	do	5 do	M'Donald & C.	Bourke	11 "
21 "	Barker	30 do	Ryan & Co.	do	11 "
29 "	Leeds & Co.	11 S. vans	Woodlock	Mullengudgery	11 "
29 "	Harrison & C.	3 do	Robertson	Jerilderie	11 "
29 "	do	14 do	Hall	Rylstone	11 "
29 "	Douglas	1 S. van		Culcairn	11 "
30 "	Graves	2 S. vans	Terry	Carrathool	11 "
31 "	Pitt & C.	14 do	Learmonth	Groongal	11 "
20 "	Ryan & C.	28 C. waggons		Bourke	12 "
20 "	Anderson & C.	28 do		do	12 "
22 "	Ryan & C.	14 do		do	12 "
24 "	Hill & Co.	10 do		Dubbo	12 "
29 "	Pitt & Co.	23 S. vans	Cook	Rylstone	12 "
29 "	Suttor	5 do		Kelso	12 "
20 "	Pitt & Co.	28 C. waggons	Christian	Nevertire	13 "
23 "	Wilkinson & L.	14 do	Mr. Morris	Bourke	13 "
23 "	Horwood & C.	4 do		Wagga	13 "
24 "	Hill, C., & C.	10 do		Dubbo	13 "
20 "	Pitt & C.	20 do	Christian	Nevertire	14 "
23 "	Wilkinson & L.	20 do	Mr. Morris	Bourke	14 "
24 "	Hill & C.	10 do		Nevertire	14 "
30 "	Leeds & C.	56 S. vans	Lawson	Byrock	14 "
30 "	Wilkinson & L.	8 do	Burcher	Bourke	14 "
31 "	Graves	17 do	Campbell & C.	Trangie	14 "
30 "	Hill, C., & C.	13 do	Tobin & Son	Dubbo	15 "
31 "	Sullivan	16 do	Parker	Wellington	15 "
7 Sept..	Cox	3 C. waggons		Mudgee	15 "
20 Aug..	Wilkinson & L.	11 do	Grieve	Trangie	17 "
23 "	Horwood & C.	4 do		Wagga	17 "
24 "	Pitt & C.	40 do	Rich & Son	Bourke	17 "
24 "	Wilkinson & L.	30 do	Armytage	Bourke	17 "
1 Sept..	do	1 C. waggón	Grieve	Trangie	17 "
3 "	Hill & C.	30 C. waggons	Dalgetty	Bourke	17 "
27 Aug..	Pitt & C.	8 do	Piberdy	Nevertire	18 "
27 "	do	11 do	Alford	Bourke	18 "
28 "	Leeds & C.	40 do	do	Dubbo	18 "
30 "	Hill, C., & C.	13 S. vans	Tobin & Son	do	18 "
30 "	Leeds & C.	28 do	Lawson	Byrock	18 "
31 "	Graves	5 do	M'Kinnon	Trangie	18 "
31 "	do	2 do	Turnbull	Bundure	18 "
31 "	Sullivan	15 do	Parker	Wellington	18 "
1 Sept..	Dalgetty	11 do	do	Jerilderie	18 "
1 "	do	1 C. waggón	do	do	18 "
3 "	Wilkinson & L.	2 S. vans	Ashcroft	Darlington	18 "
3 "	Graves	5 do	Watts	Carrathool	18 "
3 "	Harrison & C.	4 do	Trouter	Colombo	18 "
3 "	Anderson	30 do		Bourke	18 "
4 "	Wilkinson & L.	1 S. van	Walters	Carrathool	18 "
5 "	Pitt & Co.	9 S. vans	Learmonth	Groongal	18 "
10 "	Wright & C.	4 do		Jerilderie	18 "
27 Aug..	Pitt & C.	10 C. waggons	Alford	Bourke	20 "
3 Sept..	Leeds & C.	8 S. vans	Lee	Molong	19 "
25 Aug..	Hill & C.	8 C. waggons	Shaw & C.	Bourke	20 "
31 "	Anderson & C.	20 S. vans		do	20 "
12 Sept..	Wilton	1 C. waggón		Rylstone	20 "
24 Aug..	Pitt & C.	39 C. waggons	Christian	Nevertire	21 "
28 "	Leeds & C.	10 do	do	Dubbo	21 "
28 "	Goldsbrough & C.	3 do	Fagan	Nevertire	21 "
31 "	Wilkinson & L.	44 S. vans	Fowler & C.	Bourke	21 "
31 "	Leeds & C.	23 do	Lawson	Byrock	21 "
29 "	Horwood & C.	4 C. waggons		Wagga	24 "
4 Sept..	Harrison & C.	10 do	Lamb	Rylstone	24 "
8 "	Fuller	2 S. vans		Binalong	24 "
28 Aug..	Sullivan	22 C. waggons	Tyson	Nyngan	25 "
29 "	Hill & C.	10 do	Ridge	Nevertire	25 "
29 "	Leeds & C.	37 do	Leeds & C.	Dubbo	25 "
30 "	Ryan & C.	7 do		Bourke	25 "
4 Sept..	Graves	4 S. vans	Hay	Nyngan	25 "
5 "	do	3 do	Pearse & C.	Bundure	25 "
5 "	do	1 S. van	Buchanan	do	25 "
5 "	Goldsbrough & C.	11 S. vans	Aarons	Wellington	25 "
5 "	Graves	3 do	Watt	Carrathool	25 "
6 "	Pitt & C.	14 do	Learmonth	Groongal	25 "
6 "	Hill & C.	16 do	Fisher	Hay	25 "
6 "	Leeds & C.	1 S. van	Byrne	Nevertire	25 "
6 "	Wilkinson & L.	32 S. vans	Elliott	Byrock	25 "
7 "	Pitt & C.	28 do	Harrington	Darlington	25 "
7 "	Graves	2 do	Watt	Carrathool	25 "
8 "	Wilkinson & L.	2 do	Elliott	Byrock	25 "
8 "	Bradford	2 do		Colombo	25 "
8 "	Leeds & C.	2 do	M'Kay Bros.	Mullengudgery	25 "
8 "	Pitt & C.	4 do	Warby	Whitton	25 "
10 "	Harrison & C.	3 do	Flynn	Jerilderie	25 "
10 "	Wilkinson & L.	1 S. van	Bull	Bundure	25 "
10 "	Graves	2 S. vans	Armstrong	Narrandera	25 "
10 "	Wilson & C.	10 do	Hedben & Son	Whitton	25 "
29 Aug..	Pitt & C.	42 C. waggons	Warmoll & C.	Bourke	26 "
30 "	Hill & C.	14 do	Fitzpatrick	Dubbo	26 "

Date Ordered.	Ordered by.	Number Trucks.	Owner.	Loading Station.	Date Loading.
7 Sept.	Pitt & Co.	1 S. van	Rowham	Tarago	26 Sept.
13 "	Harrison & C.	1 C. waggon	Hault	Rylstone	26 "
17 "	Griffiths & W.	5 C. waggons	Tindale	do	26 "
29 Aug.	Pitt & Co.	28 do	Christian	Nevertire	27 "
6 Sept.	Rich & C.	10 S. vans		Bourke	27 "
29 Aug.	Pitt & Co.	17 C. waggons	Christian	Nevertire	28 "
3 Sept.	Hill & C.	30 S. vans	Dalgetty & C.	Bourke	28 "
6 "	Rich & C.	10 do		do	28 "
6 "	Pitt & Co.	14 do	Learmonth	Groongal	28 "
7 "	Gardiner	14 do		Trangie	28 "
8 "	Hill & C.	7 do	Egan	Nevertire	28 "
10 "	Wilkinson & L.	12 do	Lindsay Bros.	Byrock	28 "
10 "	Goldsbrough & C.	30 do	M'Intyre	do	28 "
10 "	Wilkinson & L.	23 do	Burcher	Dubbo	28 "
29 Aug.	Besnard	21 C. waggons		Yass	29 "
30 "	Hill & C.	18 do	Fitzpatrick	Dubbo	29 "
29 "	Pitt & Co.	45 do	Peck & Son	Bourke	1 Oct.
29 "	Horwood & C.	4 do		Wagga	1 "
10 Sept.	Wilkinson & L.	23 S. vans	Burcher	Dubbo	2 "
11 "	do	5 do	Learmonth & G.	Nevertire	2 "
11 "	Graves	4 do	Hay	Nyngan	2 "
11 "	Leeds & C.	5 do	M'Kay Bros.	Mount Gudgerly	2 "
11 "	Hill & C.	23 do	Richardson	Girilambone	2 "
11 "	Graves	1 S. van	Honey	Whitton	2 "
12 "	Wilkinson & L.	20 S. vans	Howitson	Bourke	2 "
12 "	Leeds & C.	14 do	Wilkinson	Nevertire	2 "
12 "	Wilson & C.	10 do	M'Caughy	Jerilderie	2 "
12 "	Wilkinson & L.	1 S. van	Terry	Carrathool	2 "
13 "	do	1 do	Edwardson	Darlington	2 "
13 "	Hill, C., & Co.	3 S. vans	Ramsay	Carrathool	2 "
13 "	Brain & Co.	10 do		Jerilderie	2 "
13 "	Pitt & Co.	4 do	Warby	Whitton	2 "
14 "	do	28 do	Learmonth	Groongal	2 "
14 "	Wilkinson & L.	2 do	Bournout & C.	Darlington	2 "
29 Aug.	Pitt & Co.	28 C. waggons	Christian	Nevertire	3 "
29 "	do	28 do	do	do	3 "
11 Sept.	Leeds & C.	12 S. vans	M'Master	Mount Victoria	3 "
11 "	do	1 S. van	Webb	Tarana	3 "
13 "	Hill & Co.	2 S. vans	Foster	Newbridge	3 "
24 "	Goldsbrough & C.	2 do	Poplin	Binalong	3 "
29 Aug.	Pitt & Co.	28 C. waggons	Christian	Nevertire	4 "
29 "	do	28 do	do	do	4 "
31 "	Wilkinson & L.	20 do	Mr. Howett	do	4 "
29 "	Pitt & Co.	21 do	Christian	do	5 "
30 "	Graves	1 C. waggon	M'Mahon	do	5 "
30 "	Pitt & Co.	10 C. waggons	Christian	do	5 "
31 "	Leeds & C.	32 do	Arnytage & P.	Dubbo	5 "
10 Sept.	Goldsbrough & C.	18 S. vans	M'Intyre	Byrock	5 "
11 "	Hill & C.	14 do	Richardson	Girilambone	5 "
12 "	Wilkinson & L.	14 do	M'Gaw	Whitton	5 "
13 "	do	3 do	Campbell	Carrathool	5 "
13 "	Leeds & C.	14 do	Wilkinson	Nevertire	5 "
14 "	Pitt & Co.	28 do	Learmonth	Groongal	5 "
14 "	Wilkinson & L.	4 do	Alton	Carrathool	5 "
30 Aug.	Hill & Co.	8 C. waggons		Dubbo	6 "
29 "	Pitt & Co.	56 do	Christian & M.	Blayney	8 "
31 "	Wilkinson & L.	10 do	Mr. Howett	Nevertire	8 "
29 Sept.	Inglis	1 C. waggon	Gamsey & C.	Cowra	8 "
30 Aug.	Pitt & Co.	14 C. waggons	Christian	Nevertire	9 "
12 Sept.	Wilkinson & L.	14 S. vans	M'Gaw	Whitton	9 "
12 "	Harrison & C.	4 do	Hook & Son	Darlington	9 "
14 "	Wilkinson & L.	2 do	Bournout Bros.	do	9 "
14 "	Hill, C., & C.	10 C. waggons	Hill	Nevertire	9 "
14 "	Wilkinson & L.	6 S. vans	Burcher	Bourke	9 "
15 "	do	2 do	Ashcroft	Darlington	9 "
15 "	Graves	2 do	do	do	9 "
15 "	Harrison & C.	3 do	Robertson	Jerilderie	9 "
15 "	do	5 do	Hill	Young	9 "
15 "	Graves	4 do	Robertson	Colombo	9 "
15 "	Leeds & C.	28 do	Wilkinson	Nevertire	9 "
15 "	Wilkinson & L.	5 do	Nicholson	Hay	9 "
15 "	Graves	1 S. van	Terry	Carrathool	9 "
17 "	do	1 do	Mitchell	Jerilderie	9 "
17 "	do	2 S. vans	Culley & C.	do	9 "
17 "	Wilkinson & L.	14 do	Hann	Harden	9 "
17 "	do	12 do	Lindsay Bros.	Byrock	9 "
17 "	Graves	2 do	Hamilton	Colombo	9 "
18 "	Leeds & C.	10 do	Cleve & Co.	Bourke	9 "
18 "	Hill & C.	13 do	Dean & C.	Dubbo	9 "
18 "	Brain & C.	20 do		Jerilderie	9 "
18 "	Hill & C.	13 do	Dean & C.	Dubbo	9 "
18 "	Pitt & Son	5 do	M'Donald	Carrathool	9 "
18 "	Graves	6 do	Hay	Nyngan	9 "
19 "	do	2 do	M'Pherson	Narrandera	9 "
29 Aug.	Pitt & Co.	56 C. waggons	Christian	Nevertire	10 "
17 Sept.	Hill & Co.	8 S. vans	Campbell	Queanbeyan	10 "
17 "	Crossny & Cox	7 do		Mudgee	10 "
18 "	Pitt & Co.	1 S. van	West	Brewongle	10 "
29 Aug.	do	28 C. waggons	Christian	Nevertire	11 "
29 "	do	28 do	do	do	12 "

Date Ordered.	Ordered by.	Number Trucks.	Owner.	Loading Station.	Date Loading.
30 Aug..	Pitt & C.	14 C. waggons	Christian	Nevertire	12 Oct.
31 "	Wilkinson & L.	24 do	Moodie & C.	do	12 "
1 Sept..	Hill & C.	30 do	M'Donald & C.	do	12 "
10 "	Goldsbrough & Co.	18 S. vans	M'Intyre	Byrock	12 "
12 "	Wilkinson & L.	14 do	M'Gaw	Whitton	12 "
17 "	Graves	4 do	Robertson	Colombo	12 "
18 "	Hill & C.	11 do	Perry	Nevertire	12 "
18 "	do	14 do	Wentworth	Carrathool	12 "
26 "	Wilkinson & L.	4 do	Campbell	Hay	12 "
28 "	Simper	1 S. van		do	12 "
2 Oct...	Hill, C., & C.	10 S. vans	Lee	Kelso	13 "
29 Aug..	Pitt & C.	56 C. waggons	Christian	Nevertire	15 "
31 "	Wilkinson & L.	14 do	Mr. Margaret	Nevertire	15 "
29 "	Pitt & C.	24 do	Christian	do	16 "
30 "	do	14 do	do	do	16 "
12 Sept..	Wilkinson & L.	14 S. vans	M'Gaw	Whitton	16 "
14 "	Hill, C., & C.	14 C. waggons	Hill	Nevertire	16 "
18 "	do	14 S. vans	Wentworth	Carrathool	16 "
19 "	Graves	2 do	Robertson	Jerilderie	16 "
19 "	Wilkinson & L.	2 do	Fraser	Darlington	16 "
19 "	do	1 S. van	Bayliss	Narrandera	16 "
19 "	do	2 S. vans	Flood	Narramine	16 "
19 "	Graves	27 do	Peacock	Dubbo	16 "
19 "	do	4 do	Cummings	Darlington	16 "
20 "	do	2 do	Rivers	Carrathool	16 "
20 "	Harrison & C.	9 do	Hill	Cowra	16 "
20 "	Wilkinson & L.	1 S. van	Briggs	Carrathool	16 "
20 "	do	5 S. vans	Simpson	Jerilderie	16 "
20 "	do	1 S. van	Kiley	Carrathool	16 "
20 "	Graves	5 S. vans	Anderson	Jerilderie	16 "
20 "	do	1 S. van	Wilson	do	16 "
20 "	do	2 S. vans	Rial Bros.	do	16 "
20 "	do	6 do	Simpson	do	16 "
21 "	do	10 do	Lloyd's	Colombo	16 "
21 "	do	4 do	Innes	do	16 "
21 "	Leeds & C.	1 S. van	M'Kay Bros.	Mullengudgerly	16 "
21 "	Wilkinson & L.	1 do	Campbell	Carrathool	16 "
22 "	Horwood & C.	3 S. vans		Wagga	16 "
22 "	Leeds & C.	1 S. van	Thornton	Nevertire	16 "
22 "	Wilkinson & L.	2 S. vans	M'Innes	Carrathool	16 "
22 "	Goldsbrough & C.	5 do	Peasley	Cowra	16 "
22 "	Hill, C., & C.	1 S. van	Kiley	Jerilderie	16 "
24 "	Pitt & C.	28 S. vans	Christian & H.	Colombo	16 "
24 "	Horwood & C.	3 do		Wagga	16 "
29 Aug..	Pitt & C.	28 C. waggons	Christian	Nevertire	17 "
20 Sept..	Graves	28 S. vans	Peacock	Dubbo	17 "
22 "	Leeds & Co.	5 do	Lee	Kelso	17 "
24 "	Wheatley	1 S. van		Gunning	17 "
24 "	Hill, C., & C.	3 S. vans	Barnes	Perth	17 "
24 "	do	6 do	Strickland Bros.	Kelso	17 "
26 "	Wilkinson & L.	7 do	Dill	Hay	17 "
24 "	Leeds & C.	5 do	Nicholas & C.	Orange	17 "
29 Aug..	Pitt & C.	14 C. waggons	Christian & Grice	Bourke	18 "
29 "	do	14 do	Christian	Nevertire	18 "
29 "	do	18 do	Christian & Grice	Bourke	19 "
30 "	do	14 do	Christian	Nevertire	19 "
3 Sept..	Leeds & C.	10 do	Davies & C.	Bourke	19 "
4 "	Sullivan & Son	23 do	Tyson	do	19 "
5 "	Harrison J. and D.	5 do	Connell	Cootamundra	19 "
5 "	Leeds & C.	10 do	Davies & C.	Bourke	19 "
12 "	Wilkinson & L.	14 S. vans	M'Gaw	Whitton	19 "
22 "	Graves	5 do	Rial Bros.	Narrandera	19 "
24 "	Pitt & C.	28 do	Christian & H.	Colombo	19 "
24 "	Graves	3 do	Liddle	Bundure	19 "
25 "	do	3 do	Watt	Carrathool	19 "
25 "	do	4 do	Turnbull	Bundure	19 "
25 "	do	1 S. van	Jenkins	Harden	19 "
26 "	Hill, C., & C.	6 S. vans		Dubbo	19 "
7 "	Dunn	3 C. waggons		Goulburn	20 "
29 Aug..	Pitt & C.	28 do	Christian	Nevertire	22 "
2 Sept..	Anderson	37 do		Bourke	22 "
3 "	Ryan & C.	8 do		do	22 "
29 Aug..	Pitt & C.	28 do	Christian	Nevertire	23 "
15 Sept..	Hill & C.	5 do	Aarons	Rylstone	23 "
18 "	do	14 S. vans	Wentworth	Carrathool	23 "
21 "	Leeds & C.	1 S. van	M'Kay Bros.	Mullengudgerly	23 "
22 "	Leeds & Co.	1 do	Thornton	Nevertire	23 "
22 "	Hill & Co.	5 S. vans	Green	Girilambone	23 "
24 "	Pitt & Co.	28 do	Christian & H.	Colombo	23 "
24 "	do	4 do	Croft	Narrandera	23 "
24 "	Wilkinson & L.	14 do	M'Gaw	Whitton	23 "
25 "	do	15 do	Russell	Hay	23 "
25 "	Graves	11 do	Murray	Nevertire	23 "
26 "	do	2 do	Cully & C.	Colombo	23 "
26 "	do	6 do	Mitchell	Bundure	23 "
26 "	Pitt & C.	2 do	Bell	Carrathool	23 "
26 "	Wilkinson & L.	3 do	do	do	23 "
26 "	do	6 do	Cummings	Darlington	23 "
26 "	Harrison & C.	3 do	Lander	do	23 "
27 "	Hill, C., & C.	5 do		Nevertire	23 "

Date Ordered.	Ordered by.	Number Trucks.	Owner.	Loading Station.	Date Loading.
27 Sept.	Wilkinson & L.	3 S. vans	Collins	Carrathool	23 Oct.
27 "	Hill, C., & C.	3 do	Cahill	Jerilderie	23 "
27 "	Graves	1 S. van	Cunningham	do	23 "
27 "	Goldsbrough & C.	20 S. vans	Gilchrist & C.	Mudgee	23 "
27 "	Higgins	13 do		Kelso	23 "
28 "	Harrison, J., & Co.	6 do	Flynn	Jerilderie	23 "
28 "	do	2 do	Lakeman & C.	Colombo	23 "
28 "	Graves	1 S. van	M'Innes	do	23 "
28 "	Harrison & C.	3 S. vans	Russ	Jerilderie	23 "
28 "	Wilson & Co.	15 do	M'Caughey	do	23 "
29 "	Harrison, J., & C.	1 S. van	Lakeman & B.	Colombo	23 "
29 "	Hill & Co.	4 S. vans	Jones	Cowra	23 "
1 Oct.	Wilkinson & L.	1 S. van	Bull	Bundure	23 "
15 "	Cox	3 C. waggons		Mudgee	23 "
29 Aug.	Pitt & Co.	28 do	Christian	Nevertire	24 "
24 Sept.	Wheatley	2 S. vans		Gunning	24 "
27 "	Hill, C., & C.	2 do		Dubbo	24 "
29 Aug.	Pitt & Co.	28 C. waggons	Christian	Nevertire	25 "
29 "	do	4 do	do	do	26 "
3 Sept.	Hill, C., & Co.	20 do	M'Donald & C.	Dubbo	26 "
4 "	do	30 do	do	Bourke	26 "
8 "	do	5 do	do	Dubbo	26 "
24 "	Pitt & C.	28 S. vans	Christian & H.	Colombo	26 "
24 "	Wilkinson & L.	14 do	M'Gaw	Whitton	26 "
25 "	Graves	1 S. van	Jenkins	Harden	26 "
26 "	Wilkinson & L.	15 S. vans	Russell	Hay	26 "
27 "	Goldsbrough & C.	15 do	Gilchrist & Co.	Mudgee	26 "
3 "	Hill, C., & C.	28 C. waggons	M'Donald & C.	Dubbo	29 "
3 "	Ryan & Co.	2 do		Bourke	29 "
3 "	do	10 do		do	29 "
3 "	Anderson & C.	21 do		do	29 "
16 Oct.	Ryan & Co.	30 do		Girilambone	29 "
4 Sept.	Hill, C., & C.	11 do	M'Donald & C.	Bourke	30 "
15 "	do	10 do	Hill	Nevertire	30 "
18 "	do	14 S. vans	Wentworth	Carrathool	30 "
27 "	Graves	3 do	Watts	do	30 "
27 "	Goldsbrough & C.	15 do	Gilchrist & C.	Mudgee	30 "
28 "	do	2 do	do	do	30 "
28 "	Wilson & Co.	15 do	M'Caughey	Jerilderie	30 "
1 Oct.	Harrison & C.	3 do	Moreland	do	30 "
1 "	do	3 do	M'Phee	do	30 "
1 "	Wilkinson & L.	6 do	Simpson	do	30 "
1 "	Goldsbrough & C.	4 do	Mitchell	Bundure	30 "
1 "	Graves	6 do	Simpson	Jerilderie	30 "
1 "	Pitt & Co.	4 do	Warby	Yanco	30 "
2 "	Hill & Co.	24 do	Tobin & Son	Rylstone	30 "
2 "	Pitt & Co.	10 do	Harrington	Colombo	30 "
2 "	Wilkinson & L.	4 do	M'Intosh	Darlington	30 "
2 "	Pitt & C.	28 do	Learmonth	Groongal	30 "
2 "	Wilkinson & L.	12 do	Lindsay Bros.	Byrock	30 "
2 "	Graves	27 do	Peacock	Wellington	30 "
3 "	Bolton	1 S. van		Wagga	30 "
3 "	Wilkinson & L.	6 S. vans	Moore	Darlington	30 "
3 "	do	1 S. van	Fraser	do	30 "
3 "	do	1 do	M'Innes	Carrathool	30 "
26 Sept.	do	2 S. vans	Nelson	do	30 "
3 "	Anderson & C.	21 C. waggons		Bourke	31 "
4 "	Hill & Co.	14 do	M'Donald & C.	do	31 "
24 "	Wheatley	2 S. vans		Gunning	31 "
4 Oct.	Pitt & Co.	1 S. van	Leahy	Bungendore	31 "
4 Sept.	Hill, C., & Co.	21 C. waggons	M'Donald & C.	Bourke	2 Nov.
29 "	Wilson & C.	10 S. vans	M'Caughey	Jerilderie	1 "
7 "	Wilkinson & L.	15 C. waggons	Norley	Bourke	2 "
8 "	Leeds & C.	36 do	Scarfe & C.	Dubbo	2 "
11 "	Hill & C.	11 do	M'Donald & C.	Bourke	2 "
11 "	do	9 do	do	Dubbo	2 "
25 "	Graves	1 S. van	Jenkins	Harden	2 "
29 "	Goldsbrough & C.	10 S. vans	Simpson	Nevertire	2 "
2 Oct.	Pitt & C.	28 do	Learmonth	Groongal	2 "
2 "	Wilkinson & L.	12 do	Lindsay Bros.	Byrock	2 "
3 "	Hill, C., & C.	23 do	Tobin & Son	Dubbo	2 "
10 Sept.	Anderson & C.	28 C. waggons		Bourke	5 "
11 "	do	14 do		do	5 "
17 Oct.	Wilkinson & L.	15 do	Norley	do	5 "
7 Sept.	Hill & Co.	43 do	M'Donald & C.	Nevertire	6 "
3 Oct.	Pitt, Son, & C.	26 S. vans	Harrington	Colombo	6 "
3 "	do	2 do	do	Bundure	6 "
3 "	do	4 do	Brain & C.	Hay	6 "
4 "	Graves	2 do	Arnold	Carrathool	6 "
4 "	do	4 do	Rivers	do	6 "
4 "	Harrison & Co.	3 do	Jones	Jerilderie	6 "
4 "	do	1 S. van	Devlin & C.	Devlin's Siding	6 "
4 "	Wilkinson & L.	1 do	Beggs	Bomen	6 "
4 "	do	2 S. vans	Kyle	Carrathool	6 "
5 "	Graves	3 do	Gibson & Son	do	6 "
5 "	do	4 do	Rich & Son	Narrandera	6 "
5 "	Wilkinson & L.	15 do	Russell	Hay	6 "
5 "	Hill & Co.	1 S. van	Pyle	Jerilderie	6 "
5 "	Leeds & C.	25 S. vans	G. A. & P. Mein	Narramine	6 "

Date Ordered.	Ordered by.	Number Trucks.	Owner.	Loading Station.	Date Loading.
6 Oct...	Horsley	6 S. vans .....	.....	Gundagai	6 Nov.
6 " "	Pitt & C.	14 do	Douglas	Yanco	6 " "
6 " "	Goldsbrough & C.	2 do	Booth & Co.	Jerilderie	6 " "
23 " "	Pitt & Co.	1 S. van	J. Beggs	Carrathool	6 " "
22 " "	do	1 do	Thompson	Young	6 " "
6 " "	Harrison & C.	4 S. vans	Lander	Narrandera	6 " "
6 " "	Graves	4 do	Rudd	Colombo	6 " "
8 " "	Wilkinson & L.	2 do	Campbell	Carrathool	6 " "
8 " "	do	14 do	Alston	Hay	6 " "
8 " "	Pitt & C.	13 do	do	do	6 " "
9 " "	Graves	2 do	M'Innes	Colombo	6 " "
9 " "	Pitt & C.	4 do	M'Call	Wagga	6 " "
9 " "	Wilkinson & L.	1 S. van	Chard	Carrathool	6 " "
9 " "	do	2 S. vans	Horton	do	6 " "
10 " "	Harrison J. & D.	1 S. van	Russ	Jerilderie	6 " "
10 " "	Graves	3 S. vans	Watt	Carrathool	6 " "
10 " "	Goldsbrough & Co.	7 do	Ross Bros.	Darlington	6 " "
10 " "	Wilkinson & L.	5 do	M'Donald	Carrathool	6 " "
10 " "	do	5 do	Gunbar	do	6 " "
13 " "	Pitt & Co.	3 C. waggons	Harrington	Colombo	6 " "
16 " "	Hill, C., & Co.	14 do	M'Donald & Co.	Nevertire	6 " "
19 " "	Pitt & Co.	1 C. waggon	J. Warby	Whitton	6 " "
7 Sept...	Hill & Co.	28 C. waggons	M'Donald & C.	Nevertire	7 " "
11 " "	Ryan & C.	20 do .....	.....	Bourke	7 " "
24 " "	Wheatley	2 S. vans .....	.....	Gunning	7 " "
6 Oct...	Wilkinson & L.	14 do	Wood	Hay	7 " "
10 Sept...	Campbell & C.	9 C. waggons .....	.....	Bourke	8 " "
10 " "	Hill, C., & C.	14 do	Hill & Son	do	8 " "
6 " "	do	10 do	Ridge	Nevertire	9 " "
7 " "	Wilkinson & L.	15 do	Norley	Bourke	9 " "
11 " "	Anderson & C.	24 do .....	.....	do	9 " "
11 " "	Hill, C., & C.	20 do	Richardson	Nevertire	9 " "
14 " "	Wilkinson & L.	6 do	Burcher	Bourke	9 " "
8 Oct...	do	20 S. vans	Wright	Hay	9 " "
10 " "	Pitt & Co.	14 do	Douglas	Yanco	9 " "
10 " "	do	28 do	Learmonth	Groongal	9 " "
11 Sept...	Ryan & C.	20 C. waggons .....	.....	Bourke	12 " "
11 " "	Anderson & C.	14 do .....	.....	do	12 " "
14 " "	do	28 do .....	.....	do	12 " "
7 " "	Wilkinson & L.	15 do	Norley	do	13 " "
11 " "	Hill & Co.	25 do	Richardson	Nevertire	13 " "
11 " "	do	6 do	Hill & Son	do	13 " "
12 " "	Leeds & C.	35 do	Armytage & Co.	Bourke	13 " "
14 " "	Hill & C.	6 do .....	.....	Nevertire	13 " "
15 " "	Wilkinson & L.	10 do	Scarfe & Co.	Nyngan	13 " "
9 Oct...	do	2 S. vans	Horton	Carrathool	13 " "
9 " "	Horwood & Co.	6 do .....	.....	Wagga	13 " "
10 " "	Graves	3 do	Watt	Carrathool	13 " "
10 " "	Pitt & Co.	28 do	Learmonth & Co.	Groongal	13 " "
10 " "	do	14 do	Douglas	Yanco	13 " "
11 " "	Wilkinson & L.	4 do	Weir	Hay	13 " "
11 " "	Harrison & C.	3 do	Cook & Son	Darlington	13 " "
11 " "	Goldsbrough & C.	5 do	Horsfall & C.	Jerilderie	13 " "
11 " "	do	12 do	Donohoe	Nevertire	13 " "
11 " "	Lea & Co.	15 do .....	.....	Bourke	13 " "
11 " "	Graves	1 S. van	Terry	Carrathool	13 " "
11 " "	Barker	3 S. vans	Burns & C.	Narramine	13 " "
11 " "	Graves	1 S. van	M'Innes	Colombo	13 " "
12 " "	Pitt & C.	28 S. vans	Dickson	Nyngan	13 " "
12 " "	Hill & C.	14 do	Wentworth	Carrathool	13 " "
12 " "	Harrison & C.	3 do	Robertson	Jerilderie	13 " "
12 " "	Leeds & Co.	25 do	G. A. & P. Mein	Nevertire	13 " "
13 " "	Wilkinson & L.	1 S. van	M'Williams	Carrathool	13 " "
13 " "	Graves	4 S. vans	Haylock	do	13 " "
13 " "	Goldsbrough & C.	1 S. van	Grant & Son	Bundure	13 " "
15 " "	Graves	3 S. vans	Graham	Jerilderie	13 " "
15 " "	Harrison & C.	3 do	E. Jones	do	13 " "
15 " "	Wilkinson & L.	2 do	H. Terry	Carrathool	13 " "
15 " "	Leeds & C.	2 do	Paislow	Molong	13 " "
15 " "	Goldsbrough & C.	2 do	J. Horton	Carrathool	13 " "
15 " "	Pitt & Co.	3 do	J. Warby	Yanco	13 " "
15 " "	Wilson & C.	15 do	M'Caughy	Jerilderie	13 " "
15 " "	do	1 S. van	J. Andrew	Grong Grong	13 " "
6 " "	Pitt & Co.	2 C. waggons	Chisholm	Breadalbane	14 " "
11 Sept...	Hill & Co.	35 do	M'Donald	Bourke	16 " "
15 " "	Wilkinson & L.	24 do	Scarfe & C.	Nyngan	16 " "
15 " "	Leeds & C.	25 do	Peppin & C.	Bourke	16 " "
12 Oct...	Hill, C., & C.	14 S. vans	Wentworth	Carrathool	16 " "
16 " "	Pitt & C.	10 do	Edmondson & C.	Wallendbeen	16 " "
16 " "	do	7 do	Douglas & C.	Yanco	16 " "
16 " "	do	4 do	M'Call	Wagga	16 " "
16 " "	Harrison & C.	14 do	E. Flood	Narrandera	16 " "
17 " "	Wilkinson & L.	2 do	D. Fraser	Darlington	16 " "
7 Nov...	Hill, C., & C.	4 C. waggons .....	.....	Nevertire	16 " "
16 Oct...	do	10 S. vans	G. Lee	Kelso	17 " "
16 " "	do	15 do	Cobb & Co	do	17 " "
19 Sept...	Ryan & Co	6 C. waggons .....	.....	Dubbo	19 " "
18 " "	Hill, C., & Co	14 do .....	.....	Nevertire	19 " "
11 " "	Anderson & C.	24 do .....	.....	Bourke	20 " "
11 " "	Hill & Co.	26 do	M'Millan	do	20 " "

Date Ordered.	Ordered by.	Number Trucks.	Owner.	Loading Station.	Date Loading.
12 Sept.	Leeds & C.	35 C. waggons	Armytage & C.	Bourke	20 Nov.
13 "	Hill & Co.	6 do		Nevertire	20 "
18 "	do	6 do		do	20 "
19 "	Harrison & C.	4 do	Hill	Mudgee	20 "
25 "	Graves	2 do	Watts	Carrathool	20 "
10 Oct.	Horwood & Co.	6 S. vans		Wagga	20 "
11 "	Lea & Co.	15 do		Bourke	20 "
12 "	Pitt & Co.	28 do	Dickson	Nyngan	20 "
15 "	Wilson & C.	15 do	S. M'Caughy	Jerilderie	20 "
16 "	Wilkinson & L.	5 do	F. Godfrey	Hay	20 "
16 "	Hill & C.	24 do	Wiseman	Mudgee	20 "
16 "	Graves	6 do	Ashcroft	Darlington	20 "
16 "	Pitt & Co.	11 do	Edmondson & C.	Wallendbeen	20 "
17 "	Harrison & C.	8 do	T. Woods	Jerilderie	20 "
17 "	Trebeck & C.	3 do	J. M'Culloch	Colombo	20 "
17 "	Pitt & C.	28 do	Learmonth	Groongal	20 "
17 "	Graves	2 do	W. Turnbull	Bundure	20 "
17 "	Wilkinson & L.	14 do	M'Gaw	Whitton	20 "
17 "	Pitt & C.	28 do	Harrington	Colombo	20 "
18 "	Wilkinson & L.	8 do	G. Simpson	Jerilderie	20 "
18 "	Hill & Co.	3 do	Moreland	do	20 "
18 "	Graves	8 do	Simpson	do	20 "
18 "	Wilkinson & L.	10 do	"Illilawa"	Waradgery	20 "
11 Sept.	Anderson & C.	14 C. waggons		Bourke	21 "
10 Oct.	Leeds & C.	20 S. vans	Lomax	Blayney	21 "
11 Sept.	Hill & Co.	27 C. waggons	M'Millan	Bourke	23 "
19 "	Pitt & Co.	20 do	Barton	do	23 "
22 "	Hill & C.	36 do	Richardson	do	23 "
17 Oct.	Pitt & Co.	28 S. vans	Learmonth	Groongal	23 "
17 "	Wilkinson & L.	14 do	M'Gaw	Whitton	23 "
17 "	Pitt & Co.	10 do	Harrington	Colombo	23 "
19 "	Graves	1 S. van	Verdon	The Rock	23 "
19 "	do	4 S. vans	Carroll	do	23 "
23 "	do	22 do	J. Peacock	Wellington	23 "
29 "	Bolton	1 S. van	Bolton	Wagga	23 "
30 "	Graves	7 S. vans	Munster	The Rock	23 "
31 "	Pitt & C.	8 do	P. Ormsby	Cowra	23 "
31 "	Wilkinson & L.	5 do	Fletcher	Bomen	23 "
31 "	Pitt & Co.	3 do	Brain & Co.	Uardry	23 "
31 "	do	4 do	J. & F. M'Evoy	Gundagai	23 "
1 Nov.	do	1 S. van.	J. Thompson	Young	23 "
2 "	Graves	1 C. waggon	T. Lang	Carrathool	23 "
6 "	Somer & Co.	10 S. vans		Nevertire	23 "
14 Sept.	Hill & Co.	6 C. waggons		Dubbo	24 "
21 "	Leeds & Co.	20 do	Lee	Wellington	24 "
26 "	Dunn	6 do		Goulburn	24 "
20 Oct.	Griffiths & W.	10 S. vans	F. Campbell	Queanbeyan	24 "
26 "	Anderson & C.	36 do		Bourke	24 "
3 Nov.	Hill & Co.	2 do	J. Glasson	Newbridge	24 "
6 "	do	10 do	R. & W. Oakes	Kelso	24 "
8 "	do	3 do	Dowling	Lue	24 "
8 "	Griffiths & W.	20 do	J. F. & H. White	Wallerawang	24 "
12 "	Leeds & C.	5 do	Lee	Kelso	24 "
13 "	do	10 do	do	Nevertire	24 "
13 "	Hill & C.	4 do	W. Wilson	Newbridge	24 "
26 Sept.	Anderson & C.	19 C. waggons		Bourke	26 "
18 Oct.	M'Kay	3 do		Wagga	26 "
31 "	Anderson & C.	15 do		Bourke	26 "
1 Nov.	Harrison & C.	25 do	Fitzgerald	Wellington	26 "
5 "	Wilkinson & L.	5 do	Fletcher	Wagga	26 "
12 Sept.	Leeds & C.	35 do	Armytage & Co.	Bourke	27 "
14 "	Hill, C., & C.	6 do		Dubbo	27 "
11 Oct.	Sullivan & Son	25 do	J. Tyson	Bourke	27 "
12 "	Pitt & C.	38 S. vans	Dickson	Nyngan	27 "
18 "	Wilkinson & L.	10 do	Illilawa	Waradgery	27 "
19 "	New Zealand Co.	8 do	Newton Bros.	Colombo	27 "
19 "	Hill & C.	14 do	Wenthworth	Carrathool	27 "
20 "	Wilkinson & L.	12 do	Lindsay Bros.	Byrock	27 "
22 "	Harrison & C.	6 do	Tranter	Colombo	27 "
22 "	Wilkinson & L.	14 do	M'Queen & C.	Hay	27 "
22 "	do	2 C. waggons	J. Reid	Nevertire	27 "
22 "	do	3 S. vans	J. Collins	Carrathool	27 "
22 "	Goldsbrough & C	5 do	Peisley	Cowra	27 "
22 "	Wilson & C.	3 do	M'Caughy	Jerilderie	27 "
23 "	Hill & Co.	14 do	A. Gibson	Young	27 "
23 "	Graves	1 S. van	J. Hamilton	Carrathool	27 "
23 "	do	4 S. vans	W. Arnold	do	27 "
23 "	Goldsbrough & Co.	8 do	J. Smith	Whitton	27 "
23 "	Hill, C., & Co.	8 do	J. Egan	Nevertire	27 "
23 "	Horwood & C.	5 do		Wagga	27 "
25 "	Wilkinson & L.	3 do	J. Campbell	Carrathool	27 "
25 "	Harrison & C.	3 do	M. Kirvin	Jerilderie	27 "
25 "	Wilkinson & L.	5 do	Fletcher	Bomen	27 "
26 "	Wilson & C.	10 do	M'Caughy	Jerilderie	27 "
26 "	Wilkinson & L.	5 do	W. Ryan	Yerong Creek	27 "
27 "	Goldsbrough & C.	1 C. waggon	F. Jenkins	Narrandera	27 "
7 Nov.	Hill & C.	12 C. waggons		Nevertire	27 "
16 "	Pitt & C.	5 do	J. Harrington	Colombo	27 "
22 Oct.	Leeds & C.	2 S. vans	J. Glasson	Blayney	28 "
25 "	Wheatley	3 do		Gunning	28 "

Date Ordered.	Ordered by.	Number Trucks.	Owner.	Loading Station.	Date Loading.
6 Nov...	Anderson	15 C. waggons ...	.....	Bourke	28 Nov.
2 Oct...	Hill, C., & Co.	14 do .....	.....	Dubbo	29 "
24 " ...	Wilkinson & L.	35 S. vans	Patterson	Hay	29 "
26 " ...	do	1 C. waggon	do	do	29 "
1 " ...	do	37 C. waggons ...	Mr. Margaret	Bourke	30 "
16 " ...	Pitt & Co.	35 do	J. & W. Christian	do	30 "
16 " ...	do	7 do	Ryan & C.	do	30 "
16 " ...	Leeds & Co.	7 do	do	do	30 "
22 " ...	Wilkinson & L.	14 S. vans	M'Queen & Co.	Hay	30 "
23 " ...	Hill & Co.	14 do	T. Robertson	Carrathool	30 "
24 " ...	Wilkinson & L.	20 do	Clayton	Hay	30 "
26 " ...	Hill & C.	20 do	Euroka	Nevertire	30 "
27 " ...	Pitt & Co.	5 do	Allen & Co.	Young	30 "
27 " ...	Wilkinson & L.	2 do	James & C.	Albury	30 "
27 " ...	Goldsbrough & C.	4 do	E. Jenkins	Narrandera	30 "
29 " ...	Wilkinson & L.	2 do	Ashcroft	Hay	30 "
29 " ...	do	2 do	H. Terry	Narrandera	30 "
31 " ...	do	10 do	Fletcher	Bomen	30 "
31 " ...	Pitt & Co.	3 do	Brain & Co.	Uardry	30 "
2 Nov...	Wilkinson & L.	4 do	Lee	Trangie	30 "
12 " ...	do	6 do	Firth Bros.	Nevertire	30 "
12 " ...	Leeds & C.	5 do	W. & J. Lee	Molong	30 "

1888.

LEGISLATIVE ASSEMBLY.
NEW SOUTH WALES.

BRIDGES ON DUPLICATED LINE BETWEEN PARRAMATTA
AND PENRITH.

(PROFESSOR WARREN'S REPORT ON.)

Ordered by the Legislative Assembly to be printed, 1 November, 1888.

RETURN to an *Order* of the Honorable the Legislative Assembly of New South Wales, dated 14th June, 1888, That there be laid upon the Table of this House,—

“Copy of Professor Warren's report upon the Bridges on the duplicated line between Parramatta and Penrith, together with all correspondence between Professor Warren and the Department relative to his report.”

(*Mr. Lyne, for Mr. J. P. Abbott.*)

SCHEDULE.

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No. 1.

Memo. from Mr. District Engineer Shellshear to The Engineer for Existing
Lines.

Bridges between Parramatta and Blacktown.

I HAVE to report, for your information, that on inspecting the bridges yesterday I find that since you visited the bridges between Parramatta and Blacktown with me, on the 6th October last, that the abutment of the bridge at Wentworthville has gone over a little more, and that the upper part of the brickwork is badly shaken, and there is a horizontal crack at the level of the washer-plates of holding-down bolts, and the lower part of the wall has been thrust forward nearly $\frac{1}{4}$ " in advance of the upper part from this level on the up-line side, next Parramatta. I am of opinion that it is necessary to reset the stone and strengthen the abutment, as at present there must be a heavy compression strain on the girders, which, with the vibration of passing trains, puts an undue strain on the structure. The abutment has come over fully $1\frac{1}{4}$ " at this point.

To make this bridge secure, I consider it necessary to build counterparts along the face of each abutment, and reset the girders and bed stones. This will cost about £1,000. The

135—A

[930 copies—Approximate cost of printing (labour and material), £25 17s. 9d.]

The bridge at Parramatta Park, the ends of the girders of which were cut, as per your verbal instructions have nearly closed again, and I am also of opinion that it is necessary to strengthen the abutments, the same as proposed for the bridge at Wentworthville, at a cost of £1,000.

The bridges at 16 miles 48 chains, and 20 miles 72 chains, are also shaken, and the bed stones working. To repair and strengthen these would cost about £900 each, making a total cost for the four bridges of £3,800.

WALTER SHELLSHEAR, 25/11/87.

I will see you about this matter.—M.T., 19/12/87. Mr. Shellshear. Mr. Thomson seen. I examined these bridges yesterday, and find that bridge at Wentworthville and Parramatta Park are more shaken than they were at the date of my last report. The abutments of the bridge at Parramatta Park are $1\frac{3}{4}$ " out of plumb, and the girders over the pier are again close, having come together more than $\frac{1}{2}$ " since they were cut. I consider it most advisable that the work should be taken in hand at once.—WALTER SHELLSHEAR, 20/12/87. The Deputy Engineer.

Under these circumstances I would recommend that the abutments of the bridges at Parramatta Park and Wentworthville be at once strengthened at a cost of about £2,000. Those at 16 miles 48 chains and 20 miles 72 chains are not so bad, and the pressure behind the abutments could be lessened by taking out some of the present embankment, and refilling with rubble and ashes behind the abutments.—M.T., 22/12/87. Engineer for Existing Lines.

I will inspect these bridges with you in the course of a few days.—G.C., 4/1/88. Deputy Engineer.

Let me have an estimate of cost of putting ashes at the back of these abutments, a plate on each of the walls, and square timber (for the three highest bridges), say 12 feet long, under the rails, with one end resting on abutment; also repairs to abutments.—G.C., 10/1/88. Deputy Engineer.

Estimated cost about £550 for each bridge. I attach sketches showing the amount each abutment has been forced out of plumb.—WALTER SHELLSHEAR, 25/1/88. Engineer for Existing Lines. Will Commissioner please approve of this expenditure? The abutments have been forced out with the swelling of the clay in the late wet weather, it having been poured in in the dry weather probably too hard.—G.C., 30/1/88. Commissioner. Bridges must be made safe.—CH.A.G., 2/2/88. Engineer for Existing Lines, B.C., 2/2/88. Mr. Shellshear to note and carry out.—G.C., 3/2/88. Mr. Purton to carry out.—W.S., 4/2/88.

No. 2.

G. W. Townsend, Esq., to The Commissioner for Railways.

Sir,

Railway Survey Office, 10 February, 1888.

I have the honor to request that you will make inquiry into the present state of the abutments of one or more of the bridges recently erected on the duplication of line, Parramatta to Penrith, as I am informed that they are showing signs of failure; also that you will satisfy yourself whether my designs for those abutments were adhered to, and whether, in case the designs were departed from, such departure is or is not the probable cause of alleged failure.

The facts are as follows:—Previous to making the above designs, I had found that a 12-foot culvert at 16 $\frac{1}{2}$ miles on Western Line had completely failed, the brickwork, though of excellent quality, having burst and cracked in all directions; this culvert was removed and replaced by a 40-foot girder bridge; the failure of the culvert I attributed to the swelling of the earth of which the bank was formed in which the culvert was placed; this earth was taken from an adjacent cutting through Wianamatta shale, which has a most dangerous property of swelling after being placed in embankment; to guard against this danger, as the same shale runs throughout the line, I made the designs for the bridge abutments with a large quantity of dry hand-packed sandstone rubble placed between the abutments and adjoining bank. I am informed that the whole of this rubble packing was left out in carrying out the work; if this is really the case there is no doubt but that it is the cause of failure. I wrote you a previous letter on this subject some months since, but as I had heard of the matter from a source that I could not mention without injury to the man who told me, I deemed it better to wait for further development of the case, so did not send the letter.

I have, &c.,

GEO. WM. TOWNSEND.

P.S.—I am further informed that at one of the abutments in question the earth has been excavated from behind the abutment and the space filled in with dry ashes, which has prevented any further movement of the brickwork.—G.W.T.

Please return with report.—A.R., B.C., 13/2/88. Engineer for Existing Lines. Returned with report herewith.—G.C., 9/3/88. Commissioner.

REPORT ON Abutments of Bridges, Parramatta to Penrith, by Engineer for Existing Lines.

WITH reference to Mr. Townsend's letter of 10th February last, it may be stated that some of the high abutments on the line between Parramatta and Penrith have been found out of plumb, caused no doubt through the earth filling behind them—which was put in during very dry weather—being soaked through during the heavy wet weather last year, thereby expanding to an unusual extent. This has not been caused through the departure from Mr. Townsend's design, because if this had been followed these abutments would probably have been down long ago. The designs were altered for the sake of safety. Mr. Townsend's designs provided for work built in lime mortar, with only a thickness of about one-sixth of the height—out of proportion altogether—and the hand-packed rubble referred to would, if anything, have a tendency to decrease rather than increase the stability of the work in the way Mr. Townsend proposed to dispose it, and being some £4,600 more expensive than the designs to which the work has been carried out. The designs were consequently altered to properly proportioned work, built in cement, and of a thickness of about one-fourth of the height, but such alterations have nothing to do with the matter of the abutments being forced out of plumb, as they are much stronger than those designed by Mr. Townsend.

To Engineer for Existing Lines.

MAX THOMSON, 8/3/88.

Forward copy of this report to Mr. Townsend.—CH.A.G., 13/3/88.

Sir,

Sir,

Department of Railways, Sydney, 19 March, 1888.

With reference to your letter of the 10th ultimo, asking that inquiry might be made into the present state of the abutments of one or more of the bridges recently erected on the duplication of line between Parramatta and Penrith, I have the honor, by direction of the Commissioner for Railways, to inform you that the matter has been referred to the Engineer for Existing Lines, and to enclose for your perusal a copy of the report received in reference thereto.

I have, &c.,

D. VERNON,

Secretary of Railways.

Geo. Wm. Townsend, Esq., Railway Survey Office, Pitt-street.

No. 3.

Minute by The Commissioner for Railways.

Has anything unusual or exceptional taken place recently in connection with the maintenance of the line?

It is the duty of the Engineer for Existing Lines to report to me any unusual occurrence.

A bridge, for instance, showing signs of weakness in any part; any structural repairs required to any particular work; in short "anything out of the common."

CH.A.G., 8/3/88.

Engineer for Existing Lines, B.C., 9/3/88. Nothing unusual has taken place, except the repairs to bridges between Parramatta and Blacktown, and which were approved by you on attached papers.—G.C., 10/3/88. Commissioner.

The reason given for the failure of these bridges is that the abutments have been "forced out with the swelling of the clay in the late wet weather, it having been primed in the dry weather and perhaps too hard." Who designed these bridges—was the original design departed from, and for what reason? I am informed that when first designed the treacherous nature of the clay or shale was known, and the designer proposed to overcome this difficulty by hand-packing with rubble between the abutment and the formation, the shale being taken out for this purpose. When the work was carried out this precaution was not taken, but the abutment was strengthened to resist the pressure of the shale. Again, it was found that the foundations for the abutments were not put in deep enough, but the engineer, instead of continuing the mode of construction by counterfort, carried the extra foundation down plumb. I must have a full report on the subject. An expenditure of over £3,000 has to be incurred, which, it seems to me, might have been avoided if the work had been carried out properly in the first instance.—CH.A.G., 12/3/88.

Engineer for Existing Lines.—A.R., B.C., 13/3/88. Please see report attached.—G.C., 23/3/88. Commissioner.

REPORT by Engineer for Existing Lines to The Commissioner.

REFERRING to my previous report on this matter on 8/3/88, I can only say that it would have been impracticable to carry out Mr. Townsend's design, and the rubble behind the abutment, as shown by him, instead of doing any good would increase the danger of the abutments overturning,—That the work as carried out is much stronger and better designed than what was proposed by Mr. Townsend, will be seen at a glance from attached tracing, as well as the impracticability of carrying out Mr. Townsend's design. Again, he made no provision for retaining the ballast on top of embankment.

The work was properly designed and carried out, and I can assign no other reason for the failure of these abutments than that previously expressed, viz, that the work was constructed during a very dry season, followed by an extremely wet one before the earthwork had had time to settle, and thereby quickly expanding it to an unusual extent and putting a sudden strain on the abutments while they were almost green. The fact also that the girders are absolutely rigid, without any elasticity or deflection, would contribute towards decreasing the stability of the abutments, as the girders are light and have but a small bearing surface, and every time a train passes over them they jump and create a regular hammering action or succession of blows on the abutments and piers, which I know to be the case from actual observation.

It is a fact which should not be forgotten that it is only between Parramatta and Blacktown that the abutments show signs of weakness. Between Blacktown and Penrith, where they are carried out just the same, they stand alright, so the failure cannot be attributed to any want of strength of the work but to other causes which could not be foreseen and therefore beyond control; one of these unfortunate circumstances which will happen occasionally and cannot be averted.

G.C., 22/3/88.

Ask Mr. Townsend if he wishes to offer any observations on these reports. Please write note to him to see papers in this office.—CH.A.G., 26/3/88.

D ear Sir,

Department of Railways, Sydney, 28 March, 1888.

I shall be glad if you will be good enough to call at this office on an early day and see me with reference to the matter of the maintenance of bridges between Parramatta and Blacktown and late reports thereon.

Yours, &c.,

A. RICHARDSON,

Assistant Secretary.

G. W. Townsend, Esq.

Reply by Mr. Townsend.

Correspondence *re* "Bridges, Parramatta to Penrith."

22ND December, 1887.—Mr. Thompson states: "Those at 16 miles 48 chains and 20 miles 72 chains are not so bad, and the pressure behind the abutments could be lessened by taking out some of the present embankment and refilling with rubble and ashes behind the abutments."

Sections of such
refilling should
be shown.—
G.W.T.

3rd March, 1888.—Mr. Thompson states: "The hand-packed rubble referred to would, if anything, have a tendency to decrease rather than increase the stability of the work in the way Mr. Townsend proposed to dispose it, and being some £4,600 more expensive than the design to which the work has been carried out, the designs were consequently altered to properly-proportioned work."

23rd March, 1888.—Mr. Cowdery says: "I can only say that it would have been impracticable to carry out Mr. Townsend's design; and the rubble behind the abutment, as shown by him, instead of doing any good, would increase the danger of the abutments overturning."

Mr. Cowdery signed these very designs, thereby adopting them as his own; subsequently he alters them, ostensibly, to make them safe; then, when he finds the safe work failing, he falls back, when too late, upon the means I proposed to overcome the difficulty that I anticipated, and that has now arisen, viz., the peculiar swelling of this earth. The wall that Mr. Cowdery mentions as left out in my design for the purpose of keeping back loose ballast was, owing to my different disposition of the sleepers, not needed, but could have been replaced by a row of border stones, and it could in no way affect the stability of the work.

In making my work £4,600 more expensive than that adopted, Mr. Thompson has evidently debited me with cost of rubble, and has not credited me cost of his increased amount of brickwork—in fact my design was the cheapest.

But, as my design was not followed, I am relieved of all responsibility in the matter of the failure of these abutments.

3rd March, 1888.—Mr. Thompson says: "Mr. Townsend's design provided for work built in lime mortar, with only a thickness of about one-sixth of the weight—out of proportion altogether."

I have had excellent work done in other parts of Australia with lime mortar. We have excellent limestone here that I have proved will make first-class mortar for dry situations if properly used. Brickwork in cement costs one-fourth more than that in lime, the average prices being 50s. and 40s. per cubic yard. I was therefore anxious to make this saving in such portions of the work as could be suitably set in lime mortar. Prices for both lime and cement were shown in my schedule, and had I not been satisfied with the sample of lime shown by the contractor I should have had the work set in lime; but I am certain that with proper care a very large saving could be effected in all our works, and I strongly deprecate the wasteful and indiscriminate use of so expensive a material as Portland cement that is at present practised on nearly all our railway works. In many instances the slow setting of lime mortar is an absolute advantage over the brisk setting cement mortar. Of course in such portions of brickwork or masonry as are exposed to the action of water, as we have no hydraulic lime, the use of cement is necessary; but in such portions as can never be so exposed it is wasteful and unnecessary. As for the bad proportion of one-sixth the weight shown in my design, I can point to two heavy retaining walls that have been standing about five years carrying a heavy timber bridge over the Coogee tramway, that were designed by me, of exactly the same proportions as those now in question, only without rubble backing. The Coogee walls have to support about 25 feet depth of loose sand. The hand-packed rubble, as designed by me for the Parramatta to Penrith walls, would have relieved the walls of nearly all normal pressure from the earth behind, and by the slight giving of the rubble the abnormal pressure caused by the swelling of the earth would not have been communicated to the walls.

The failure of these safe (?) walls as designed by Mr. Cowdery, though costly to the Department, is valuable as an instance of the inutility of heavy masses of brickwork unscientifically applied.

Further, in his minute of 22/3/88, Mr. Cowdery says:—"The fact also that the girders are absolutely rigid, without any elasticity or deflection, would contribute towards decreasing the stability of the abutments, as the girders are light, and have but a small bearing surface, and every time a train passes over them they jump and create a regular hammering action or succession of blows—which I know to be the case from actual observation." Mr. Cowdery admits that my girders are light and exceptionally strong, but if they are "absolutely rigid, without any elasticity or deflection," they cannot cause the hammering action complained of; but how is it that these girders, from their alleged hammering action, produce disintegrations in some abutments and not in the contiguous pieces, and not in other abutments, for further on Mr. Cowdery says:—"It is a fact that should not be forgotten that it is only between Parramatta and Blacktown that the abutments show signs of weakness;" and in no case does he say that the pieces show signs of failure. Besides any amount of hammering action, though it doubtless would cause disintegration, could not possibly cause a tendency to overturning in the abutments, and this is what is complained of. The hammering action complained of is due to the injudicious placing of the coping-stone in the adopted designs as compared with the placing of the same stones in my design. The bearing surface is ample, only giving a pressure of less than $1\frac{1}{2}$ cwt. per square inch of surface.

GEO. WM. TOWNSEND,
3/4/88.

It is fortunate that these girders are exceptionally strong, or, on the failure of the abutments, they would have been completely destroyed by the united action of the load they have to bear in the course of traffic, added to the heavy compression strain they have been subjected to by the thrusting out of the abutments.—G.W.T., 3/4/88.

I think it desirable that an independent report should be made, and would suggest that Professor Warren, of the University, be asked to report upon the girders and abutments.—CH.A.G., 5/4/88. Approved.—J.S., 5/4/88.

No. 5.

The Secretary for Railways to Professor Warren.

Sir, Department of Railways, Sydney, 5 April, 1888.
In view of a difference of opinion which exists with regard to the design and construction of certain bridges on the duplicated line between Parramatta and Penrith, the Commissioner for Railways considers it desirable that an independent report in the matter should be obtained.

To that end I am desired to ask that you will be good enough to inspect such bridges as are reported to be defective, viz., those between Parramatta and Blacktown, and report upon the girders and abutments of such structures.

I have, &c.,
D. VERNON,
Secretary for Railways.

No. 6.

G. W. Townsend, Esq., to The Secretary for Railways.

Dear Sir, University of Sydney, 17 April, 1888.

I have been through the tracings supplied to Professor Warren of the bridges, Parramatta to Penrith, and I find the sheet of diagrams showing rail bridge in detail has been omitted. May I suggest that Professor Warren be permitted to see the original of that and all drawings of these bridges.

I am, &c.,
G. W. TOWNSEND.

Inform Mr. Townsend that any and all information we have is at Professor Warren's disposal should he desire it.—D.V., 18/4/88.

Sir, Department of Railways, Sydney, 20 April, 1888.

I have the honor to acknowledge the receipt of your letter of the 17th instant, and in reply to say that any and all information we have relative to the railway bridges referred to in your letter is at Professor Warren's disposal should he desire it.

I have, &c.,
A. RICHARDSON,

Geo. Townsend, Esq., Athenæum Club, Sydney. (For the Secretary of Railways).

No. 7.

Memo. from Professor Warren to The Secretary for Railways.

Sir, I have the honor to acknowledge the receipt of your letter of the 5th instant.

I shall be glad to report on the bridges as requested, and should like to have the drawings both of the girders and the abutments as designed and as carried out as soon as possible. As I may have to make more than one inspection, will you kindly send me a pass. I will send back my pass for last month to-morrow.

I have, &c.,
W. H. WARREN.

Issue pass, then refer to Mr. Cowdery.—H.M.L., 7/4/88. Pass issued, 9/4/88. Mr. Cowdery. Re plans.—D.V., 9/4/88. Please furnish tracings of plans required.—M.T., 10/4/88. Mr. Fischer. Tracings (4) herewith.—G.F., 13/4/88. Deputy Engineer.

Memorandum from Professor Warren to The Secretary for Railways.

Sir, Thursday, 12 April.

With reference to my report on the bridges between Parramatta and Blacktown, I have the honor to state that I have not yet received the drawings and specifications of the bridges as originally designed and as carried out in accordance with the request contained in your letter of April 6th. I understand that the matter is urgent, and should therefore be glad to receive the particulars asked for as soon as possible.

Yours, &c.,
W. H. WARREN.

Engineer for Existing Lines.—A.R., B.C., 13/4/88: Most urgent. Specifications and tracings herewith.—G.C., 13/4/88.

Sir, Department of Railways, Sydney, 13 April, 1888.

In compliance with your request of the 6th instant, I have the honor to forward to you, under separate cover, the drawings and specifications of the bridges between Parramatta and Blacktown.

I have, &c.,
H. M'LACHLAN,
(*Pro* Secretary for Railways).

W. H. Warren, Esq., Professor of Engineering, University of Sydney.

Sir, University of Sydney, 23 April, 1888.

I have the honor to state that I have inspected the bridges between Parramatta and Blacktown, and have also tested the deflections and side oscillation of the superstructure. I have had trial shafts sunk in order to ascertain the nature of the foundations with a view to explain the cause of the numerous cracks which exist in the wing-walls and abutments. I have also completed the necessary calculations with regard to the strength and the stability of the bridges. I understood when I received your instructions to report on these bridges that the matter was very urgent, and I have been engaged every day in collecting data for my report, which I propose sending to you not later than Friday next.

I have, &c.,
W. H. WARREN.

The Commissioner for Railways. Seen.—D.V. (*pro* Commissioner), 27/4/88.

No. 8.

Professor Warren to The Commissioner for Railways.

Sir,

University, 27 April, 1888.

I have the honor to enclose my report on the bridges between Parramatta and Blacktown.

I have, &c.,

W. H. WARREN.

[Enclosure.]

REPORT from Professor Warren to The Commissioner for Railways.

Sir,

University of Sydney, 27 April, 1888.

In accordance with your instructions I have the honor to state that I have thoroughly investigated the strength and the stability of the bridges between Parramatta and Blacktown, and also the original designs for these bridges, as prepared by Mr. Townsend, and herewith report as follows:—

The bridges referred to are eight in number, which for convenience of reference will be denoted by numbers, commencing with the bridge in Parramatta Park, thus—

No. 1 bridge consists of two spans of 44 feet each.

2	one span of 44 feet.
3	two spans of 44 feet each.
4	one span of 44 feet.
5	two spans of 44 feet each.
6	one span of 44 feet.
7	" "
8	" "

They each consist of Warren girders resting upon brick piers and abutments. The main girders, as originally designed by Mr. Townsend, are arranged one under each rail. They are 44 feet long overall and 5 feet 3 inches deep.

The top flange is formed with double angle-irons, each 5" x 5" x $\frac{5}{8}$ ", riveted to a stringer plate 14 $\frac{1}{2}$ " in. deep by $\frac{5}{8}$ " in. thick, forming a T section. The bottom flange is formed with double angle-irons, each 5" x 5" x $\frac{5}{8}$ ". The web consists of channel and flat bars riveted to the stringer plate of the top flange, and to rectangular plates in the bottom flange, each 22" long x 14 $\frac{1}{2}$ " deep x $\frac{5}{8}$ " thick; the bars intersect at angles of 60° and form a single system of triangulations. The end members of the web consists of two flat bars, each 5" wide x $\frac{5}{8}$ " thick; the other members consist of double channel-irons varying in section from 5" x 2 $\frac{1}{2}$ " x $\frac{1}{2}$ " to 5" x 2 $\frac{1}{2}$ " x $\frac{3}{8}$ ".

The girders are prepared at each end for fixing to or sliding upon cast-iron bed-plates, which latter are bolted to the bed stones on the piers and on the abutments. There are six rivets in the attachments of each of the two end bars to flanges, and also in the second bars from each end; there are five rivets in the third and fourth bars from each end, and four in the remaining bars. All these rivets are shown 1" in diameter.

The top flanges of the girders are braced together in a horizontal plane with angle-iron lattice bracing 3" x 3" x $\frac{3}{8}$ " riveted to the top flanges of the main girders with one rivet at each attachment, the diameter of which is omitted from the drawings. There is also a footway on each side which is supported off the outside main girders by triangular cantilevers formed with \angle irons 3" x 3" x $\frac{3}{8}$ "; apparently intended to be fixed at each apex of bracing to main girders not shown on the drawings, excepting at the ends of main girders there is an angle-iron 3" x 3" x $\frac{3}{8}$ " attached to the top flange of the inner main girder, and to the bottom flange of the outer main girder which is only shown at the ends.

The rails are shown fixed to longitudinal sleepers 12" x 6" which are bolted to the flanges of the main girder.

The abutments, wing-walls, and piers are shown of brick, with stone copings and girder beds. The abutment-walls have been designed for a height of 24 feet from coping to foundation level; they are shown 21 ft. wide at level of bed stones, and the face is battered 1 in 12; the thickness of the wall at the level of bed stones is 2 ft. 3 in., which is increased by stepping to 3 ft. 9 in. at foundation level. There are four counterforts at the back of the wall, each 2 ft. 6 in. wide, with a back batter of 1 in 12; the total thickness of brickwork through the counterforts is 5 ft. 3 in. There is a backing of rubble stone work which extends backwards for a distance of 3 ft. 8 in. from back of counterforts.

The wing-walls are 3 ft. 9 in. at the base at the top of the bank where they join the abutment-wall, and 2 ft. 3 in. at the base at the foot of the bank; the rubble stone work is diminished from 3 ft. 8 in. at the top of the bank to 1 foot at the foot of the bank. The piers are designed for a height of 25 ft. from top of coping to foundation level; they are 3 ft. thick at the level of the bed stones, and 5 ft. thick at the base, with a batter of 1 in 24; the piers are 21 ft. wide at the level of the bed stones, and they are formed into curved cut waters on each side. The specification states on page 4, clause 27, that the brickwork is to be laid in courses of headers and stretchers alternately (English bond) in mortar or cement as may be hereafter directed. Clause 27 states, "The bricks to be well bedded, and joints flushed with mortar or cement at every course and well jointed, and finished with a neatly-struck outside joint." In the schedule of quantities, item No. 7, is brickwork in cement, &c., &c., 200 cubic yards, item No. 8, brickwork in mortar, &c., 10,331 cubic yards.

The following alterations and modifications of Mr. Townsend's design have been made in the revised design in accordance with which the works have been executed:—

1. In the main girders the end bars of the web have been altered to channel bars, 5" x 2 $\frac{1}{2}$ " x $\frac{1}{2}$ "; the rivets have been altered from 1" diameter to $\frac{7}{8}$ " diameter, and the main girders have been spaced 5-6 in. apart (centres).
2. The angle-iron horizontal bracing has been altered to flat bars, 4" x $\frac{3}{4}$ ", with two rivets in each bar $\frac{3}{4}$ " diameter.
3. The outside footways, with their cantilever supports, have been dispensed with, also the angle-iron bracing to bottom flanges of outside girders.
4. The top and the bottom flanges of each pair of main girders are braced together in a vertical plane at the ends and at two intermediate points by means of double \angle irons 3" x 3" x $\frac{3}{8}$ " riveted to the top and to the bottom of the flanges, with flat bars 4" x $\frac{3}{8}$ " connecting the top flange of one girder with the bottom flanges of adjacent girders. There are also three transverse T irons 6" x 3" x $\frac{3}{8}$ " riveted to the top flanges forming with the flat bars (referred to in clause 3), a complete top bracing in the horizontal plane.

5.

General description of the bridges.

Mr. Townsend's design.

Main girders, Mr. Townsend's design.

Transverse bracing to main girders.

Abutments, wing-walls and piers.

Revised design.

5. The longitudinal sleepers 12" x 6" have been altered for cross sleepers 9" x 9", spaced 2 ft. apart, centre to centre, with angle-iron guard rails 5" x 4" x $\frac{1}{2}$ ".
6. A footway is formed in the 6-foot by means of two planks, each 12" x 3", supported on joists 8" x 4", laid on top flanges of main girders.
7. The piers and abutments, also the wing-walls, have been built in cement mortar.
8. The width of the abutments at the level of the bed stones have been increased in width from 21 ft. to 25 ft., and dwarf-walls and pillasters built to house the ballast.
9. The rubble backing has been dispensed with.
10. The abutment-walls are designed with a vertical face instead of battering, 1 in 12., as in Mr. Townsend's design. The thickness of the abutment-wall at the top is 3 ft., and at the foundation level 5 ft. 3 in.; there are only two counterforts at the back of the wall, each 2 ft. 3 in. square, stepped back in the same manner as in the main walls.

The inspection of these bridges consisted chiefly in examining the condition of the brickwork and masonry in the abutments, wing-walls, and piers, and, by means of trial-shafts, the nature of the foundations; measuring the heights of the piers and abutments, to see whether any modifications of the type drawing were necessary; examining the superstructure to see how it had been affected by the condition of the brickwork in piers and abutments. Inspection of the bridges.

No. 1 Bridge.—The abutment-wall, Parramatta end, leans over at the top $2\frac{1}{8}$ in. on the up side and $1\frac{3}{8}$ in. on the down side. The wing-walls are badly cracked in three places on the down side and in two places on the up side; the coping stones are bulged forward, and the joints unset. There are several small cracks in the brickwork in addition to the large ones referred to. The abutment-wall, Blacktown end, leans over at the top $1\frac{1}{2}$ in. on the up side and 2 in. on the down side; the wing-walls are cracked on each side from top to bottom in two places. All these cracks, and those that will be subsequently referred to in the other bridges, slope diagonally from the coping-level downwards towards the centre of the railway; they are open from $\frac{1}{8}$ of an inch to $\frac{3}{4}$ of an inch at the top, and die out to a line at or before reaching the ground-level. The dwarf-walls which retain the ballast are shattered, and the brickwork in abutment-wall, down to the seventh course from the top, is cracked and unset at the joints. The brickwork in the central pier is cracked in several places and unset at the joints. Four trial-shafts were sunk down to the shale at the corners of the abutments where they join the wing-walls.

Trial-shaft No. 1 down side Parramatta end disclosed the fact that the abutment-wall rests upon a bed of concrete 2 ft. thick, the top of the concrete is 4 ft. below the ground-level, so that the wall is 27 ft. below the level of the rails, which is therefore 3 ft. higher than in the section shown on the type drawings. The foundations consist of clay with bands and patches of ironstone. There is a bed of solid shale 2 ft. 2 in. below the foundation of the wall at this point.

Trial-shaft No. 2 on the up side, Parramatta end, showed that the concrete here also was 2 ft. thick, and that the height from rail-level to footings of brickwork was 27 ft. 4 in. The foundations are similar to those disclosed in trial-shaft No. 1.

Trial-shaft No. 3 on the up side, Blacktown end, showed that the abutment-wall rests upon a bed of concrete 2 ft. 10 in. thick, and that the height from rail-level to bottom of footings of brickwork was 29 ft. 7 in. The foundations consist of soft blue and yellow clay, with occasional patches of ironstone mixed with clay, varying in extent and thickness. One band of ironstone is about 3 ft. thick at about the level of the old foundations, but it runs out to nothing in a few feet. The shale is 6 ft. lower.

Trial-shaft No. 4 on the down side, Blacktown end, showed that the abutment-wall rests upon a bed of concrete 3 ft. 8 in. thick, and that the height from rail-level to the bottom of the footings of brickwork was 28 ft. 6 in. The foundations at this point consist of blue clay and black mud, interstratified with ironstone in small patches. The shale is 6 ft. 4 in. lower, and between the shale and the bottom of the concrete the material is very soft, so much so, that a small crowbar can be pushed in 9 in. by hand without difficulty.

The District Engineer, Mr. Shellshear, is at present building a face-wall to each of these abutments, which is 9 in. thick at the top, at the level of the bed stones, and battering 1 in 8.

Mr. Shellshear has carried these walls down in every case to the solid shale, and, in one place, as disclosed by trial-shaft No. 4, he has gone 1 ft. into the shale; the shale at this point however, was soft and unreliable at the surface. The old walls and the new are bonded together by cutting out pockets in the old brickwork, and also by inserting old rails and bar-iron. Samples of the materials from the foundations, upon which the abutment-walls have been built, and also of the shale upon which Mr. Shellshear has built his face-walls, were taken out by myself in the presence of Mr. Shellshear, Mr. Lucas, Mr. Townsend, and my assistant Mr. Vicars; they were tied up in canvas bags and numbered with reference to the trial-shafts from which they were taken.

The main girders have been compressed by the abutments moving over, and they have been forced together over the piers; they are in contact with the dwarf-walls on the Parramatta end.

No. 2 Bridge.—The abutment-wall of this bridge at the Parramatta end, leaned over $1\frac{1}{2}$ in. on the down side, and $\frac{1}{8}$ in. on the up side, and the abutment-wall at the Blacktown end leaned forward $\frac{5}{8}$ in. on the down side and $\frac{3}{8}$ in. on the up side, when they were first measured by Mr. Shellshear, on the 6th February, 1888; they are now only $1\frac{1}{4}$ in. over on the down side, Parramatta end, and 1 in. over on the up side. The cracks in the brickwork, and masonry in wing-walls, abutment-walls, and dwarf-walls, are similar to those referred to in No. 1 bridge.

One trial-shaft was sunk under the centre line of railway, close to the abutment on the Parramatta end. The thickness of the concrete upon which the abutment-wall is built is 4' 6", the height from rail-level to bottom of footings of brickwork is 30 feet, the foundations are little better than soft mud, the shale is 15 inches lower.

No. 3 Bridge.—The abutment-wall of this bridge leans over $1\frac{1}{4}$ " on the up side, Parramatta end, and $\frac{7}{8}$ " on the down side; the abutment-wall, Blacktown end, leans over $1\frac{7}{8}$ " on the up side, and $1\frac{1}{2}$ " on the down side. When these corners were measured by Mr. Shellshear on February 6th, they were $\frac{1}{4}$ " less in three cases. The cracks in the wing-walls and abutments are similar to those in No. 1 bridge; thus, on the up side in wing-wall, Blacktown end, there is one crack $\frac{3}{4}$ " open at the top, running out to nothing at the bottom; there is a large crack and a small one on the down side. At the Parramatta end there are two cracks on the down side, open $\frac{1}{8}$ " and $\frac{1}{4}$ ", there are several vertical cracks immediately under the girder bed stones, the dwarf-walls are thrust over and fractured. The central pier is cracked in many places to a slight extent, the joints in the brickwork are more or less unset, and the pier has the appearance of having been shaken with the traffic. Trial-

Trial-shafts were sunk under the centre line of the railway, close to each abutment, from which it was ascertained that the foundations on the Blacktown side consisted of soft clay, interstratified with iron-stone. The thickness of the concrete is 8 feet, and the height from rail-level to the bottom of the footings of brickwork is 29' 6".

The trial-shaft on the Parramatta side showed that the concrete was 5 feet thick, and that the height from rail-level to bottom of footings of brickwork is 28' 9". The foundations here were soft, and a hole 1 foot deep was jumped with a small crowbar, using one hand, in 1 minute. The main girders of this bridge are jambed against the dwarf-walls, or are binding on the expansion bolts on the abutments, Blacktown end, up side, Parramatta end, both on up and down sides, and on central pier they are in contact on the up side.

No. 4 Bridge.—The abutments of this bridge lean over on the Blacktown side $\frac{5}{8}$ " on the down side, and $\frac{7}{8}$ " on the up side. At the Parramatta end they are 1" over on the up side, and $\frac{1}{4}$ " on the down side. The abutments and wing-walls are cracked in a similar manner, but not to the same extent, as in No. 1 bridge.

No. 5 Bridge.—The abutments of this bridge lean over $\frac{1}{8}$ " at each corner on the Blacktown end, and $\frac{1}{4}$ " on the up side, and $\frac{5}{16}$ " on the down side, Sydney end. There are a few slight cracks which occur in the pier and in the abutments.

No. 6 Bridge.—The abutment on the Blacktown end leans over $\frac{1}{8}$ " on the up side only, at the Sydney end it leans over $\frac{1}{8}$ " on the up side, and $\frac{5}{8}$ " on the down side.

The bottom flange of the main girders is 1' 4" above ground; the brickwork and main girders are in fair order. I ascertained that there is not a large quantity of water passing under this bridge in times of heavy rainfall.

No. 7 Bridge.—The abutment on the Blacktown end leans over $\frac{1}{8}$ " on the up side, and $\frac{3}{8}$ " on the down side. At the Parramatta end the abutment is over $\frac{3}{8}$ " on the up side, and $\frac{1}{8}$ " on the down side. There are a few slight cracks on the Parramatta side, and the fifth course of brickwork from the top is unset in a few places. I ascertained that the flood-level has risen on two occasions 18" above the bottom flange of main girders, and that considerable quantities of timber are brought down with the flood.

The underside of the girders are not properly bedded upon the bed-plates.

No. 8 Bridge.—The abutments of this bridge on the Blacktown end lean over 1 $\frac{1}{4}$ " on the down side, and 1" over on the up side. At the Parramatta end they lean over 1" on the down side, and 1 $\frac{1}{4}$ " on the up side. The wing-walls and abutments are badly cracked, and the joints unset immediately under the girder bed stones. Two bed stones on the up side Blacktown end are unset. Two trial holes were sunk under the centre of the railway, one for each abutment. On the Blacktown side it was ascertained that the foundations were blue and yellow clay, mixed with ironstone. A small crowbar was pushed 9" under the concrete by hand. The thickness of concrete is 4', the height from rail-level to bottom of footings of brickwork is 22', the shale is 6" below the bottom of the concrete, and the foundations are very wet on the Parramatta side. The foundations are on the shale in some places, while at others an inch of pipe-clay intervenes between the bottom of the concrete and the shale. The concrete is built leaning over at the top 3 $\frac{3}{8}$ ", the thickness is 3' 6", and the height from rail-level to the bottom of the footings of brickwork is 21'. In every case where trial-shafts were sunk in this and in the other bridges samples of the materials have been selected and tied up in canvas bags, numbered for future reference, if considered necessary.

The main girders of this bridge have been compressed by the movement of the abutments. The end diagonals are in contact with, and grind against, the bed stones.

I have made a general inspection of the bridges between Blacktown and Penrith, in order to compare with those between Blacktown and Parramatta, and shall refer to them in my conclusions.

Testing.

In order to test the deflection of the girders with passing trains, and also the oscillation and vibration, I borrowed Mr. W. C. Bennett's apparatus for testing bridges, and with it I measured the deflection and side oscillations of No. 1 bridge, No. 3 bridge, and No. 8 bridge, and the oscillations only of No. 6 bridge. I also noted the vibrations and oscillations of the girders with trains passing over at different speeds by standing between the girders and on the flanges, holding with my hands the bracing. I was unable to note any great vibrations or oscillations more than those observed in other bridges. The following table gives the deflection, with the number of the engine and the total weight:—

RESULTS OF TESTING THE BRIDGES.

Number of Engine.	Weight of Engine.	Weight of Tender.	Total Weight of Engine and Tender.	Deflections.				Transverse Oscillation.	Remarks.
				Up Line.		Down Line.			
				Outside.	Inside.	Outside.	Inside.		
63	T. cwt. qrs. 37 5 3	T. cwt. qrs. 25 18 3	T. cwt. qrs. 63 4 2	·275"	·2"	·12"	} <i>No. 1 Bridge.</i> Two deflection levers were fixed on the down side only, and one oscillation apparatus was also fixed on the down side.
323	42 8 1	24 6 1	66 14 2	...	...	·2"	·175"	·12"
94	33 16 0	22 11 0	56 7 0	...	...	...	...	·12"
91	37 11 3	21 13 3	59 5 2	...	...	...	...	·12"
A	.....	.....	.....	...	...	...	...	·1"
132 &	{ 46 4 2	25 15 3	72 0 1	·3"	not taken	} <i>No. 3 Bridge.</i> Two deflection levers were fixed on the down side of this bridge, and one on the up side.
145	{ 37 11 3	21 13 3	59 5 2	...	...	·3"	...	.....
18	{ 30 5 0	20 7 2	50 12 2	·3"	...	·27"	·20"	.....
168	{ 37 11 3	21 13 3	59 5 2	·25"	...	·25"	...	.....
323	{ 42 8 1	24 6 1	66 14 2	·3"	...	·33"	·25"	.....
30C	{ 42 11 0	26 15 3	69 6 3	...	...	·33"	·25"	.....
87	{ 37 11 3	21 13 3	59 5 2	...	...	...	...	.....
247 &	{ 42 8 1	24 6 1	66 14 2	...	...	·27"	·20"	.....
252	{ 42 8 1	24 6 1	66 14 2	...	...	·35"	·25"	.....
323	{ 42 8 1	24 6 1	66 14 2	·3"	...	...	...	.....
369	·25"	·175"	} <i>No. 8 Bridge.</i>
...	·125"		No. 7 Bridge.

CALCULATIONS ON STRENGTH OF GIRDERS.

Effective span, = 42 feet.
 " depth, = 5.25 "
 Live load, = .9 tons per foot run on each main girder.
 = 5.4 " on each apex, = W'.
 Dead " = .134 " per foot run on each main girder.
 = .8 " on each apex, = W'.
 θ, = 30°.
 Sec. β, = 1.154.
 W, Sec. β, = .923 tons.
 W', Sec. θ, = .89 "
 (W + W') ton θ, = 3.58 "

DUE TO DEAD LOAD.

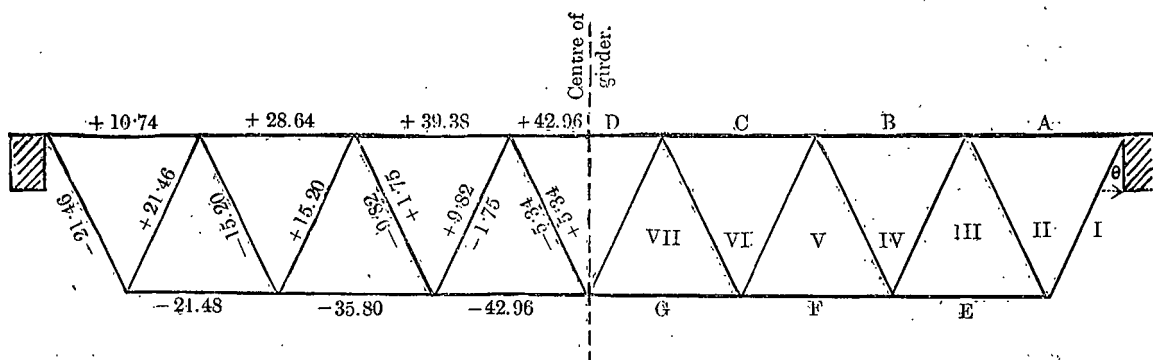
Diag.	I.	II.	III.	IV.	V.	VI.	VII.
Stresses	-2.77	+2.77	-1.85	+1.85	-.92	× .92	.....

DUE TO LIVE AND DEAD LOAD.

Bays.	A.	B.	C.	D.	E.	F.	G.
Stresses	+10.74	+28.64	+39.38	+42.96	-21.48	-35.80	-42.96

DUE TO LIVE AND DEAD LOAD.

Diag.	W ₁	W ₂	W ₃	W ₄	W ₅	W ₆	C.	T.	E.	C.	T.
I.....	-5.34	-4.45	-3.56	-2.67	-1.78	-.89	.....	-18.69	-2.77	.....	-21.46
II	+5.34	+4.45	+3.56	+2.67	+1.78	+.89	+18.69	.....	+2.77	+21.46	.....
III.....	+.89	+4.45	-3.56	-2.67	-1.78	-.89	+.89	-13.35	-1.85	.....	-15.20
IV	-.89	+4.45	+3.56	+2.67	+1.78	+.89	+13.35	-.89	+1.85	+15.20	.....
V	+.89	+1.78	-3.56	-2.67	-1.78	-.89	+2.67	-8.90	-.92	+1.75	-9.82
VI	-.89	-1.78	+3.56	+2.67	+1.78	+.89	+8.90	-2.67	+.92	+9.82	-1.75
VII	+.89	+1.78	+2.67	-2.67	-1.78	-.89	+5.34	-5.34	.....	+5.34	-5.34



The stresses figured in the above diagram will be somewhat increased in the flanges, as the intersection of the bars in the web does not occur at the centre of gravity as it should do, but above it, hence the flange stresses in the centre of both top and bottom member may be $42.96 \times \frac{6.25}{6} = 44.75$ tons.

Hence unit stress in top flange = $\frac{44.75}{15} = 3$ tons nearly.

" " bottom " = $\frac{44.75}{11.7} = 3.82$ tons.

Unit stresses in tension bars of web.

The sectional area of two flat bars $5'' \times \frac{5}{8}''$ to form diagonal I deducting for one rivet each 1 diameter is $2(5-1.00) \frac{5}{8} = 5.00$ square inches, hence the unit stress is $= \frac{21.46}{5.00} = 4.3$ tons per square inch.

Calculations on the strength of Mr. Townsend's girders.

The sectional area of the channel bars forming diagonal III is $2(9-1.75) \frac{1}{2} = 7.25$ square inches, hence unit stress is $\frac{15.20}{7.25} = 2.09$ tons per square inch. The sectional area of the channel bars forming diagonals V and VII is 5.6 square inches; hence the maximum unit stress in V $= \frac{9.182}{5.6} = 1.64$ tons per square inch; hence the maximum unit stress in VI $= \frac{5.34}{5.60} = .95$ tons per square inch.

The stresses in bar VI alternate between a tension of .95 tons and an equal compression. Unit stresses in compression diagonals of web and factors of safety against buckling.

The stress per square inch at which the struts would buckle according to Professor Rankin, is given by the formula:—

$$\frac{P}{S} = \frac{f}{1 + a \frac{l^2}{h^2}}$$

which for double channel irons as in the present case becomes

$$\frac{P}{S} = \frac{19}{1 + \frac{1}{800} \left(\frac{72}{5}\right)^2} = \frac{19}{1 + \frac{5184}{22500}} = 16 \text{ tons per square inch nearly.}$$

The maximum working stress in diagonal II is $= \frac{21.46}{9} = 2.38$ tons per square inch. Hence the factor of safety against buckling is $= \frac{16}{2.38} = 6.7$.

The maximum working stress in diagonal IV is $= \frac{9.82}{6.93} = 1.4$ tons per square inch. Hence the factor of safety against buckling is $= \frac{16}{1.4} = 11.4$.

Conclusions on the strength of Mr. Townsend's girders.

The maximum working stress in diagonal VI is smaller, and the factor of safety correspondingly larger than in diagonal IV.

The maximum working stress occurs in the six rivets which unite the $5'' \times \frac{5}{8}''$ end bars to the booms, which is 2.27 tons per square inch.

The strength of girders such as these designed by Mr. Townsend, where the line load is about nine times the dead load must be considered with reference to the ratio of the minimum to the maximum unit stresses, as the Board of Trade rules do not apply.

The experiments of Wöhler and Bauschinger, which apply strictly to such cases, show that the maximum working tensile stress should not exceed 4 tons per square inch in the bottom flanges, and in the end bars which are always in tension, but in diagonal V which are subjected to stresses which alternate between tension and an equal compression, the maximum working stress should not exceed 2 tons per square inch. In the top flange 4 tons would not be excessive. Hence it follows from the foregoing calculations that these girders are strong enough for the line load of .9 tons per foot run for which they were designed, which is in excess of the loads due to the heaviest traffic.

Conclusion on Mr. Townsend's design of main girder and side bracings.

I understood Mr. Townsend to say that he designed the bar wider.

The defects in Mr. Townsend's design of the main girder and superstructure are as follows:—

1. The diagonals of web do not intersect at the centre of gravity of the flanges but above it which increases slightly the stresses in the flanges.
2. The end tension bars are weakened by cutting away the area with six rivets $1''$ diameter, five rivets $\frac{7}{8}''$ diameter would have made a stronger joint or the bar should be made wider.
3. The bottom flanges of the two inside girders are not braced to resist side oscillations and mud. There should have been four vertical frames of angle-iron bracing together the two girders under each pair of rails. It is necessary to state that this lateral bracing could be added to the design at a trifling expense.
4. I consider Mr. Townsend's drawings are incomplete.

Conclusions on revised design.

Mr. Townsend says he designed them wider.

1. The design from which the work has been executed has not been altered so as to make the bars in the web intersect in the centre of gravity of the booms.
2. The flat bars $5'' \times \frac{5}{8}''$ have been replaced with the channel bars $5'' \times 2\frac{1}{2}'' \times \frac{1}{8}''$, which meets my objection to the cutting away of plate area. I should, however, have preferred a bar $6'' \times \frac{5}{8}''$, with five rivets $\frac{7}{8}''$ diameter.
3. The lateral bracing referred to has been supplied in the revised design, but I consider it to be an objection to brace the four girders together, as by doing so there is an increased deflection and corresponding stress thrown upon the outside girders over those upon the inside girders; this is clearly proved, as will be seen by referring to the table of deflections on page 15. It is better practice to brace the two girders together under each pair of rails so that each line of way is distinct from that of the other with regard to stress and deflection.
4. The modifications of the horizontal bracing to the top flanges of the main girders in the revised design works in very well with the lateral bracing above referred to, and it is at least as good as the horizontal bracing shown in Mr. Townsend's design.
5. The substitution of cross sleepers on the curves was absolutely necessary, as the longitudinal sleepers shown on Mr. Townsend's design could not be applied. I consider, moreover, that the spacing of the main girders at $5' 6''$ centres to be good practice, as the road is more elastic, since the weight is first brought upon the cross sleepers, which deflect in transmitting the weight to the main girders. I consider this specification to be a very good one.

Mr. Townsend's specification for iron. Comparative cost of bridges built on Mr. Townsend's design and plate-web girder bridges.

I find, by calculating the weight of the ironwork in one span of Mr. Townsend's design, and adding to it the necessary bracing referred to, that the weight for a double line of way is $15\frac{1}{2}$ tons per span. A well designed plate-web girder bridge, completely braced, of the same span, and carrying the same loads, would weigh in ironwork $16\frac{1}{2}$ tons.

By

By referring to the list of contract prices furnished by the Department on page 22, it will be seen that there is a saving in ironwork in Mr. Townsend's design, which is about £15 per span.

Mr. Townsend's design requires more brickwork, the cost of which would more than compensate for this small saving in ironwork. I consider the plate-web girder bridge to be the better of the two.

There is about the same amount of brickwork shown in both designs in the abutment-walls, although in the revised design the wing-walls are thicker. I consider it to be a great mistake to build walls as thick as these abutment and wing walls in ordinary lime mortar, as the lime can only set by absorption of carbon dioxide from the atmosphere, which is impossible in the interior of a thick wall. In Gloucester-street retaining wall I obtained soft mortar six months after it was built. Hence, I conclude that ordinary lime mortar will not set in the interior of a thick wall.

The more slowly the wall is carried up the better chance the mortar will have for setting. So that, in spite of the reduced cost of ordinary lime mortar, I think the advantages are all on the side of either hydraulic lime mortar or of cement mortar, and therefore I agree with the substitution of cement for lime mortar. It is at the same time necessary to state that the specification allowed this change to be made (see page 4, clause 27, specification). There is also a slight advantage in the disposal of the brickwork, as shown in the revised design, where there is more in the body of the wall and less in the counterforts; the thicknesses are well proportioned but they are scant. It should have battered 1 in 12, as in Mr. Townsend's design, which would have considerably increased its stability, and have at the same time reduced the pressure on the foundations, a point that will be subsequently dealt with.

In Mr. Townsend's design a wall of rubble intervenes between the abutment-wall and the filling at the back; this backing is a necessary precaution where the filling is of a retentive character, and in the present case it would at least have had the effect of minimising the earth-thrust. The two walls are compared on the two following pages, although by neglecting the effect of the union with wing-walls, the want of stability and pressures on foundations are slightly overstated in both designs:—

This calculation seems to be inaccurate; the footpaths in Townsend's design have been added; they weigh 1 ton; leave them out, to correspond with plate girder bridge, and the difference in weight is as 14½ to 16½, or 2¼ tons. The price for Townsend's girders, £16 16s. 9d., compares favourably with the price for plate girders, which average, as per list, £18; with these corrections the price for Townsend's girders is not £15 per span cheaper, but £56. — Ch.A.G. Conclusions on the abutments and wing-walls. Both designs.

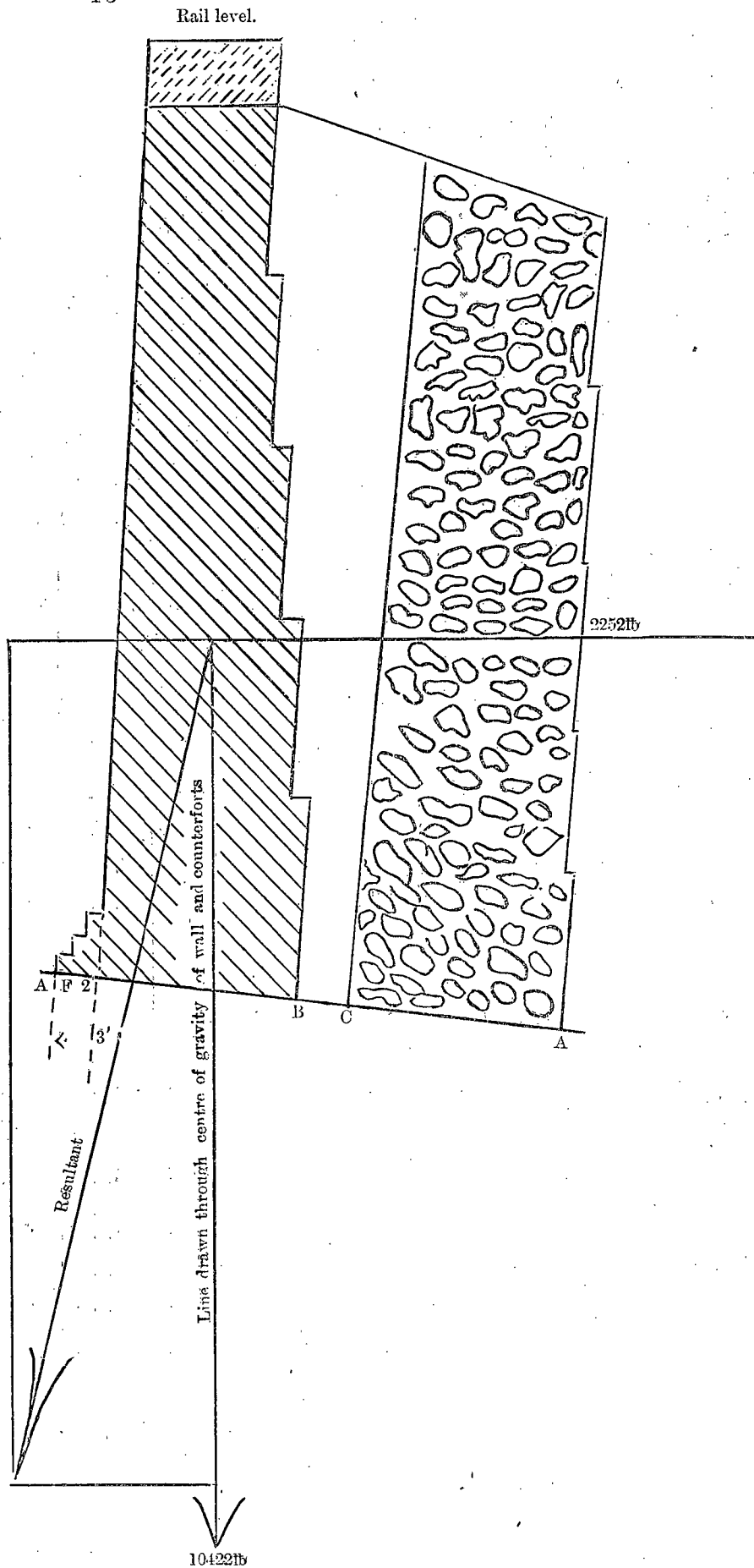
STATEMENT showing contract prices for supply of ironwork to Existing Lines Department.

Description of Ironwork.	Total weight in contract.	Rate per ton delivered, exclusive of erection.	Place of delivery.	Date of contract.	Where manufactured.
	Tons.	£ s. d.			
Warren lattice girders, designed by Mr. Townsend.	675	16 16 9	Darling Harbour	29/7/84	Part in Colony and part in England.
Plate girders for Redfern Tunnel	304	17 0 0	Eveleigh	8/4/84	England,
Harris Park over-bridge plate girders	37	16 19 0	Redfern Station..	22/4/84	do.
Plate girders, Wells-street Bridge.....	60	20 0 0	Site of bridge ...	4/11/84	Sydney.
Plate girders for duplication, Parramatta to Penrith.	90	17 15 8	Darling Harbour	16/12/84	do
EASTERN CREEK.					
Lattice and plate girders for William Henry-street Bridge, Darling Harbour.	260	17 10 0	Site of bridge ...	16/12/84	England.
Plate girders, with cross girders, Burren-street, Macdonaldtown.	44½	20 10 0	Do ...	3/2/85	Sydney.
Plate girders, Collingwood and Glenfield viaducts	62½	17 0 0	Darling Harbour	12/5/85	England.
Lattice and plate girders for duplication, Goulburn to Joppa.	88	19 15 0	Do ...	7/7/85	Sydney.
Plate girders for bridge at Cootamundra	10	19 0 0	Do ...	8/9/85	do
Lattice girders, bridge at Moss Vale.....	44	19 0 0	Do ...	29/9/85	do
Plate girders, bridge near Strathfield	16	16 10 0	Do ...	12/7/87	do

STABILITY OF ABUTMENTS—MR. TOWNSEND'S DESIGN.

The weight of the wall and four counterforts is equivalent to 10,422 lb. per foot run. The maximum earth-thrust, by Rankins' formula, $\frac{wh^2}{2} \text{tau}^2 \left(\frac{11}{4} - \frac{O}{2} \right)$ where $O = 54^\circ$ in consequence of the rubble backing; and $w = 100$ lb. per foot cube = 2,252 lb. per foot run.

An inspection of the diagram will show that in consequence of the batter of the wall, and the diminished earth-thrust due to the backing, that the resultant pressure falls well within the point A, and the pressure will be distributed unequally over the whole of A B; the maximum pressure at A is found thus : $\frac{2 \times 4.3 - 3 \times 2}{4.3} \times \frac{2 \times 10,422}{4.3} = 2,900$ lb. per square foot nearly = $1\frac{1}{4}$ ton about.



It is necessary to point out that the original drawings of abutments prepared by Mr. Townsend were incomplete in the following particulars. The width of the abutment-wall shown on the drawings was

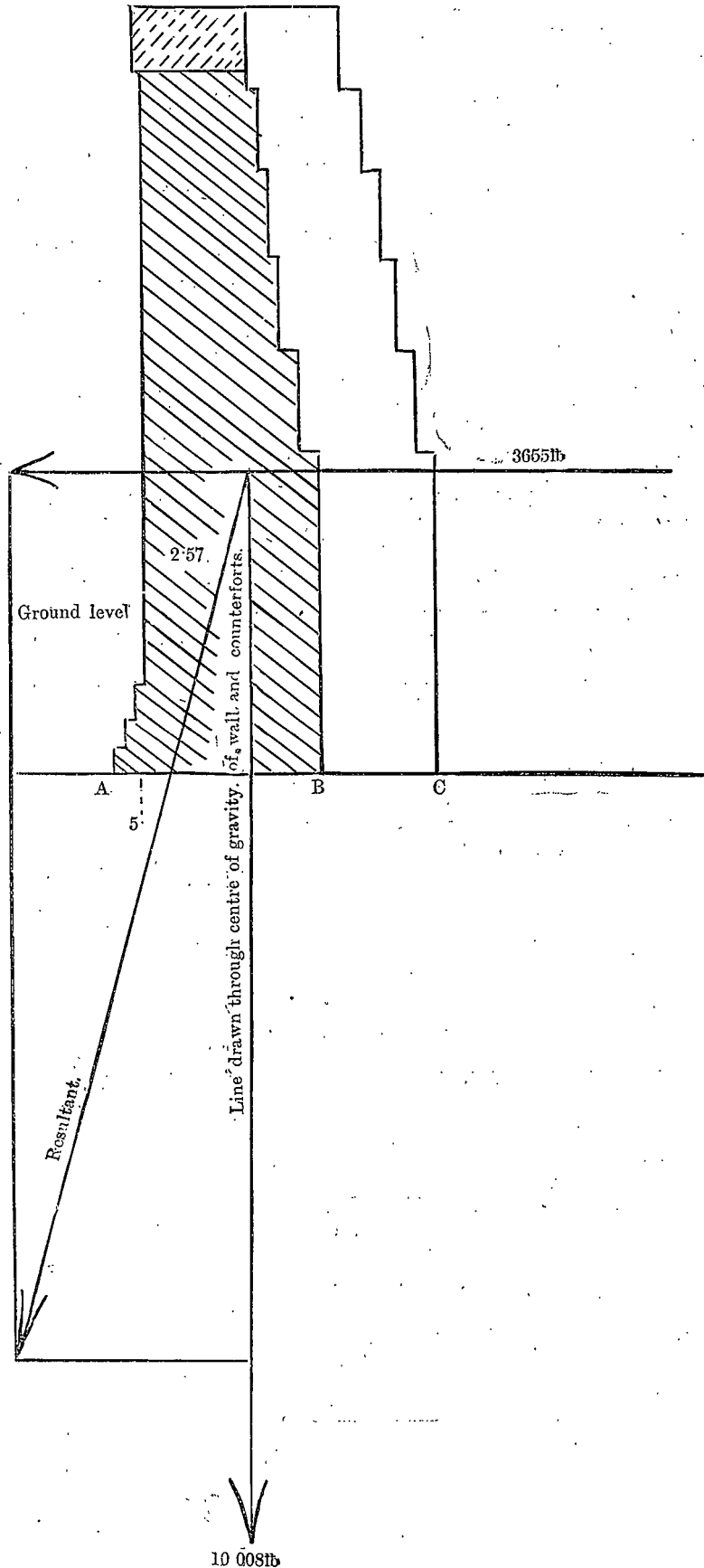
was insufficient, and no provision was made for housing the ends of the main girders, and for holding back the ballast. I consider that the additions shown on the revised design were necessary.

STABILITY OF ABUTMENTS—REVISED DESIGN.

The weight of wall and two counterforts is equivalent to 10,008 lb. per foot run. The maximum earth-thrust, by Rankins' formula, $\frac{wh^2}{2} \tau^2 \left(\frac{H}{4} - \frac{O}{2} \right)$ where $w = 100$ lb. per foot cube, $O = 45^\circ$ is to 3,655 lb. per foot run.

An inspection of the diagram will show that the resultant pressure passes very near to the point A, about which the wall tends to rotate, neglecting the adhesion of the brickwork to the concrete; the pressure 10,008 lb. will be distributed over an area of 1.5 square feet, and the maximum pressure at A is nearly 6 tons per square foot.

Rail level.



Conclusions on the cause of the failure of the abutments.

The summary should have shown thus. It is clear that if the thickness of the wall had been increased the maximum pressure on the foundations would have been less, and though the failure is due to bad foundations, still a better design would have mitigated the evil.

Not Mr. Townsend; the engineer who was responsible was young Mr. Cowdery.

Conclusions on testing.

Bridges between Blacktown and Penrith.

The two sketches on pages 26 and 27 show that Mr. Townsend's design for the abutment-wall, has advantages in stability and smaller pressure on foundations which are due to the batter of 1 in 12, and to the rubble backing. In No. 1 bridge and in No. 3 bridge, although the height of the abutment-walls measured to the ground level is from 3 feet to 5 feet greater than the height shown on the contract drawing, and measured to the level of bottom of footings from 3 feet to 5 feet 6 inches greater, the thickness of the brickwork has not been increased. In No. 2 bridge for an increase in height to ground level of 2 feet 8 inches, and to footings of 6 feet, the thickness of the brickwork has been increased 9 inches.

The contract section as illustrated on page 27 has very little surplus stability, and wherever the height was increased a corresponding proportional increase should have been made in the thickness of the wall. By increasing the thickness of the wall the stability would have been greater and the maximum pressure per square foot on the outer toe of the foundations considerably reduced. As it is the walls have failed by yielding to the excessive pressure on the soft foundations. In the case of No. 8 bridge, although the height of the abutment-walls is not greater than that shown on the contract drawing, the foundations are exceptionally bad on the Blacktown end, owing to the accumulation of soakage water above the shale. It was obviously wrong to stop the foundations at a point so near to the shale 6 inches. In the abutment nearest Parramatta there is a layer of pipe-clay 1 in. thick intervening between the concrete and the shale in some places, although the wall may be on the shale in other places. The compression of this pipe-clay would allow the wall to come over at the top. The foundations should have been taken at least 6 inches into the shale. It should have been ascertained by means of trial-shafts in all these bridges, whether the shale was at a reasonable distance below the surface, and it should then have been considered whether it would be cheaper to spread the concrete out sufficiently to distribute the pressure over the material such as it is, or to go down to the solid shale merely increasing the thickness in proportion to the increased height or depth to foundation level. In the case of No. 1, No. 2, and No. 8 bridges, the foundations should have been carried down to the solid shale. I can prove this from the samples which I have taken from under the foundations of these bridges. In No. 3 bridge the foundations might have been spread over a larger area.

I consider that the District Engineer, Mr. Shellshear, has only exercised ordinary prudence in building the face-walls with which he is strengthening No. 1 bridge upon the solid shale, instead of the soft clay and black mud upon which the present walls have failed. I also agree with the method adopted for strengthening the walls, and suggest that similar face-walls be built to support the abutments which have failed in No. 2, No. 3, and No. 8 bridges. No. 2 bridge is at present propped up with timber.

It is necessary to state that at the time when these foundations were put in there had been a period of drought, and the ground which is now soft clay, and in some cases almost mud, would appear hard and unyielding. Still I consider that the engineer who is responsible for these foundations has at least shown an error of judgment.

In No. 7 bridge the type of girder is unsuitable, as it does not give sufficient headway for the water which comes down with logs of timber in times of flood; a through bridge with cross girders resting on the bottom flanges should have been used. In No. 6 bridge the girders are also unsuitable although very little water comes down; an ordinary plate-web girder bridge of 20 feet space would have been sufficient.

The damage to the piers in No. 1 and in No. 3 bridges is due to the excessive vibration caused by the girders being compressed together and lifted off their bearing plates owing to the failure of the abutments.

The testing of these bridges demonstrated the fact that they possess sufficient vertical and lateral stiffness, and there is nothing to show that the failure of the brickwork is due to the type of girder.

The bridges between Blacktown and Penrith, where Mr. Townsend's girders are extensively used, are in good order, and the ironwork requires nothing more than painting. The abutments on these bridges do not in any case exceed the height shown on the contract drawing to ground level, although the piers are in some cases 10 feet higher.

So that I consider the failure of the brickwork in these bridges is entirely due to the failure of the foundations.

I have, &c.,

W. H. WARREN,

Wh. Se., M. Inst., C.E.,

Professor of Engineering.

No. 9.

Minute of Commissioner.

PLEASE make a synopsis of this report, bringing out the conclusions arrived at with more clearness for the Minister's information,—

- 1st. As to Townsend's design of girder—the character of his abutments, &c.
- 2nd. The general effect of the alteration made in girder, and the result which followed an alteration in the form of abutment.
- 3rd. The cause of the abutments of the bridges showing defects.
- 4th. Are the measures taken for the security of the bridges sufficient.

Ch.A.G., 1/5/88.

Mr. Fisher's synopsis herewith, 5/5/88.

SYNOPSIS

SYNOPSIS of Professor W. H. Warren's report on the strength and stability of the bridges between Parramatta and Blacktown, also on the original designs for these bridges, as prepared by Mr. Townsend.

(1st.) *As to Mr. Townsend's design of girders, the character of his abutments, &c.*

1st. The design of girders shows ample vertical strength, but, as appears from original plan, they were very deficient to resist side oscillation and wind.

It is necessary to state that this lateral bracing could be added to the design at a trifling expense.

Professor Warren considers that Mr. Townsend's drawings are incomplete.

The design of abutments, as regards power of resisting overturning, must be considered good; the rubble backing shown on drawings having the effect of minimising the earth thrust against abutments; the pressure per square foot of foundations being only about $1\frac{1}{2}$ ton.

Professor Warren, however, strongly objects to the proposed use of lime-mortar, as the lime can only set by absorption of carbon-dioxide from the atmosphere, which is impossible in the interior of a thick wall. He points out that clause 27 of specification makes provision for substituting cement mortar for lime mortar, although the schedule of quantities makes provision for only 200 cubic yards of brickwork in cement, and 10,331 cubic yards in mortar.

He also states that,—It is necessary to point out that the original drawings of abutments prepared by Mr. Townsend were incomplete in the following particulars:—The width of abutment-wall shown on the drawings was insufficient, and no provision was made for housing the ends of main girders, and for holding back the ballast.

(2nd.) *The general effect of the alterations made in girders, and the result which followed on the alterations made in the form of abutments.*

2nd. The alterations made in the design of the superstructure—which consisted in providing an efficient lateral bracing, wider spacing of main-girders, and substituting of cross-sleepers for longitudinal sleepers—have tended to generally improve the superstructure.

The amount of brickwork is about the same as in original design, although in the revised design the wing-walls are thicker. The substitution of cement mortar for lime mortar is a decided improvement, although increasing cost. There is also a slight advantage in the disposal of brickwork in revised design, the thickness being well proportioned, but scant. It should have been battered 1 in 12, as in original design, which would have added to its stability and have at the same time reduced the pressure on the foundations, which reaches a maximum of nearly 6 tons at the toe. He considers that the additions shown on the revised design were necessary.

On page 21 of report, Professor Warren gives the cost of a bridge built on Mr. Townsend's design, compared with a well designed plate-webb girder bridge, both of the same span, and concludes that although the plate girders would cost about £15 more per span, Mr. Townsend's design requires more brickwork, the cost of which would more than compensate for this small saving in ironwork. He considers the plate-webb girder the better of the two.

(3rd.) *The course of the abutments of the bridges showing defects.*

3rd. Professor Warren concludes his report thus:—

"To that I consider the failure of the brickwork in these bridges is entirely due to the failure of the foundations." This is substantiated by trial-shafts which have been sunk and which disclosed the fact that some of the abutments were found to be built on very bad foundations. This is very fully dealt with in detail in the report, but Professor Warren adds:—"It is necessary to state, that at the time when these foundations were put in, there had been a period of drought, and the ground which is now soft clay and in some cases almost mud, would appear hard and unyielding. Still I consider that the engineer who is responsible for these foundations has at least shown an error of judgment." He also says that there is nothing to show that the failure of the brickwork is due to the type of girder, which seems to be substantiated by the fact that the bridges between Blacktown and Penrith, which are of the same designs, show no signs of failure.

(4th.) *Are the measures taken for the security of the bridges sufficient.*

4th. At present, face walls are being built to the abutments at No. 1 bridge. Professor Warren considers that the District Engineer has only exercised ordinary prudence in building the face-walls upon the solid shale, instead of the soft clay and black mud upon which the present walls have failed. He also agrees with the method adopted for strengthening the walls, and suggests that similar face-walls be built to support the abutments which have failed in No. 2, No. 3, and No. 8 bridges, of which No. 2 bridge is at present propped up with timbers. The piers at No. 1 and No. 3 bridges which have been damaged indirectly by the defects in the abutments, will necessitate careful observation, and should the damage further develop, may require to be rebuilt entirely.

G.T., 3/5/88.

No. 10.

Minutes by The Commissioner to The Engineer for Existing Lines.

PLEASE furnish me with original drawings for bridges, duplication of line Parramatta to Penrith, also the drawings of the girders at Finnigan's Siding designed by Mr. Townsend, if these cannot be found, please measure the end diagonals.

Engineer for Existing Lines.

CH.A.G., 5/5/88.

Original

Original and amended drawings for these bridges are herewith—the drawings of the girders at Finnigan's Siding were lent to the Road Department some time ago, but cannot be found now; the end tris of these girders measure $5'' \times \frac{3}{4}''$.—G.C., 10/5/88. Secretary.

It stands to reason that if the girders at Finnigan's have end base measuring $5'' \times \frac{3}{4}''$, that Mr. Townsend did not design the end bars for the larger girders $5'' \times \frac{3}{4}''$. If Mr. Cowdery will refer to the correspondence now in the hands of the Official Assignee of J. and R. Robertson, he will see a letter from Mr. Townsend, dated August, 1884, requesting that the end bars might be made $5'' \times \frac{3}{4}''$, the figures $\frac{3}{4}''$ on plan being an error. If this letter be found as stated, and the structure would have been with this foundation strong enough (as I gather from Professor Warren's report, it would have been), why was the design altered in this respect.—Ch.A.G., 17/5/88. Mr. Cowdery.

I have seen the letter referred to but as it was a private communication from Mr. Townsend, I was not until now aware of its existence, consequently seeing that a mistake had been made with respect to this part of the design it became my duty to rectify it. Mr. Townsend never informed me that he had communicated with the contractors on the subject. The alteration was made for other reasons also in order to increase the lateral stiffness of the structure and make the several members of the same more uniform with a view of duplication of the parts.—G.C., 22/5/88. Commissioner.

Put with Professor Warren's report. I should like to see Mr. Townsend on Monday with all papers. Let him see Professor Warren's reply to my communication. Inquire whether weight of foot-paths was included in the $15\frac{1}{2}$ tons per span.—Ch.A.G.

Weight of one 44-ft. span for double line as designed by G. W. Townsend for duplication, Parramatta to Penrith,—

Top boom, $5'' \times 5'' \times \frac{5}{8}''$ angle (2), 44'	...	1760
14'' $\times \frac{5}{8}''$ plate (1), 44'	...	1283
Bottom boom, $5'' \times 5'' \times \frac{5}{8}''$ angle (2), 38'	...	1520
14'' $\times \frac{5}{8}''$ plate, 13'	...	280
Web bars, $5'' \times \frac{3}{4}''$ flat (4), 5'1'	...	255'4
$5'' \times 2\frac{1}{2}'' \times \frac{1}{2}''$ channel (12), 5'1'	...	979'2
$5'' \times 2\frac{1}{2}'' \times \frac{3}{8}''$ channel (12), 5'1'	...	734'4
Angle-iron in ends	...	200
Rivet heads, &c.	...	200
		7212
		4
	2240	28848 (12'9)
		2240
		6448
		4480
		19680
		20160

	Tons.
Four girders	12'9
Bracings for whole bridge ...	2'7

Including foot-paths... .. 15'6

This is 15 tons 12 cwt. for the whole span for double line for 44-ft. span, centre to centre, with a foot-path in either side as shown in the drawing of my design, with the extra bracing added as recommended by Professor Warren.

	Tons.	Cwt.
A plate girder bridge of similar span, without foot-paths, would weigh ...	16	15
Foot-path	1	0
	17	15

G. W. TOWNSEND.

No. 11.

Minutes by The Commissioner.

Professor Warren's Report upon the Bridges between Parramatta and Penrith.

ON page 21 of his report, Professor Warren says:—"I find by calculating the weight of the ironwork in one span of Mr. Townsend's design, and adding to it the necessary bracing referred to, that the weight for a double line of way is $15\frac{1}{2}$ tons per span."

Ask the Professor if he included in this calculation the foot-path on each side which are provided for in Mr. Townsend's design. The ironwork weighs a little over a ton, and if the foot-paths have been included, the comparison made with the plate-girder bridge, which is without foot-paths, should be as $14\frac{1}{2}$ tons is to $16\frac{3}{4}$ tons—a difference of $2\frac{1}{4}$ tons or 15 per cent.

Again, the Professor—on page 22—gives a statement of the contract prices for ironwork, in which it is shown that the rate per ton of Mr. Townsend's girders was £16 16s. 9d., while the average price paid for the plate girders therein enumerated amounted to £18 per ton.

If the calculation were made on this basis—and I shall be glad to know if there be any objection to the calculation so being made—would not $14\frac{1}{2}$ tons at £16 16s. 9d., and $16\frac{3}{4}$ tons at £18, show a difference in price per span of £56, and not £15 only.

Ch.A.G., 12/5/88.

The

The synopsis furnished—while it brings prominently out the strictures on Mr. Townsend's design—does not, it seems to me, sufficiently make manifest the objections which Professor Warren has taken to the design of abutments and wing-walls substituted for those of Mr. Townsend's. Nor is it shown that the Professor has expressed the opinion that a batter of 1 in 12, with rubble backing as proposed by Mr. Townsend, would have minimised, by reducing the earth thrust, the mistake made in not going sufficiently far for secure foundations. The omission is due no doubt to the belief that these are comparatively unimportant points. On another paper I have directed a communication to be made to Professor Warren as to whether there is not an error in the calculation respecting the comparative cost of spans of bridges to Mr. Townsend's girders, and to the plate girder design to which he refers. The Professor makes the difference of £15 per span in favour of Mr. Townsend's design, whereas if deduction be made for weight of bridge foot-paths introduced in Townsend's design and omitted from the plate girder design, and the actual cost of ironwork in both designs, the difference is £56 per span in favour of Townsend's design. When a reply to that communication is received I will submit the papers to the Minister.—CH. A. G., 15/5/88.

No. 12.

The Secretary for Railways to Professor Warren.

Sir;

Department of Railways, Sydney, 16 May, 1888.

Referring to your report upon the bridges between Parramatta and Penrith, I have the honor, by direction of the Commissioner for Railways, to ask if you included in the calculations appearing on page 21 the foot-paths on each side which are provided for in Mr. Townsend's design. The ironwork weighs a little over a ton, and if the footpaths have been included the comparison made with the plate girder bridge, which is without foot-paths, should be as $14\frac{1}{2}$ tons is to $16\frac{1}{2}$ tons—a difference of $2\frac{1}{2}$ tons or 15%. On page 22 again, you give a statement of the contract prices for ironwork, in which it is shown that the rate per ton of Mr. Townsend's girders was £16 16s. 9d., while the average price paid for the plate girders therein enumerated amounted to £18 per ton.

If the calculations were made on this basis—and I am to say that the Commissioner will be glad to know if there be any objection to the calculation being so made—would not $14\frac{1}{2}$ tons at £16 16s. 9d., and $16\frac{1}{2}$ tons at £18 show a difference in price per span of £56 and not £15 only.

I have, &c.,

D. VERNON,

Secretary for Railways.

Professor Warren to The Commissioner for Railways.

Sir,

University, 18 May, 1888.

I have the honor to acknowledge the receipt of your letter of the 15th instant referring to the conclusions on page 21 of my report on the bridges between Parramatta and Penrith.

With regard to the question "Did I include in the calculations appearing on page 21 the foot-paths on each side which are provided in Mr. Townsend's design," I answer I did not include them. I state on page 21 "I find by calculating the weight of the ironwork in one span of Mr. Townsend's design, and adding to it the necessary bracing referred to, that the weight of one span is $15\frac{1}{2}$ tons."

It will be seen by referring to the conclusions on page 19, clauses 1, 2, and 3, how I consider the bridge should have been designed, the modifications and additions referred to would have increased the weight of the revised design by $\frac{1}{4}$ of a ton. The weight of the ironwork in one span of the revised design (in accordance with which the bridge has been constructed) is $15\frac{1}{4}$ tons.

I have recalculated the weight of ironwork, and I consider that $15\frac{1}{2}$ tons is the minimum weight of one span of a properly designed bridge on Mr. Townsend's principle.

With regard to total weight of ironwork and price per ton in a bridge designed on Mr. Townsend's principle compared with a properly designed plate-web girder bridge of the same span and carrying the same loads with the same rivet stresses, I may state that the bridge recently erected at Strathfield is such a bridge, excepting that the span is slightly less. The total weight of one span is 16 tons, and if the span had been the same as in Mr. Townsend's bridges it would have weighed $16\frac{1}{2}$ tons per span. The Strathfield Bridge consists of four main girders under the permanent-way, with an open deck, so that it is strictly comparable with Mr. Townsend's bridges. In comparing the price per ton it should be noted that 675 tons were contracted for in Mr. Townsend's bridges, while only 16 tons were contracted for in the Strathfield Bridge, which I think suggests that if the quantities had been equal in both bridges, the price per ton would have been still more in favour of the Strathfield Bridge.

It is incorrect to compare a through bridge consisting of two main girders and cross girders, with a deck bridge consisting of four main girders, with no cross girders, hence it is not correct to take the average price per ton from the list given on page 22 of my report as suggested in your letter.

The cost of these bridges is therefore shown as follows:—

$16\frac{1}{2}$ tons,	@ £16 10s. per ton	=	£276 7 6
$15\frac{1}{2}$ tons,	@ £16 16s. 9d. per ton	=	£260 19 7 $\frac{1}{2}$

Difference in favour of Mr. Townsend's £ 15 7 10 $\frac{1}{2}$

I shall be glad to give you fuller particulars on this question, or on any other question arising out of my report on these bridges should you desire it.

I have, &c.,

W. H. WARREN.

Acknowledge the receipt of Professor Warren's letter, and say that I am obliged to him for the explanation he has offered. I accept without question his contention that it is incorrect to compare a through bridge with cross girders with a deck bridge on rail girders. *I should not presume to contest with

*I would, however, point out that in the list of bridges given by Professor Warren, there are two which can, even with this correction, be compared with Townsend's form of bridge, viz., the Strathfield Bridge which the Professor had adopted, and that over Eastern Creek in the duplication between Parramatta and Penrith, the latter has the advantage for the purpose of more correct comparison of having been ordered at the same time as Townsend girders, and met of course a similar market—the price was £19 15s. 8d. Striking an average, however, between this price and the price for the Strathfield Bridge, the amount is £18 2s. 10d., being slightly in excess of the figure which I erroneously suggested should be taken.

with the Professor any scientific point in this matter, but on a question of figures which are open equally to non-professional as to professional men, I hope he will permit me to take advantage of his kindly expressed offer to afford me fuller particulars on any question arising out of his report. I no longer question that the weight of a span of Mr. Townsend's bridges is $15\frac{1}{2}$ tons as stated by the Professor, but I may reasonably ask how it is that the calculation shows that the Strathfield Bridge is 16 tons for 40 feet span, and only $16\frac{3}{4}$ tons for 44 feet span—if the weight increases in proportion to span would not the correct weight be 17 tons 12 cwt.

CH.A.G.

No. 13.

The Commissioner for Railways to Professor Warren.

Sir,

Department of Railways, Sydney, 29 May, 1888.

I have the honor to acknowledge your letter of the 18th instant, and to express my obligations for the explanation you offer. I accept without question your contention that it is incorrect to compare a through bridge with cross girders with a deck bridge on rail girders. I would, however, point out that in the list of bridges furnished by you there are two which can, even with this correction, be compared with Townsend's form of bridge, viz., the Strathfield Bridge, which you have adopted, and that over Eastern Creek in the duplication between Parramatta and Penrith. The latter has the advantage, for the purpose of more correct comparison, of having been ordered at the same time as Townsend's girders, and met of course a similar market. The price was £19 15s. 8d. Striking an average, however, between this price and the price for the Strathfield Bridge, the amount is £18 2s. 10d., being slightly in excess of the figure which I erroneously suggested should be taken.

I should not presume to contest with you any scientific point in this matter; but on a question of figures, which are open equally to non-professional as to professional men, I hope you will permit me to take advantage of your kindly expressed offer to afford me fuller particulars on any question arising out of your report.

I no longer question that the weight of a span of the Townsend bridges is $15\frac{1}{2}$ tons as stated by you, but I may reasonably ask how it is that the calculation shows that the Strathfield Bridge is 16 tons for 40 feet span, and only $16\frac{3}{4}$ tons for 44 feet span. If the weight increases in proportion to span, would not the correct weight be 17 tons 12 cwt.?

I have, &c.,

CH. A. GOODCHAP,
Commissioner for Railways.

Commissioner for Railways,

Sir,

University of Sydney, 2 June, 1888.

I have the honor to acknowledge the receipt of your letter of the 29th instant. With regard to the bridge over Eastern Creek, you state "that it has the advantage for the purpose of more correct comparison of having been ordered at the same time as Townsend's girders and met of course a similar market." The reasons why I did not select this bridge from the list for comparison with Townsend's are as follows:—(1) the span is smaller; (2) the design of the girders is such as to render them more difficult to manufacture than either Townsend's girders or the Strathfield girders; (3) I could not add something to them as in Townsend's bridges, but I should have been obliged to have made a radical alteration in the design in order to reduce the weight and cost of manufacture.

I had these considerations in mind when writing the report and also my letter of the 18th instant, but I lost sight of the fact that they were ordered at the same time as Townsend's girders and met a similar market. The question really is what would have been the price per ton of a well designed plate-web girder bridge, such as the one at Strathfield, ordered at the same time as Townsend's bridges? Having regard for all the circumstances of the case I think that the mean of the prices per ton for the Strathfield and Eastern Creek Bridges, viz., £18 2s. 10d., is as nearly correct as possible.

With regard to my estimate of the weight of a well designed plate-web girder bridge of the same span and carrying the same loads with the same unit stresses as Townsend's bridges, I state in my letter of the 18th "that the bridge recently erected at Strathfield is such a bridge." This statement I now see is somewhat misleading. I took the weight of 16 tons from the list given in my report, but I arrived at the weight of the 4-plate web girders and bracing for the same span as Townsend's quite independently by simply remembering the design and calculating the stresses and weights, which gave me $16\frac{3}{4}$ tons for a length of 44 feet, and found that the weight of the Strathfield Bridge could have been considerably reduced with perfect safety then.

1. The effective depth has been taken 2 inches less than the distance between the centre of gravity of the flanges which would increase the stresses and consequently the weight of material beyond that actually necessary. 2. The flange-plates are longer than necessary and there are packing pieces under every T iron stiffener and in other places to avoid joggling with T irons. 3. There is no necessity (except for oxidation) for the $\frac{1}{8}$ web-plates in the centre of the girders.

So that without saying anything against the Strathfield Bridge, which is beyond a doubt the best designed plate-web girder bridge I have seen, I think that $16\frac{3}{4}$ tons is quite sufficient for such a bridge of the same span as Townsend's, although the weight, 17 tons 12 cwt., suggested by you could not be considered excessive if the extra 17 cwt. were disposed of in simplifying the design so as to reduce the cost of manufacture:

Adopting the $16\frac{3}{4}$ tons, we have—

	£	s.	d.
16 $\frac{3}{4}$ tons, at £18 12s. 10d. per ton	303	17	5 $\frac{1}{2}$
15 $\frac{1}{2}$ tons, at £16 16s. 9d. per ton	260	19	0
Difference in favour of Townsend's bridges, £42 18s. 5 $\frac{1}{2}$ d.			

I hope you will not hesitate to write to me again if I have not sufficiently explained myself.

I have, &c.,
W. H. WARREN.

No. 14.

The Commissioner for Railways to Professor Kernot.

Sir, Department of Railways, Sydney, 18 June, 1888.
I am desired by Mr. Secretary Sutherland to ask you to furnish him with a report upon the bridges on the railway line between Parramatta and Blacktown.

I have, &c.,
CH. A. GOODCHAP,
Commissioner for Railways.

The Minister wishes as soon as possible the tracings of bridges; Parramatta to Penrith, supplied to Professor Warren; similar tracings of the 30-foot spans at Eastern Creek; copy of deflection tests taken by Professor Warren.—D.C.M'L., 25/6/88. Will Mr. Cowdery please attend to this matter? Required urgently.—H.M'L., 28/6/88. Mr. Thomson for tracings similar to those supplied to Professor Warren.—G.C., 29/6/88. Please supply tracings as soon as possible.—M.T., 29/6/88. Mr. Fischer. Copies (nine) of original and amended bridge plans, Parramatta to Penrith, herewith.—G.T., 3/7/88; Deputy Engineer. Nine tracings herewith. The deflection tests taken by Professor Warren have not been furnished to me, so I am unable to furnish them.—M.T., 4/7/88. Secretary.

C. A. Goodchap, Esq., Commissioner for Railways,—
Sir, University, Melbourne, 28 June, 1888.
I write to ask whether the Honorable Mr. Sutherland is still anxious that I should report upon the design of the Blacktown Railway bridges, and, if so, when I may expect to be supplied with the necessary documents.
Yours, &c.,
H. C. KERNOT.

Be good enough to furnish me with the plans (or tracings) of the bridge at Strathfield, known as the Phoenix design, adopted by Mr. Fischer.—Ch.A.G., 3/7/88. Engineer for Existing Lines, B.C., 3/7/88. Two blue prints herewith.—G.C., 7/7/88. Secretary. I understand that Professor Kernot has asked for these plans in connection with the report he has to make on Mr. Townsend's design of girder bridges; forward with Minister's approval.—Ch.A.G., 10/7/88. Minister wishes drawings forwarded properly protected.—H.M'L., 10/7/88.
When sending plans to Professor Kernot, of bridges which he is to report upon; please send Professor Warren's deflection tests, they will be found in report on bridges, and a copy of the weights of bridges sent to Warren.—Ch.A.G., 11/7/88.

Sir, Department of Railways, Sydney, 14 July, 1888.
Referring to your letter of the 28th ultimo, asking that you may be furnished with the documents necessary to enable you to report upon the bridges between Parramatta and Blacktown; I am desired by the Commissioner to forward herewith by Parcels Post, in tin cover, tracing showing the bridges, &c., and copy of deflection tests and weights of bridges supplied by Professor Warren:
I have, &c.,
D. VERNON,
Secretary of Railways.

Professor Kernot, the University, Melbourne: Secretary of Railways.

University of Melbourne, 28 July, 1888.
To the Honorable John Sutherland, M.P., Secretary for Works, Sydney,—

Sir,
In obedience to the request contained in the communication addressed to me by the Commissioner for Railways, dated June 18th, No. 3,300; I have the honor to submit the following remarks upon the bridges on the railway line between Parramatta and Blacktown, and also upon certain other bridges, of which particulars were forwarded me on the 14th instant, correspondence No. 3,795.

The bridges are enumerated in their proper order in the subjoined tabular statement:—

No.	Mileage from Sydney.	Number and size of spans.	Area of waterway to lower side of girders.	Area of country drained.	Square feet of waterway per mile of country drained.		
1	15 miles 20 chains	2 of 40 ft.	sq. ft. 1,400	About 20 square miles	220		
2	16 " 48 "	2 of 40 ft.	1,200				
3	17 " 53 "	1 of 40 ft.	440				
4	18 " 53 "	2 of 40 ft.	480				
5	19 " 34 "	1 of 40 ft.	200				
6	20 " 36 "	1 of 40 ft.	320				
7	20 " 72 "	1 of 40 ft.	360				
8	24 " 23 "	5 of 40 ft. and 8 of 30 ft.	3,200			25 square miles	128
9	24 " 78 "	1 of 40 ft.	240				
10	27 " 50 "	1 of 19 ft.	150			4 " "	127
11	28 " 12 "	2 of 19 ft.	120				
12	28 " 50 "	3 of 40 ft.	1,120			12 " "	93
13	30 " "	16 of 40 ft.	9,280				
14	30 " 14 "	3 of 40 ft.	1,920			110 " "	102
15	31 " 43 "	1 of 19 ft.	40				
16	31 " 76 "	1 of 40 ft.	240				
Total.....		29 of 40 ft. 8 of 30 ft. 4 of 19 ft.	510				
Salt Clay Creek, Cootamundra.....		8 ft. barrel culvert	53	20.3 square miles	22		

The first and most important consideration is that of waterway, for while on the one hand a deficiency in this respect may be fraught with great danger both to the railway itself and to adjoining properties, an unnecessary excess may easily lead to an increased cost far greater than, for instance, that which would be involved by the adoption of the least economical instead of the most economical type of iron girder in ordinary use.

The waterway required depends upon the area of the country drained, taken in conjunction with the rainfall and character of the surface.

The areas drained given in the preceding table were obtained from a map of the county of Cumberland, printed at the Surveyor-General's Office, Sydney. The scale is half-an-inch to the mile; and the map shows all the principal watercourses clearly and distinctly. In drawing the watershed lines I have had to some extent to use my judgment as to their probable position between the sources of the watercourses shown. Hence the areas given cannot be guaranteed as minutely accurate. On the other hand they cannot possibly be so largely wrong as to vitiate my conclusions, especially as I have, when in doubt, drawn the line so as to include as much country as possible, and thus reduce the apparently anomalous and excessive proportion of waterway to area drained that I shall presently refer to.

The rainfall is obtained from the statistics of rain gauging which show the district extending from Parramatta to Penrith to be subject to a very much smaller rainfall than that which obtains in Sydney and the immediate suburbs. This latter varies from 40 to 50 inches per annum, while the former is given by rainfall maps in my possession (and which were prepared in the Melbourne Observatory from data furnished by H. C. Russell, Esq., Government Astronomer, Sydney) as being only from 20 to 30 inches, thus corresponding with the rainfall in and about Melbourne, Sandhurst, and many other parts of Victoria where rainfall and stream discharges have been carefully observed for many years.

The determination of the proper waterway of a bridge or culvert draining a given area of country, from *a priori* considerations, is a difficult and somewhat indeterminate problem. Fortunately, however, there is a large mass of accessible experience connected with streams that have been well watched, and their behaviour recorded for twenty, thirty, or even forty years past, by means of which when the rainfall and general character of the country is known, the requisite waterway may be fixed with sufficient accuracy for all practical purposes.

Collating a considerable number of examples of old standing in parts of Victoria, when the rainfall and character of country corresponds with that between Parramatta and Penrith, I find that about 50 square feet of waterway answers very well for 1 square mile of country, 150 square feet for 5 square miles, 250 for 10 square miles, 400 for 20 square miles, and 1,200 for 100 square miles, the number of square feet of waterway required for each square mile of area drained diminishing as that area increases for very obvious reasons.

Comparing the waterways of the bridges between Parramatta and Penrith with the above results, one arrives at the astonishing conclusion that they are in various cases from four to nine times as large as they need be. For instance, we have 4,400 square feet waterway for 20 square miles of country, when 700* square feet should suffice, and 11,200 square feet waterway for 110 square miles of country, when about 1,300 should do.

With reference to the latter of these two instances, I may state that we have in Victoria two important rivers, the Yarra and the Barwon, each draining an area of about 1,600 square miles, which have for the past thirty years found no difficulty in passing through bridges only two-thirds the size of that provided at South Creek, near Penrith, for a catchment of only 110 square miles.

Even if we go to India, with its tropical climate, we find on the authority of Colonel Dickens, as quoted in "Jackson's Hydraulic Manual," a recent and standard book, that the flow of the streams of Bengal and Bahar is only double what has been observed in Victoria, and therefore the waterway required, even according to Indian experience, comes out from one-half to one-fifth of what has been actually provided in the various cases.

I therefore see no way of escape from the unwelcome conclusion that these bridges are enormously larger than is necessary, and so represent a most serious waste of public money.

As an example of a tremendous error in the opposite direction, I may refer to the case of the Salt Clay Creek, near Cootamundra, the scene of the great and fatal disaster of the 25th January, 1885. Here a culvert of 53 square feet waterway was provided to carry off the drainage of 20 square miles of country.

It was stated by Mr. Whitton, Engineer-in-Chief of the New South Wales Railways, in his sworn evidence to have been correctly designed and to represent his ordinary practice in these matters.† It really was a fair provision for 1 square mile of country only, and needed to be increased eightfold to enable it to discharge the drainage of 20 square miles. Mr. Whitton based his opinion on a calculation which started with the utterly erroneous assumption that 1 inch in 24 hours was the maximum rainfall that had to be provided for, whereas there are most abundant and reliable records of rainfalls at Sydney, Melbourne, Adelaide, Sandhurst, Ballarat, and other places of rain storms exceeding 1 inch per hour on numerous occasions during the past thirty years.

This astounding evidence on the part of an engineer of Mr. Whitton's position and experience caused the utmost horror and consternation amongst hydraulic engineers in Melbourne.

The contrast between the practice of the Railway Department at Cootamundra and on the line between Parramatta and Blacktown is most startling. The areas are in each case 20 square miles. The rainfall according to the best information accessible to me is practically the same, the country at least as unfavourable in the former as in the latter case, and yet at one place there is provided 53 square feet of waterway, and in the other 4,400!! Could inconsistency further go?

The only conclusion I can draw is that culverts and bridges on the New South Wales Railways have been constructed without any regard to the real requirements of the case, and I would strongly urge that without any delay measures be taken to determine approximately the areas draining through the various culverts and bridges, and compare the results with approved practice elsewhere. In this way information of the highest value in view of future railway construction will be obtained, and most probably the occurrence of disasters such as that at Cootamundra averted.

The

* I say 700, instead of 400, to allow for the fact that the water is discharged at several openings instead of one, there being several areas of about 3 square miles each instead of one of 20 square miles.

† See *Sydney Morning Herald* and *Daily Telegraph* of 13th June, 1885.

The tabular statement on pages 1 and 2 refer to the bridges as they exist at present. The drawings supplied me show the waterways to have been larger in the original timber bridges, and to have been reduced considerably in bridges 8 and 12, and slightly in the other cases in the original design for the permanent structures, and again in the case of No. 8 largely increased in the amended design. In view of the preceding investigation, I must regard this last alteration as a very grave mistake, involving serious loss of money.

Leaving now the question of waterway, I will proceed to discuss the secondary, but still important, questions of the construction of the brick abutments and piers and the iron girders.

Comparing the original with the amended design of the brick abutments, I find the original design to be superior in the following respects:—

1. The abutment-wall being battered on the face possesses much greater stability than if vertical, and distributes its weight more equally upon the foundation, thereby greatly reducing the liability to settlement.
2. The wing-wall guides the flood-water smoothly into the opening of the bridge, the stream lines (or paths of the particles of water) being less disturbed than in the amended design. This, practically, slightly increases the discharging power of the opening.
3. The counterforts are arranged with a definite relation to the girder seats strengthening the wall at the points where the girders discharge their load.
4. A mass of what appears to be hand-packed rubble is placed behind the wall. This would increase the stability and facilitate drainage.

On the other hand the width of the abutment in the original design is altogether insufficient to stop a double line embankment surmounted by the usual allowance of ballast. If terminated as shown 2 feet 9 inches below the bottom of the rail it would need to be at least 29 feet wide instead of 21 as shown and figured. Had the abutment been built as shown it would have been found necessary to raise the brickwork at least 2 feet 6 inches all round in order to prevent the ballast spilling over the edge.

The drawings of the original design of the abutment are not complete. A front elevation should have been made, and this would at once have revealed the necessity of considerably adding either to the height or width in order to retain the ballast.

The amended design is superior to the original design in the following respects:—

1. It is both higher and wider, and is sufficiently so for its purpose, but without any excess. From this point of view it is correctly designed. 2. The drawings are properly worked out, every view necessary for the information of the persons engaged in carrying out the work being given.

In neither the original nor the amended designs do I see any weepholes shown. This is a very grave omission and if it exists in the work as executed would go far to account for the failures I observed during a cursory inspection last month.

In both the original and amended drawings the thickness of the abutments and wing-walls appears rather scant, and in the original design the footings are decidedly weak, the projection of 9 inches being obtained in three courses only instead of at least six as in good practice. The amended design shows great improvement in this respect.

There is very little difference in the designs for the piers, but the drawing of the original design is rather obscure, so that I am not quite sure how the ends are formed. The piers in the amended design is a very good one and is very clearly shown.

Not having copies of the specification I am unable to discuss the quality of material or mode of construction.

A very brief inspection of some of these bridges leads me to believe that the failures are due to sinking of the foundation under the great pressure at the front edge of the abutment, due to its not being battered as originally designed. The steps being taken to prevent further movement appear judicious. I would suggest that great care be taken to bind the new work well into the old and to see that proper weepholes are left to drain away the water that may accumulate behind the wall.

The next point for discussion is the ironwork. The main girders of the 40 feet spans are of the type known as "Warren girders." This type is not very usual on so small a scale, though often employed for bridges of 80 or 100 feet spans. The usual, though by no means universal practice both in England and America, is to employ plate girders for such spans as those between Parramatta and Penrith. Many arguments have been used for and against both forms of girder, the comparative merits of which are probably nearly equally balanced.

On behalf of the Warren girder it is claimed,—

- 1st. That it is rather more economical of material.
- 2nd. That it requires a smaller number of rivets.
- 3rd. That it offers less surface to wind pressure.
- 4th. That in the event of water rising higher than was expected it can, if necessary, flow through the girders.
- 5th. That the metal being concentrated into comparatively massive bars, instead of being spread out in thin sheets is less likely to suffer serious reduction of sectional area through corrosion.
- 6th. That it is more pleasing in appearance. On behalf of the plate girder it is urged,—
 - 1st. That it is very rigid.
 - 2nd. That the work is simple and straightforward and costs less per ton than in the other (this is certainly true in Melbourne.)
 - 3rd. That it saves a few feet in height of the piers.

My own predictions are in favour of some open form of girder such as the Warren. At the same time I am bound to admit that the practice of the great majority of engineers including some of the highest eminence is in the other direction.

I have computed the stresses on the various parts of the girders both in the original and amended designs, and find that under an engine and tender of 70 tons weight, and 44 feet wheel-base they do not exceed 4 tons per square inch on the top and bottom members, and 2 tons per square inch on the central diagonals. These stresses are in accordance with the best practice and agree with the latest German investigations.

The

The compressive members are stiff enough to be in no danger of lateral buckling. The shearing and bearing areas of the rivets in the original design are ample if not excessive, and the riveted joints are consistently arranged.

The intersection of the mean fibres (or lines drawn through the centre of gravity of the cross sections) of the diagonals and bottom members is fairly accurate. In the case of the top member, this is not the case, the mean fibres of the diagonals meeting about 5 inches above the centre of gravity of the T shaped section built up of the plate and angle-irons. Hence there is a certain bending action. On the other hand the top member is made so massive (being nearly double the sectional area of the bottom member) that this bending action is innocuous. This additional sectional area could not in any case have been dispensed with, as the top member has to act as a beam to carry the weight from one apex to the next.

I have no information as to whether the holes were drilled or punched. If the latter I think that a flat bar only 5 inches wide as used in the end diagonal of the original design rather narrow for a double row of 1 inch rivets. If the former I should not urge this objection.

The top members of the four main girders are braced together in a horizontal plan, by a continuous lattice work of light angle-iron. This bracing is of great importance in view of heavy wind pressure on a train traversing the structure, and is the only lateral bracing that I regard as really essential in such a case. As designed it is abundantly strong for its purpose, but a bracing consisting of fewer and more massive members would have been cheaper and less likely to be injured accidentally during erection or afterwards.

In addition to this the outer girders are braced in a vertical transverse plan by a system of angle-irons,* the primary object of which appears to be to carry a gangway for foot passengers. I do not see what need there was for these overhanging gangways as any person desiring to cross the bridge could do so on the 6-foot.

The inner main girders are not braced in a vertical transverse plane, and would probably oscillate a little during the passage of a train. I do not think such oscillation would be dangerous, and I know of light Warren girders without lateral bracing that have carried railway traffic for years without mishap.

The rails are laid on continuous longitudinal sleepers, bolted on the top members of the girders.

In the amended designs the following modifications have been made:—

1. The girders have been spaced 5 ft. 6 in. apart instead of 4 ft. 8½ in., and transverse sleepers have been used instead of longitudinal. This I regard as an improvement, securing a more elastic road, a more effective gauge tie, and rendering the ironwork more accessible for inspection and painting.
2. The end diagonals have been made of 5 in. x 2½ in. x ¼ in. channel-iron instead of 5 in. x ¾ in. bars. This slightly simplifies construction by reducing the number of sizes of iron needed, but on the other hand renders the rivets rather less accessible, which is not a good thing.
3. The rivets have been reduced from 1 in. to ¾ in. diameter. This facilitates construction, but increases the stress on the shearing and bearing area of the rivets. The pressure on the bearing area is 6½ tons per square inch. This would not be objected to by British engineers, but Americans limit it to 5½ tons.
4. Additional rivets have been introduced connecting the plate and angle irons forming the top member. This I approve of, as in their absence the angle-irons would be deflected by the engine wheels independently of the plate.
5. The horizontal lateral bracing between the top members of the girders has been altogether altered. The alteration is in some respects an improvement, but not in all. The unnecessary overhanging part at each side is done away with, and the total number of bars somewhat reduced. Provision is also made for conveniently erecting one half of the bridge at a time. One of the defects of the amended bracing is that it does not extend to the ends of the main girders, but starts some distance short. Consequently under a heavy wind pressure there is a very considerable horizontal bending stress on the top members of the girders. Another is that the mean fibres of the diagonals do not intersect as they should in the centre line of the girder. I consider that a simple angle-iron bracing like a Warren girder laid on its side, and extending completely from end to end of the main girders, would have been simpler, cheaper, and better. I should apply it only between each pair of girders, leaving the central space under the 6 foot quite open.
6. The vertical transverse bracing introduced in the amended design I altogether object to. The practice of binding four girders together transversely by a stiff vertical system is wrong in principle and injurious in its effect. It causes the whole structure to twist when only one line of rails is loaded, thus increasing the deflection of the outside girder on the loaded side beyond what it would be were both lines loaded. The table of deflection supplied shows clearly how much more severely the outside girder is punished than the inside one. Careful experiments show that this injurious and unnecessary bracing reduces the strength of a bridge by about 10 per cent.

A four-girder bridge for a double line of railway should be made as two entirely separate bridges, each capable of deflecting independently of the other. If it is desired to connect them together so that they may aid each other in resisting wind pressure or other lateral force, the connections should either be made with winged joints (as is actually done in one of the largest and most recent Victorian viaducts), or should be so constructed as to be extremely flexible in a vertical direction while stiff and unyielding horizontally. I recommend that the central portion of this transverse vertical bracing be removed forthwith from all these bridges. The lateral portions are not injurious. They are probably of use in checking vibrations of the lower members of the main girders, but are larger and more complete than is necessary for the very slight stress they have to endure.

In concluding this part of my report I must bear witness to the completeness and clearness of the drawings of the amended design.

Amongst the drawings of the original design there is one (4 B) showing a small Warren girder of 19 feet clear span. With the design of this girder I cannot agree. The tension in the bottom member is but little over 20 tons, and for this a net sectional area of 9 square inches is provided where 6 would

* The drawing is incomplete, not showing at what points or how many times this tracing is introduced in the span.

would be enough. The compression on the end diagonal is 15 tons. This is discharged upon a length of half an inch of a pin $1\frac{1}{8}$ inches diameter, giving a diametrical bearing area of $\frac{1}{4}$ square inch corresponding to a bearing pressure of 16 tons per square inch, whereas 8 is regarded as good practice in England and $5\frac{1}{2}$ in America. The top members of these girders are efficiently but not economically braced in a horizontal plane, but no bracing is shown in a transverse vertical plane. In the present case this is a serious omission, as the girders are supported on the bottom, and not, as in the case with the larger ones, by the top member, and hence need at each end an efficient vertical transverse bracing to prevent them falling over sideways. I note, however, a pencil memorandum which appears to intimate that the drawing is not complete or authoritative.

In bridge drawing No. 3 we have a plate girder designed to replace the preceding. It is in almost every respect preferable, being amply strong and comparatively simple. I must confess, however, to a little misgiving as to the durability of a plate-web $\frac{1}{4}$ inch thick, though I must admit these thin webs are greatly used in Victoria and elsewhere. Fifty years hence more will be known on this question of durability. In any case I would suggest that periodical painting be not neglected.

In drawing No. 1 of contract No. 3 we have details of the additional 30-foot girders for bridge No. 8. These contain sufficient iron to render them equal in strength to the 40-foot Warren girders in the same bridge.

The pressure on the bearing area of the rivets connecting the web and flanges is rather high near the ends of this girder, reaching 8 tons per square inch. Had the pitch been reduced to 3 inches per 8 feet at each end it would have been better practice.

The lateral bracing of these 19 and 30 feet girders is most erroneously designed.

The requirements of the case are threefold, and are stated below in order of importance:—

1. To keep the top flanges from bending sideways under wind-pressure, &c.
2. To keep the ends of the girders perfectly upright.
3. To keep the bottom members from vibrating laterally.

In designing the tracing of their bridges the first two requirements have been utterly ignored. There is no horizontal lateral bracing, and consequently the girders are subject to horizontal bending actions of serious amount, due to wind-pressure. There is no transverse vertical bracing at the ends of the girders, at which point most Victorian bridges of similar design have a massive transverse diaphragm-plate, while the third and least important requirement has occupied the whole attention of the designer, who has introduced costly massive transverse frames, which weaken the main girders 10 per cent. by the objectionable twisting they cause. In the 30-foot spans one of these frames is situated in the exact centre of the span—the spot where it does most harm by causing twisting; and further, its attachments cut away a full square inch of metal at the very place where the tension due to the load is most severe, and all the available strength is needed. I would urge that the objectionable transverse frames be removed from under the 6-foot, thereby allowing each pair of girders to deflect independently; that a horizontal Warren girder bracing of stout angle-iron be introduced between the top flanges of each pair of girders, and that the ends of each pair of girders be united by a diaphragm-plate or stiff bracing frame. If this be done, the bridges will become fairly satisfactory structures.

Lastly, a drawing has been forwarded of a bridge at Strathfield (7 miles 38 chains). This is a most meritorious example of a plate-web bridge. In it all the mistakes I have so far condemned are most carefully avoided. As special points in which it compares favourably with the 30-foot girders previously mentioned, I may note—

1. It has a greater proportional depth, which conduces both to economy and rigidity.
2. The flanges vary in section with the varying stress, instead of being uniform throughout, or, as is actually the case with the 30-foot girders, being weakest when they should be strongest.
3. The riveting is intelligently arranged, the pitch diminishing toward the ends where the horizontal shearing stress increases.
4. Each pair of girders forms a distinct structure capable of deflecting independently of the other, whereby twisting and undue punishment of the outer girder is obviated.
5. The horizontal lateral bracing is well carried out and extends quite up to the ends of the girders.
6. The ends of the girders are substantially braced by a massive transverse frame.
7. The bridge is about one-third stronger than the 30-foot or 40-foot girders between Parramatta and Penrith. The objection of these webs on the score of corrosion of course applies to this bridge. How much weight should be attached to it is a question of debate.

In conclusion, I append a brief summary of the results arrived at:—

1. In view of long experience under similar conditions in Victoria and elsewhere, I am compelled to regard the bridges between Parramatta and Penrith as unduly and wastefully large.
2. That this excess, coupled with the frightful and fatal deficiency at Cootamundra, drives me to the unwelcome conclusion that there is no proper system of proportioning waterways in use in the New South Wales Railway Department.
3. That the original design for the brick abutments was better than the amended one, in view of stability, free flow of water, and intelligent arrangement of counterforts; but that it was defective in not possessing sufficient width and height to stop the bank, in having ill-proportioned footing courses, and in not being fully delineated in the drawings. In these latter respects the amended design was unexceptionable.
4. That the failure was probably due to the foundations yielding under the unequally distributed pressure; and that, had the abutments been built according to the original design (but with the necessary additional width and height), would most likely not have occurred.
5. That the relative merits of Warren and plate girders are a fair subject for difference of opinion.
6. That the original and amended designs of the Warren girders, of 40 feet span, do not differ much in merit; the original being better in point of principle, but the amended better worked out in detail and better shown in the drawings.
7. That the lateral bracing of the bridges, as carried out, causes an objectionable twisting when one line of way is loaded, unduly punishing the outside girder and reducing the strength of the bridge about 10 per cent.

8. That the 19-foot Warren girder is objectionable as having far too great stress on the bearing area of the end pin, and further needs special bracing to keep the ends of the girders upright.
9. That the 19-foot plate girder replacing the last is abundantly strong.
10. That the 30-foot plate girder is about the same strength as the 40-foot Warren girder; but that it suffers, as also does to some extent the 19-foot plate girder, from a most unsuitable system of lateral bracing, which ignores the most important requirements, and weakens the bridge by unduly loading the outside girders.
11. Lastly, that the Srathfield Bridge is a most intelligent design, free from all the faults of the others, about one-third stronger, and highly commendable.

As no particular issues were definitely referred to me with regard to these bridges, I have treated them from a general all-round point of view.

I trust that my remarks may be of use to the Department in the way of enabling it to avoid or remedy past errors, and secure in future structures perfect safety at a minimum cost.

I have, &c.,

W. C. KERNOT, M.A.C.E.,
Professor of Engineering.

6 A.

NOTE *re* supposed effect of Hawkesbury back-water on tributary creeks.

It has been supposed in some quarters that, as the Hawkesbury River backs during high floods up the tributary creeks, it requires larger bridges to be used upon them than would be needed by their own proper discharge. This view I have very carefully considered, and have further made a series of hydraulic calculations and comparisons with Victorian streams whose behaviour is well known, and I cannot see that the view is a correct one.

The country between Windsor, St. Mary's, and Penrith is generally so low and so level that a high Hawkesbury flood would spread far and wide, inundating miles of country just as the Murray about Echuca does. But, owing to the very small fall or hydraulic gradient, this submergence would be by quiescent or very sluggishly flowing water, incapable of any destructive action. Also a great flood in the Hawkesbury would neither rise nor fall instantaneously, but would take many hours, or indeed days, during which comparatively small openings would permit the passage of all the back-water. This is the only conclusion I can arrive at after the most careful study of the question.

W. C. KERNOT.

1888.

LEGISLATIVE ASSEMBLY.

NEW SOUTH WALES.

BRIDGES ON DUPLICATED LINE BETWEEN
PARRAMATTA AND PENRITH.

(CORRESPONDENCE, ESTIMATES, AND REPORTS, RELATIVE TO.)

Ordered by the Legislative Assembly to be printed, 1 November, 1888.

RETURN to an *Order* of the Honorable the Legislative Assembly of New South Wales, dated 14th June, 1888, That there be laid upon the Table of this House,—

“Copies of all correspondence, estimates, and reports, relative to the bridges on the duplicated line between Parramatta and Penrith (prior to the date of Professor Warren’s Report), together with copies of Mr. Townsend’s plans and sections of these bridges, and the amended plans and sections finally adopted for the construction; also copies of all correspondence relating to and sections of the additional work recently found necessary to strengthen and support the abutments of these bridges.”

(Mr. Lyne, for Mr. J. P. Abbott.)

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No. 1.

Minute by The Commissioner for Railways.

Doubling the line from Parramatta to Penrith.

MR. COWDERY to state what the cost of the above work would amount to.

CH.A.G., 1/9/82.

Mr. Hyndman for cost.—G.C., 4/9/82. Urgent. Estimated cost, £84,203.—R.A.H., 4/10/82.
 The Engineer for Existing Lines. Commissioner.—G.C., 5/10/82. Be good enough to furnish details of this estimate. Is not the line made for double way and the bridges also. Why, under these circumstances, should 20 miles of line cost over £4,000 a mile?—CH.A.G., B.C., 6/10/82. Mr. Cowdery. Detailed statement attached.—G.C., 13/10/82.

DETAILED estimate of doubling line Parramatta to Penrith from 14 miles 60 chains to 33 miles 60 chains.

Earthwork	£8,502
Doubling bridges	28,512
Doubling culverts	850
Level crossings	250
Stations	250
Permanent-way	43,939
Over-bridges	1,500
Platforms	250
Timber openings...	150

£84,203

Estimate for the bridges is based upon the assumption that all the present bridges will be replaced by new iron ones, and the proportion due to doubling them is charged to this estimate, that is, the difference between the cost of bridges for double and single way. The banks and cuttings require to be made wider, generally about 11 feet. In some few instances they have been slightly widened. The old bridges are all for single way

Engineer for Existing Lines.

R.A.H., 12/10/82.

My questions are not answered.—CH.A.G., B.C., 18/10/82. Mr. Cowdery. Mr. Hyndman, for replies to Commissioner's questions.—G.C., 18/10/82. No; the bridges and cuttings are not made for double way.—R.A.H., 19/10/82. Engineer for Existing Lines. Commissioner.—G.C., 20/10/82.

No. 2.

Minute of The Commissioner for Railways.

WHAT is the estimated amount to be charged to working expenses in consequence of the renewal of timber with iron bridges for the single way, and which would have to be incurred sooner or later whether the line was doubled or not?

I understand that this amount, whatever it may be, will be in addition to the sum of £84,203—the estimate for doubling the line, and which will, of course, be charged to capital account.—CH.A.G., B.C., 22/10/82. Mr. Cowdery.

Mr. Hyndman.—G.C., 23/10/82. Urgent. £39,798 for renewing timber bridges with iron ones for single way; this sum is in addition to the estimate of £84,203 for doubling the line.—R.A.H., 25/10/82. The Engineer for Existing Lines.

How long would the present timber bridges last if it were determined not to replace them with iron ones, consequent upon the doubling of the line. Please enumerate the bridges and their position, and the cost of renewing each for single way, and the probable time for renewal in each case.—CH.A.G., B.C., 23/10/82. Mr. Cowdery.

Mr. Hyndman.—G.C., 3/11/82. Urgent. A report attached, containing information required by the Commissioner.—R.A.H., 15/11/82. Engineer for Existing Lines. Commissioner.—G.C., 16/11/82.

BRIDGES—Parramatta to Penrith.

	Distance.		Present bridge for single line.	When needing renewal.	Cost to repair thoroughly.	Will last if repaired.	Proposed to replace by—	Cost of new bridge—single line.	Cost of new bridge—double line.
	mls.	chs.							
1	16	47	6 20 ft. bays ...	At once	£ 224	From 5 to 7 years	8 ft. culvert ...	880	1,060
2	17	52	4 20 do ...	do	154	do ...	12 do ...	680	846
3	18	34	3 12 do ...	do	70	do ...	8 do ...	314	484
4	18	49	5 20 do ...	do	190	do ...	30 ft. girder	2,450	4,280
5	19	36	3 12 do ...	do	70	do ...	20 do ...	1,600	2,920
6	20	36	6 12 do ...	do	138	do ...	25 do ...	2,025	3,408
7	20	72	4 20 do ...	do	152	do ...	30 do ...	2,450	3,862
8	24	23	25 20 do ...	do	950	do ...	50 do ...	4,150	7,200
9	25	0	8 12 do ...	do	184	do ...	40 do ...	3,300	5,740
10	27	42	3 12 do ...	do	69	do ...	10 ft. culvert	449	690
11	28	5	13 20 do ...	do	494	do ...	50 ft. girder	4,150	7,200
12	28	12	7 12 do ...	do	161	do ...	20 do ...	1,600	2,920
13	30	0	36 20 do ...	do	2,368	do ...	Two 50 ft. girders	8,300	14,600
14	30	12	7 20 do ...	do	466	do ...	50 ft. girder	4,150	7,200
15	31	74	4 20 do ...	do	162	do ...	40 do ...	3,300	5,900
					5,852*			39,798	68,310†
								28,512†	
								68,310	

* To repairing present bridges to make them last from five to seven years. This estimate does not include the domain bridge. † To doubling lines. ‡ Double line.

South Creek Bridge.—It is in such bad repair as to be dangerous, and the white ant has got such hold that it is impossible to say what portion is sound. The same remark applies to a less extent to all the timber bridges.

GEO. WM. TOWNSEND.

Amended estimate for bridges furnished to Mr. Cowdery. Total amount, £66,918.—G.W.T., 14/2/83.

The present timber bridges, if repaired, may last from five to seven years. Such repairs will cost about £6,000. Without such repairs they are at present unsafe. If the line is doubled it will be impossible to keep the present bridges without incurring great needless expense. For remuneration, position, and description of bridges, see detailed report attached. The whole of the wooden bridges ought to be replaced by iron ones at once, as the white ant is in the timber to an alarming extent.—R.A.H., 15/11/82. Engineer for Existing Lines.

The bridges reported to be unsafe must be made safe at once, especially South Creek Bridge reported to be dangerous. Engineer for Existing Lines to note and to return papers early.—CH.A.G., 17/11/82.

Mr. Hyndman to carry out Commissioner's minute, 17/11/82.—G.C., 20/11/82.

Three gangs of men are constantly employed on repairs of these bridges. One gang is now at South Creek. Every precaution is taken, but it is impossible to say any of these bridges are safe.—R.A.H., 24/11/82. Engineer for Existing Lines.

Commissioner.—G.C., 27/11/82.

Mr. Cowdery will please visit these bridges at once and test them. If not safe, as Mr. Hyndman persists in saying, the trains must be run over them at greatly reduced speed; but it is probable that Mr. Hyndman is using alarming language unnecessarily.—CH.A.G., 29/11/82.

I visited these bridges yesterday, and tested two (the South Creek and Eastern Creek) with a heavy engine. The South Creek Bridge is in a bad state. I had some of the worst of the girders bored and found white ant in them. One was very bad, but a temporary support was put under the centre of it, making it perfectly safe for the running of the traffic; but it was so bad that I did not like taking the risk of removing the upright to test the strength with the heavy engine I had for the purpose. Several of the other girders have temporary uprights under them until they can be removed; and the great drawback to this is the non-supply of girders, and which, I believe, has been the case for years. At the present time we want at least 1,000, but they come in very slowly. In the course of a few years this class of timber will be more difficult to obtain than it is now. At the same time we do not feel the want to anything

anything approaching the extent we shall do in a few years, when the bridges on the late extensions begin to decay, some of which are of enormous extent; viz., the Wagga Wagga Bridge and others on the north. I would therefore recommend that no more bridges with wood tops be constructed on any of the extensions or it would be almost impossible to keep pace with the demands for repairs.—G.C., 1/12/82.

What progress has been made towards strengthening these bridges? Mr. Cowdery for early report.—CH.A.G., B.C., 1/2/83. Mr. Hyndman for immediate report.—G.C., 12/2/83. Urgent. Mr. Purton for report.—R.A.H., 13/2/83. Report herewith.—J. P. PURTON, 15/2/83. The District Engineer. *Re* strengthening timber bridges Parramatta to Penrith. 17 miles 9 chains.—A line of temporary girders fixed under road. 24 miles 43 chains, Eastern Creek.—Temporary struts fixed under ten bays. 30 miles, South Creek.—Temporary struts fixed under fourteen bays.—J. P. PURTON, 15/2/83. The District Engineer. Engineer for Existing Lines.—R.A.H., 16/2/83. Report of work done attached.—G.C., 17/2/83. Commissioner.

In an important matter like this I should prefer having Mr. Cowdery's guarantee that the precautions taken have made the bridges safe. Mr. Cowdery sends the paper to Mr. Hyndman, who apparently does not know what has been done, as he sends it to Mr. Purton, and then it is returned to me without comment on Mr. Purton's report. I must have Mr. Cowdery's assurance that the bridges are safe.—CH.A.G., 26/2/83.

These bridges are now quite safe.—G.C., 19/3/83. Commissioner.

No. 3.

Minute of The Commissioner for Railways.

Doubling line from Parramatta to Penrith.

THE bridges on this length have recently been repaired, and will be serviceable, the engineer states, for at least five years. As at the end of that time they must be renewed at an expense of £40,000, it is submitted that they should be made of a size to carry a double line of rails—the cost of renewing the bridges for a double way will be £68,310.

The traffic upon this section of the line is now so great that I think no time should be lost in making provision for doubling it—the cost will be:—

Bridges, £68,310 (of which £40,000 will be chargeable to working expenses) ...	£28,310	0	0
Permanent-way, rails, &c. ...	55,893	0	0
			<u>£84,203 0 0</u>

or (say) £85,000 to be paid from capital.

CH.A.G., 24/3/83.

Provision having been made on the Loan Estimates for this service, these papers might now be returned to the Under Secretary for Public Works.—F.K., 12/4/83. The Under Secretary for Public Works.—J.T., B.C., 12/4/83. Railways.—J.R., B.C., 14/4/83. Mr. Cowdery.—G.B., B.C., 7/5/83. Will Commissioner please say if survey may be made, and plans and sections prepared for the purpose of inviting tenders for this work.—G.C., 18/5/83. Commissioner. Yes.—CH.A.G., 19/5/83. Mr. Cowdery., B.C. Mr. Hyndman to have surveys made and plan and sections prepared.—G.C., 22/5/83. Mr. Townsend.—R.A.H., 23/5/83. Two surveyors put on to this work.—G.W.T., 28/5/83. District Engineer. Two surveyors now engaged on this.—R.A.H., 1/6/83. The Engineer for Existing Lines: Two surveyors are now engaged on this work.—G.C., 2/6/83.

No. 4.

T. R. Smith, Esq., M.P., to The Commissioner for Railways.

Dear Sir,

9 April, 1883.

As the traffic of the Western Line is increasing so rapidly, it appears to me necessary that you should at once approve of a double line to Penrith. This is a matter I have brought before your notice months since.

Yours, &c.,
T. R. SMITH.

Inform that provision has been made by Parliament for doubling the line to Penrith.—CH.A.G., 20/4/83.

Sir,

Department of Railways, Sydney, 21 April, 1883.

With reference to your letter of the 9th instant, urging the necessity for the construction of a double line to Penrith, I have the honor to inform you that provision has been made by Parliament for this work.

I have, &c.,

CH. A. GOODCHAP,
Commissioner for Railways.

T. R. Smith, Esq., M.P., Sydney.

No. 5.

The Minute of Commissioner for Railways.

MR. TOWNSEND has, I understand, a new form of girder (or new in the Colony) for iron bridges. It is cheaper in construction and lighter in proportion to its strength than any girder we now use, and at the same time is equally, if not more, stable.

I think, if Mr. Cowdery sees no objection, that a specimen girder might be made in our workshops, and be subjected to a test,

CH.A.G., 26/7/83.
Mr.

Mr. Hyndman to have a girder made in shops and tested.—G.C., 27/7/83. Mr. Townsend for drawing.—R.A.H., 30/7/83. Noted.—G.W.T., 30/7/83. Please give charge.—R.A.H., 31/7/83. The Engineer for Existing Lines. Charge to revenue.—G.C., 1/8/83. Mr. Hyndman. Mr. Purton.—R.A.H., 2/8/83. Noted.—J. PURTON, 6/8/83. Engineer for Existing Lines.—R.A.H., 7/8/83.

No. 6.

Mr. G. W. Townsend to The Commissioner for Railways.

Sir,

Redfern, 18 February, 1884.

I have the honor to inform you that the girders I have designed by your orders for replacing the wooden bridges and viaducts are proved under a severe test a complete success. Bridges constructed with these girders will be less than half the weight of any iron bridge of similar span (42 feet) that has hitherto been built on our railway lines while they will be exceedingly rigid under load, and very durable.

I have the honor to request that I may be allowed the necessary machinery for the construction of girder work at a cost not to exceed £2,000, viz., a hydraulic riveter, a multiple driller, and a cold saw; with this machinery I can turn out these girders at a cost for labour only of £7 per ton. I can import suitable iron for about £8 per ton.

I have further the honor to request that I may be allowed to design and construct a bridge for 150 ft. clear span for double line to be charged to Store Advance Account, the weight of main girders not to exceed that of the main girders in our "light lattice girder bridges" of similar span for single line, but the weight of ironwork in the bridge will of course be greater than in our existing bridges by reason of the greater length of cross girders required for double line, such bridge to carry a line load of 3.5 tons to the foot run safely equal to twice and a half the line load, that is considered excessive to apply as a test load on our existing "light lattice bridges."

When I am supplied with the machinery applied for, the cost for proposed bridge will not exceed £18 per ton, after one is made I can turn them out for about £15 per ton, with iron at £8 per ton. I am willing to make the offer publicly if need be, and stand or fall by the result.

I have, &c.,

GEO. WM. TOWNSEND.

If such girders can be made in England at £11 a ton, I do not see why we should pay £18 or even £15 a ton for them.—CH.A.G., 18/2/84. I wish Mr. Cowdery to make an independent test of these girders, and to report exactly their behaviour under trial, and further to express his views on their stability and general suitability.—CH.A.G., 18/2/84.

I have tested these girders with a weight of 64 tons rolling by 9 tons dead load, being equal to the heaviest running load that can be put on them. They are perfectly rigid, the deflection being I may say scarcely perceptible. They are in every way suitable where there is sufficient headway, and particularly so for duplicating a line, as the roadway can be completed before interfering with the old line. I do not quite see the advisability of constructing a bridge 150 feet clear span to be charged to Store Account. If such a bridge was required anywhere it would be different; I could then only recommend it as an experiment, as there is already plenty of work in the Department.—G.C., 7/3/84. Commissioner.

The Minister to see. I cannot recommend any experiment of the kind referred to by Mr. Townsend, but if the Engineer for Existing Lines is satisfied that the girder would be a good one to adopt for the bridges which are to replace the wooden bridges on the double line to Penrith, I would recommend their adoption.—CH.A.G., 18/3/84.

It would be well, before submitting this paper, if Mr. Cowdery would state what the cost of these bridges would be if constructed with these girders, and what the cost would be if constructed upon the design usually adopted here; and also what the cost of wooden bridges would be.—CH.A.G., 18/3/84.

The cost of bridges if constructed with these girders would be £42,600. If constructed of timber, £58,000. If constructed of plate, main girders, and cross girders, £70,000.

Detailed statement attached.—G.C., 25/4/84. Commissioner.

Doubling line—Parramatta to Penrith—Detailed statement of relative cost of bridges.

Proposed new girders 1,704 feet aggregate length double line.

Ironwork in 44 ft. spans, 35 tons per ft., @ £20	£11,928
Brickwork 8,180 cub. yards, @ £3	24,540
Longitudinal sleepers and flooring	6,132
	<u>£42,600</u>

£23.3 per foot run.

Timber 2,670 feet aggregate length double line.

This extra length of opening is necessary to keep the tail of the banks clear of the water.	
2,670 feet, average cost per ft. £16.3	£43,521
Add extra cost of keeping line open	14,479
	<u>£58,000</u>

£21.72 per foot run.

Plate main girders and cross girders 1,704 feet aggregate lengths double line.

1,704 ft. ironwork in 44 ft. spans, 64 tons per foot, @ £36	£39,260
including temporary work for keeping traffic open.	
Brickwork 8,180 cub. yards, @ £3	24,540
Longitudinal sleepers and flooring	6,200
	<u>£70,000</u>

£40.0 per ft. run,

GEO. WM. TOWNSEND, 10/4/84.

Cost

Cost of bridges for doubling line beyond Parramatta to Penrith.

With the new girders, 1,704 ft.	£42,600
With timber, 2,670 ft.	58,000
With plate girders and cross girders similar to the Parramatta Bridge, 1,704 ft.	70,000

(This cost in each case is for double line).

The principal cause of the great cost of timber bridges for this work would be the difficulty of carrying up the portion for the new line while keeping the old open for traffic. The same remark applies to the ordinary iron bridges but not to the new proposed bridges, as with them one line can be built quite independently of the other.

GEO. WM. TOWNSEND.

I recommend the adoption of Mr. Townsend's girders for the bridges to replace the wooden bridges on the double line to Penrith.—CH.A.G., 29/4/84. Can this work be done in the Colony.—F.A.W., 30/4/84. Mr. Cowdery, B.C. Yes; the work can be done in the Colony.—G.C., 2/5/84. Commissioner. I concur in Commissioner's recommendation. Let tenders be called in two forms—(1) work to be imported; (2) work to be done in the Colony.—F.A.W., 7/5/84. Mr. Cowdery, B.C. Mr. Townsend to note and return.—G.C., 12/5/84. Noted.—G.W.T., 13/5/84. The Engineer for Existing Lines. Noted.—G.C., 15/5/84. Commissioner.

No. 7.

Report by Mr. G. W. Townsend.

Re building girders in Permanent-way Shops.

See original.

By importing proper machinery we can reduce the cost of such work in the Colony at least 25 per cent., without in any way reducing the profit, and under the trade independent of skilled labour in case of strikes, for any intelligent labourer is capable of working all the machinery used.

In case of using imported iron, the cost of freight and transport from wharf to yard of such iron, allowing for waste, will be less than that of girders containing the same amount of iron, and will be less liable to damage during transport.

The principal reason of the great difference between cost of girder work done out here and that of imported work is that we use too much hand labour, nearly the whole of which has to be skilled labour. About £2,000 will supply the necessary machinery, viz., multiple driller, travelling riveter, and cold saw.

We require about 700 tons of girders for doubling the line, Parramatta to Penrith. The last imported girder work (Cook's River) cost, landed on the trucks in railway yard, over £17 per ton. I am confident we can turn out this work here for £15 per ton, with iron at £8; so on the one job we can save the cost of the required machinery—£2,000. Suppose we make only the 700 tons, we shall have established an important local industry; for the various firms of contractors will soon profit by our experience, and will successfully compete with us as to price, while we shall have increased the efficiency of our workshops at a trifling outlay.

GEO. WM. TOWNSEND, 6/3/84.

Since writing the above I have made a fresh design for the girders, Parramatta to Penrith, in which I have reduced the number of rivets to less than half of what were in the old design, in which I noticed several minor points that could be improved while retaining the main features of the design, getting a rather stronger girder without extra weight, with greater simplicity of design.—GEO. WM. TOWNSEND, 29/3/84.

Cost of bridges for doubling line beyond Parramatta.

With the new girders, 1,704 ft.	£42,600
With timber, 2,670 ft.	58,000
With plate girders and cross girders, similar to the Parramatta Bridges, 1,704 ft.	70,000

(This cost is for double line).

The four bridges in Parramatta are estimated to cost £22,000. The same to be replaced by timber would have cost about £14,000.

The principal cause of the great cost of timber bridges for this work would be the difficulty of carrying up the portion for the new line while keeping the old open for traffic. The same remark applies to the ordinary iron bridges; but not to the new proposed bridges, as with them one line can be built quite independently of the other.

GEO. WM. TOWNSEND.

The Engineer for Existing Lines.

Return must be made out without reference to works under contract.—G.C., 27/3/84. Mr. Hyndman. I put this information in the return, as the last I sent in was sent back for this same information.—G.W.T.

No. 8.

Question.

LEGISLATIVE ASSEMBLY—WEDNESDAY, 16 APRIL, 1884.

(5) RAILWAY FROM PARRAMATTA TO PENRITH:—Mr. T. R. Smith asked the Secretary for Public Works,—When will tenders be called for doubling the railway line from Parramatta to Penrith?

Mr. Wright answered,—During the currency of the present month.

Mr. Cowdery.—G.B., B.C., 26/4/84. Specifications are now being printed, and will, I hope, be completed in a few days.—G.C., 29/5/84. Commissioner. Mr. Cowdery—G.B., B.C., 9/6/84. Draft advertisements (2) inviting tenders herewith.—G.C., 30/6/84. Commissioner. Let me see specification and plan.—CH.A.G., B.C., 1/7/84. Mr. Cowdery. Two specifications and eight plans herewith.—G.C., 3/7/84. Commissioner. Insert advertisement. I see provision is made for safety of public.—CH.A.G., 5/7/84. Mr. Cowdery.—R.J.S., B.C., 7/7/84. Noted.—G.C., 9/7/84. Commissioner.

No. 9.

7

No. 9.

Mr. T. Wearne to The Secretary for Public Works.

Sir,

386 Sussex-street, Sydney, 18 July, 1884.

I have the honor to respectfully direct your attention to the great disadvantage I, as a local tenderer in common with others, am placed at, through the cash deposits required on contracts. Tenders are now invited for iron bridges required in the duplication of line from Parramatta to Penrith, the cash deposit on which is £2,000.

The whole of my capital, excepting that which I require for labour and material, is locked up in plant and machinery, which I have specially erected to enable me to carry out works of this class to any extent. I have been contracting with the Government for the last sixteen years, and have never failed in completing any contract satisfactorily; but if it is compulsory for me to make the cash deposit to make my tender formal, I shall be debarred from tendering, although I could find approved sureties for the amount required.

Trusting you will kindly give the matter your favourable consideration, and accept the sureties in place of the deposit,—

I have, &c.,

THOMAS WEARNE.

No. 10.

Messrs. D. & W. Robertson to The Acting Secretary for Public Works.

Central Exchange Buildings, York-street, Sydney, 18 July, 1884.

Dear Sir,

Duplication of line from Parramatta to Penrith.

Referring to the ironwork portion of this contract, at present being called for, we notice the deposits required by the specification from the successful tenderers will be £2,300 in all.

As we consider such a very large deposit for such a comparatively small contract to be rather too much we bring the matter under your notice with a view to get it reduced, which would be for the benefit of all likely tenderers.

I have, &c.,

D. & W. ROBERTSON.

P.S.—The total value of this contract is not likely to exceed £15,000 altogether, and we think a deposit more in proportion to what railway contractors have to place, would facilitate tendering.—D. & W.R.

Railways for report.—J.R., B.C., 21/7/84. Mr. Cowdery for report.—R.J.S., B.C., 22/7/84. I cannot recommend that the security be reduced.—G.C., 25/7/84. Commissioner. What is the estimated amount of contract.—CH.A.G., 26/7/84. Mr. Cowdery. Urgent. Estimated amount, £12,825.—G.C., 29/7/84. Commissioner. Inform.—CH.A.G., 29/7/84.

Gentlemen,

Department of Railways, Sydney, 6 August, 1884.

I have the honor to acknowledge receipt of your letter, addressed to the Acting Secretary for Public Works, asking for reduction of amount of deposit required from contractors for duplicating line, Parramatta to Penrith, and have to inform you that I am unable to sanction any reduction in the amount.

I have, &c.,

CH. A. GOODCHAP,

Commissioner for Railways.

Messrs. D. & W. Robertson, Central Exchange Buildings, York-street.

No. 11.

The Under Secretary for Public Works to The Commissioner for Railways.

Sir,

Department of Public Works, Sydney, 29 July, 1884.

The tenders, three in number, for the work specified in the margin, are referred to you for report, and you will have the goodness, as early as possible, to return them to me direct for submission to the Minister.

I have, &c.,

JOHN RAE.

Supply of iron bridges—Duplication of line between Parramatta and Penrith.

The Engineer for Existing Lines.—CH.A.G., B.C., 29/7/84.

Iron bridges for duplication of line—Parramatta to Penrith—Analysis of Tenders.

	£	s.	d.
D. & W. Robertson	11,365	6	3
Mort's Dock and Engineering Co. (Limited)	14,175	0	0
Hudson Brothers (Limited)	14,850	0	0

The tender of D. & W. Robertson is the lowest, and I recommend it be accepted.

G.C., 1/8/84. Commissioner.

Recommended.—CH.A.G., 5/8/84.

Approved.—G.R.D., 11/8/84.

No. 12.

Messrs. D. & W. Robertson to The Acting Secretary for Public Works.

Central Exchange Buildings, York-street, Sydney, 2 August, 1884.

Iron bridges, duplication of line—Parramatta to Penrith.

Dear Sir,

We have the honor to bring under your notice our tender for the supply of the above bridges, amount £11,365, or £16 16s. 9d. per ton overhead.

We

We believe this to be the lowest price such ironwork has been tendered for in N.S.W.; and it is our desire to make them in the Colony, so that they may be made under the inspection of the Government officers while in the course of construction, so much difficulty and dissatisfaction has been lately found with imported work, notwithstanding every precaution having been taken in England, and after the strictest inspection by the Agent-General's representative, John Fowler, Esq.

To make above important work in Sydney would cost a little more than if it were made in England; but not very much in this case, as the specification, we understand, has been got up specially for this purpose. The option, however, was given for importers to tender against colonial manufacturers, and the price has accordingly been cut down to the lowest possible limit.

We are aware of a slight preference having been given for colonial manufacture on one occasion, and we beg respectfully to suggest that if the Government can see no objection in this case, that we be allowed an inducement to make this work in Sydney if the Government decide to accept our tender, as it would enable us to give employment to ironworkers, and would assist the establishment of an important colonial industry.

We would be quite satisfied to make the work in Sydney for the Government estimate.

We have, &c.,

D. & W. ROBERTSON.

P.S.—This suggestion is without prejudice to my tender as it now stands.

Before the letter of acceptance is forwarded will you please report on this letter?—R.J.S., B.C., 12/8/84. Mr. Cowdery. I cannot recommend that the specification be departed from, nor any increased price be given.—G.C., 15/8/84. Commissioner.

Gentlemen,

Department of Railways, Sydney, 20 August, 1884.

I have the honor to accept your tender, dated 29th ultimo, for the supply of iron bridges in connection with the duplication of the Great Western Railway from Parramatta to Penrith, in accordance with plan and specification, and to the entire satisfaction of the Engineer for Existing Lines of Railway for the sum of £11,365 6s. 3d.

Please forward deposit receipt for cash security mentioned in the specification, in order that the bond may be prepared by the Crown Solicitor.

I have, &c.,

CH. A. GOODCHAP,

Commissioner for Railways.

Messrs. D. & W. Robertson, York and Market Streets, Sydney.

No. 13.

The Under Secretary for Public Works to The Commissioner for Railways.

Sir,

Department of Public Works, Sydney, 29 July, 1884.

The tenders, twelve in number, for the work specified in the margin, are referred to you for report, and you will have the goodness, as early as possible, to return them to me correct, for submission to the Minister.

I have, &c.,

JOHN RAE.

Mr. Cowdery for report.—Ch.A.G., 29/7/84

Doubling line—Parramatta to Penrith—Analysis of Tenders.

	£	s.	d.		£	s.	d.
1. John Ahearn	79,343	1	6	7. M'Arde & Thompson ...	99,870	12	0
2. Griffin & Co.	79,775	10	0	8. Herbert Coates & Co. ...	100,213	17	2
3. Angus & Co.	83,050	14	2	9. Meeks, Thurston, & Gatty..	100,821	6	10
4. Foster & Brigg	85,997	19	2	10. Mitchall Kinshela ...	103,099	15	0
5. George Fishburn	89,807	6	4	11. John Stewart & Co. ...	108,977	1	0
6. Shaw & Monie	89,898	19	0	12. M'Sweeney & Kirwan ...	111,000	19	0

The tender of John Ahearn is the lowest, and I recommend it be accepted. There is one inaccuracy in the schedule which requires correcting.—G.C., 1/8/84. Commissioner. Recommended.—Ch.A.G., 6/8/84. Approved.—G.R.D., 11/8/84. Mr. Cowdery for specification.—G.B., B.C., 29/8/84.—Noted, and specification herewith. The inaccuracy in the schedule has been corrected by the contractor.—G.C., 3/9/84. Commissioner. Let Mr. Ahearn know at once that his tender is accepted, modified by subsequent arrangement respecting the substitution of iron for wooden sleepers.—Ch.A.G., 27/8/84. Address—Ashfield.

Sir,

Department of Railways, Sydney, 28 August, 1884.

I have the honor to accept your tender, dated the 29th ultimo, for the duplication of the Great Western Railway from Parramatta to Penrith, in accordance with plans and specification, and to the entire satisfaction of the Engineer for Existing Lines of Railways, at the schedule of prices named therein, but modified by the subsequent arrangement as to the substitution of iron for wooden sleepers.

Please forward deposit receipt for cash security mentioned in the specification, in order that the bond may be prepared by the Crown Solicitor.

I have, &c.,

CH. A. GOODCHAP,

Commissioner for Railways.

Mr. John Ahearn, contractor, Ashfield.

No. 14.

Mr. J. Ahearn to The Commissioner for Railways.

Sir,

Ashfield, 31 August, 1884.

I am in receipt of your letter conveying notification of acceptance of my tender for the duplication of line from Parramatta to Penrith, subject to the alteration in schedule of prices, agreed to in my second tender, for iron sleepers to be supplied by the Government, instead of wooden ones supplied by me, and in reply I beg respectfully to point out that under the new conditions the amount of the contract will be reduced by the sum of £15,000. I think the Government should reduce the amount of deposit required for security from £5,000 to £4,000, which means a *pro rata* reduction.

Immediately upon receipt of a reply to this request, I will be prepared to make the necessary deposit, whether the Government look favourably upon this application or not.

I have, &c.,

JOHN AHEARN.

Mr. Cowdery, B.C., 2/9/84.

£4,000.—G.C., 3/9/84. Commissioner.

I see no objection to the amount of security being reduced to

Approved.—CH.A.G., 4/9/84.

Informed.

No. 15.

Deposit Receipts.

Fixed deposit on contract for doubling line from Parramatta to Penrith.

Two deposit receipts for £2,000 each in the Commercial Banking Company, Sydney (Campbelltown Branch), in the name of the Commissioner for Railways, received from Mr. Ahearn this day—No. 1,737, for £2,000, is payable on 21st March, 1885, and No. 1,847, for £2,000, is payable on 6th September, 1885.

R.J.S., B.C., 8/9/84.

Receipt acknowledged.—H.S., 9/9/84. Herewith.—R.J.S., B.C., 9/9/84. Accountant for cashier. Received deposit receipts as above.—J.R.N., 9/9/84. Accountant. I should be glad to know when the contract time expires.—W.W., 10/9/84. Secretary. Crown Solicitor for bond instructions, 19/9/84.

No. 16.

Messrs. D. & W. Robertson to The Engineer for Existing Lines.

Dear Sir,

Central Exchange Buildings, York-street, Sydney, 9 September, 1884.

With reference to the proposed alterations on bridges for the line, Parramatta to Penrith, we have now carefully gone in to the matter, and find that the additions for extra riveting, drilling, substituting channels for flat bars, and extra handling, cutting, &c., &c., will come to £48 14s. 5d. for each bridge.

There are 2,191 extra holes to drill; 301 extra rivets in each bridge to be put in; some £2 10s. per ton extra in price on some of the iron used, and considerable extra handling, which all helps to tell on an overhead price per ton; and we may say that with the former specification and drawings we would be nearer the mark at our contract price than by doing the extra work required at the price specified; we have, however, named this low price with a view to making them in the Colony, and having wired some weeks ago for all the material in accordance with the first drawings, we will be glad if the matter can be finally settled at an early date to let us get on with the work.

Yours, &c.,

D. & W. ROBERTSON.

P.S.—The writer will have the honor of waiting on you at 12 o'clock to-morrow regarding this matter.

D.&W.R.

Central Exchange Buildings, York-street, Sydney, 11 September, 1884.

Geo. C. Cowdery, Esq., Engineer-in-Chief for Existing Lines of Railway,—

Dear Sir,

As requested, we have again carefully considered the price named in ours of 9th instant for proposed extra work on Penrith to Parramatta bridges. Besides the increased number of holes and rivets, we find there is also a difference of some 10 tons in the weight of the cast-iron bed plates, which are lighter than formerly; and as we tendered for malleable iron, including this cast-iron, the new specification would therefore be £75, worse for us than the old one on this account. There are also some bolts shown which would add to the price a little. The channel-iron also would be to our disadvantage.

The weight throughout per ton is now lighter for the labour required to make them. The stiffness of the inspection, which we have had some experience of to our loss, requires very superior work, difficult to obtain in England or even in Sydney. The extra handling on the iron in the new specification is quite 15s. per ton extra.

Up to date we have spent £50 in cablegrams regarding the material which we ordered for the old drawings some weeks ago.

No price per 100 for rivets we might name would represent the extra labour on a large quantity of ironwork like this, or the difference between the two specifications to us, without doing us an injustice in the price we would name, and to do so would be totally outside the recognised customs of the trade or terms of the original specification.

The overhead price quoted for extras per each bridge, £48 14s. 5d., is really the lowest we could do this work at, and as the whole job is at a standstill, we would be obliged for an official notification for our authority to delay further in the matter.

We have, &c.,

D. & W. ROBERTSON.

Central

Central Exchange Buildings, York-street, Sydney, 18 September, 1884.

Geo. Cowdery, Esq., Engineer for Existing Lines,—

Penrith to Parramatta bridges.

Dear Sir,

We will be prepared to make the above bridges to the new specification, showing the alterations from the original contract as under:—

(1.) For labour in putting in each rivet in excess of those on plans, against which we tendered, 1s. sterling each.

(2.) For drilling each hole through one thickness of plate, bar, angle, bar, channel bar, or tee iron, as shown on new plans, in excess of those against which we tendered, 5d. sterling.

In above prices we include all extra labour in handling extras on material substituted from original specification, and all other extras which would be incurred by us on the new specification as compared with the old ones.

Yours, &c.,

D. & W. ROBERTSON.

I HAVE gone into this matter, and find that the alterations which have been made to the 40-foot girders have slightly increased the weight of wrought-iron, viz., from

15.56 tons per span for double line = 33,779 lb.
15.08 tons
to 34,861, or in all 1,082 lb. (say) and increases the cast-iron from 1,522 to 1,620 lb., or 98 lb.

3 p.c. These alterations involve the following extra work, which, as extras, could be paid for at the rates given:—

184 $\frac{3}{8}$ " rivets in place, at £3 %	£5 10 0
1,574 holes, mostly $\frac{3}{4}$ ", to be drilled through one thickness of plate, at £1 %	15 15 0
	<hr/>
	21 5 0
Add contractors' profit, &c., at 20s. %	4 5 0
	<hr/>
	25 10 0
Add 411 rivets to be supplied, $\frac{3}{4}$ " for 3 $\frac{3}{8}$ " plates, say 152 lb., at say £28 per ton	1 18 0
Difference in cost of channel iron and flat bar, in end beam of girders—	
Total weight per span, 1,200 lb., say $\frac{1}{2}$ ton, at £1 10s. per ton	0 15 0
	<hr/>
Total extras per span for double road	£28 3 0

Mr. Cowdery.

F.M.A., 22/9/84.

No. 17.

Minute by The Deputy-Engineer to The Engineer for Existing Lines.

Duplicating Line from Parramatta to Penrith.

Will the engineer be good enough to let me know as soon as possible the nature of alteration (if any) to design for bridge pins and abutments, together with drawings of such alterations. The contractors will be ready to start this part of the work very shortly. With reference to constructing the waterways, as shown on contract plan, I have consulted with Mr. Waring (who is thoroughly acquainted with the country), and he says that in time of flood there is a large quantity of branches and debris coming down the different creeks and lodging against the viaducts, and he is of opinion that the openings should not be contracted much from what they are now, especially if iron girders are substituted for the present wooden structures. He says that often in time of flood men have to be stationed at the viaducts to clear away the debris, &c., in order to keep the openings clear. I am not myself acquainted with the nature of the country with regard to floods, but it seems to me that some of the openings have been contracted too much, especially the Eastern Creek and Pope's Creek (with tributaries).

Please let me know if any alterations are to be made with reference to this.

MAX. THOMSON, 12/9/84.

In company with the District Engineer I have inspected the waterways between Penrith and Parramatta, and I recommend that the following alterations be made in the arrangements originally proposed:—

At 28 miles 12 chains, where one 40-ft. opening is shown, there be provided two openings of 20 ft.—as the creek does not give a proper amount of heading for a girder 5 ft. deep.

At 27 miles 50 chains, where one 40-ft. is provided, one opening of 20 ft. should suffice.

At 24 miles 23 chains (East Creek), where four spans of 40 feet are provided, and the rest of the present waterway, sixteen bays of 22-ft. centres are proposed to be blocked—that the amount of waterway be kept pretty much as it is now, by the introduction of an additional 40-ft. span and eight spans of 30 ft.

At 16 $\frac{1}{2}$ miles (Wentworthville); where there is a single culvert of 12 ft. span, that a 40-ft. opening be provided.

The result of these proposed alterations means the provision of three extra openings of 20 ft. each, eight extra openings of 30 ft. each. The cost of this extra provision will be approximately, as follows:—

For abutments and piers	£2,125
For girders	1,900
	<hr/>
Total	£4,025

Mr. Cowdery.

FRED. M. AVERN,
Assistant Engineer, 19/9/84.

11.

I recommend that these alterations be approved, as I think they are necessary.—G.C., 19/9/84. Commissioner. Recommended.—Ch.A.G., 23/9/84. Approved; it is a pity a little more attention was not paid to this question before work was started.—F.A.W., 26/9/84. Mr. Cowdery.—Ch.A.G., B.C., 26/9/84. Mr. Thomson to note and return at once.—G.C., 29/9/84. Noted.—M.T., 1/10/84. Engineer for Existing Lines. Draft advertisement inviting tenders for the supply of the ironwork herewith.—G.C., 31/10/84. Commissioner. Mr. Cowdery.—G.B., B.C., 8/11/84. Noted.—G.C., 11/11/84. Commissioner.

No. 18.

The Crown Solicitor to The Commissioner for Railways.

Sir,

Crown Solicitor's Office, Sydney, 10 October, 1884.

In compliance with the instructions contained in your B.C., 19/9/84, I have had prepared, and forward herewith, the agreement for duplication of Great Western Railway, Parramatta to Penrith, duly signed by the contractor, and stamped.

The tender and all other papers herein are returned herewith.

I have, &c.,

JOHN WILLIAMS,
Crown Solicitor.

No. 19.

Duplicating line—Parramatta to Penrith.

IN consequence of duplicating Western Line between Parramatta and Penrith, it will be necessary to get out plans, &c., for the management and improvements of the intermediate stations. As I presume such plans will be got out in the Engineer's Office, it would be advisable that they be taken under consideration as soon as possible, in order that the stations may be taken in hand and got ready at the same time as the line.

MAX. THOMSON, 30/10/84.

Mr. Avern.—G.C., 7/11/84. Mr. Parry to submit proposals for this work. He can obtain plans from Mr. Thomson.—F.M.A., 20/11/84.

Will Mr. Thomson please have plans of South Creek, Rooty Hill, and Seven Hills completed as below to enable me to make new designs or alterations to station arrangements. *South Creek*.—Plot on cross-sections from A to B, to boundary line on up side, and to centre of street on the down side, also gradients of main line. *Rooty Hill*.—At east end of station cross-sections on down side A to B as in pencil. At west end of station cross-section on up side A to B as in pencil, new loop marked on and levels of main line through yard for 250 yards east of platform to 400 yards west. *Seven Hills*.—Survey as it exists required Cross Roads—survey required.—J.P., 3/2/85.

Mr. Halligan.—M.T., 5/2/85. Plans.—Wentworthville, Toongabbie, Seven Hills, Rooty Hill, Mount Druitt, South Creek, Cross Roads Siding all complete, sent to Mr. Parry as requested.—E.M.H., 19/3/85. District Engineer.

No. 20.

Messrs. D. & W. Robertson to The Engineer for Existing Lines.

Dear Sir,

Central Exchange Buildings, York-street, Sydney, 22 September, 1884.

Referring to conversation and our correspondence on above matter, we agree to go on with the Penrith and Parramatta bridges new specification at £30 each for extras, we erecting the bridges in yard until you are satisfied they are going together right, and herewith guarantee that the others, which may be passed through not bolted up in position, will be corrected (should anything be found wanting) when such defect is pointed out to us after delivery is taken, as provided in specification, at our yard.

With reference to enclosed cablegram, referring to lengths of plates, we wish to divide the length in two pieces, as it appears to be impossible to get them in one length, and will be obliged if you will give bearer the lengths which would be best, so as to break the joints (say) at 20 ft. and 24 ft., or otherwise as you may direct.

We agree to above arrangement in order to meet your wishes in the matter, although the price, we consider, is very low, and get on with the work, and will cable to-day about the plates if you will give bearer the lengths.

Yours, &c.,

D. & W. ROBERTSON.

Requests Commissioner's approval of the sum of £30 per span of iron bridges on Parramatta to Penrith duplication, being paid to Messrs. D. & W. Robertson as extras to cover cost of extra rivets and slight increase in weight consequent on revision of design, as per detail on back of minute paper, 84/7,401, of 19 September. This arrangement was come to with Messrs. D. & W. Robertson in September last, after considerable trouble. By an oversight Commissioner's approval was not applied for at that time.—F.M.A., 16/12/84, Commissioner (for Engineer for Existing Lines).

Approved.—Ch.A.G., 19/12/84. Mr. Cowdery, B.C. Noted.—G.C., 20/12/84.

No. 21.

No. 21.

Petition.

Seven Hills, 9 February, 1885.

To Charles A. Goodchap, Esq., Commissioner for Railways, Sydney.

Sir,

We, the undersigned landholders in the district of Seven Hills, near Parramatta, and others interested in the good management of the Railway system of this Colony, having heard with much surprise than an application will be probably made to the Government to remove the present station at Seven Hills to a site about half a mile easterly therefrom, and nearer Toongabbie Platform, desire to record our earnest protest against the removal.

We have every confidence that the public interests are safe in your keeping—that you will not permit those interests to be trifled with, and that only by misrepresentation of facts are you likely to be induced to sanction an arrangement which we do not hesitate to say would be unjust, impolitic, and destructive to vested interests.

We would most respectfully remind you that a station at Seven Hills has been established about twenty-two years; the approaches thereto are excellent and cannot be improved; a large amount of public money has been expended in providing all the usual accessories in connection with a station where a large miscellaneous trade is conducted. We would regard a change of site as an unmixed evil, and we are confident there cannot be anything to justify an application to the Government for the purpose.

We have, &c.,

[51 Signatures.]

Presented by Mr. Lackey, M.P.—CH.A.G., 25/2/85.

Informed deputation that I knew nothing of any such proposal, and that I could promise them that nothing would be done under any circumstances until the whole subject had been properly investigated.—CH.A.G., 25/2/85.

Are there any papers on the subject.—D.C.M'L., 26/2/85. Does Mr. Cowdery know anything of this matter.—D.C.M'L., B.C., 4/3/85. Has Mr. Thomson heard anything of such a proposal.—G.C., 5/3/85. No. I have not heard anything about such a proposal.—M.T., 7/3/85. Engineer for Existing Lines. I know nothing of such a proposal.—G.C., 13/3/85. Commissioner. Traffic Manager to say whether he is aware of any such proposal.—D.C.M'L., 17/3/85. Superintendent Richardson for enquiry and report.—W. V. READ, 17/3/85. I do not believe any such thing was ever thought of, and I told some of the deputation so on the morning they waited on the Commissioner.—H. RICHARDSON, 19/3/85. Traffic Manager. I do not know of any proposition to remove Seven Hills Station.—W. V. READ, 20/3/85. Seen.—CH.A.G., 23/3/85.

No. 22.

Mr. J. Ahearn to The Engineer for Existing Lines.

Sir,

Petersham, 1 May, 1885.

As one-half the contract for duplicating line Parramatta to Penrith was finished on the 1st of April, and as the retention money at that time equalled the amount of the deposit (£4,000), the whole of the money now in the hands of the Government as security is over £3,000, I have respectfully to apply to you to recommend that my certificates in future be paid in full and that no per centage be taken off.

I have, &c.,

JOHN AHEARN.

I cannot recommend that the certificates be paid in full, but I see no objection to the security being returned, as we now hold £4,949 3s. 7d. as retention.—G.C., 8/5/85.

I should recommend that £4,000 of the retention money be allowed, certainly not the security money, but before anything is done I should like to know what sum is yet to be paid the contractor for completion of contract, and whether the remainder of the work to be done is more difficult or expensive than that which has been done. How is the contractor situated as regards the "time" portion of the contract? Is there every prospect of the line being completed within prescribed time?—CH.A.G., 13/5/85. Mr. Cowdery, B.C.

Mr. Thomson for report on work yet to be done.—G.C., 14/5/85. Report attached. The sum to be yet paid to the contractor is approximately £37,600.—M.T., 21/5/85. Engineer for Existing Lines.

The amount yet to be paid is about £37,600. The most difficult portion of the work has been completed. The contract time expires on 31 March, 1886, and I have no doubt the contract will be completed before that time.—G.C., 27/5/85. Commissioner.

I recommend that the contractors be allowed payment of £3,000 retention money.—CH.A.G., 28/5/85. Approved.—F.A.W., 29/5/85. Mr. Cowdery.—D.C.M'L., 1/6/85. Noted.—G.C., 2/6/85.

No. 23.

Minute by the Inlocking Engineer to The Engineer for Existing Lines.

HEREWITH I forward tracings, S-329 and S-330, showing new platform and sidings, &c., for Seven Hills Station, and new sidings at Wentworthville, necessitated by the duplication of the line Parramatta to Penrith.

I have not shown an up platform at Wentworthville, as I understand from Mr. Richardson, Coaching Superintendent, that, in all probability, the present platform would be dispensed with. There is, however, room left if it is required. Will you please forward these to Traffic Manager for approval as to accommodation before I estimate the work.

J.P., 25/3/85.

Forwarded

Forwarded for Mr. Read's approval as to accommodation.—G.C., 26/3/85. Mr. Read. Superintendent Richardson for report.—W. V. READ, 27/3/85.

The accommodation, as shown on accompanying plan, will I consider be ample. I am glad to see it is not proposed to put up large and expensive station at Seven Hills. Except at large towns these big stations we are putting up are unnecessary. The Permanent-way Department have not provided for platforms at Wentworthville. I told Mr. Parry I should like to see present platform removed to a more suitable place, but as it was erected at cost of Mr. T. R. Smith, I expect there will be more difficulty in removing it.—H. RICHARDSON, 30/3/85. Traffic Manager.

I concur as regards the accommodation.—W.V.R., 1/4/85. Mr. Cowdery. Mr. Parry to note Mr. Read's minute, 1/4/85.—G.C., 8/4/85. Mr. Parry. Noted.—J.P., 21/5/85.

I forward herewith tracing S-333, showing proposal for alteration to sidings at Cross Roads for duplication of line Parramatta to Penrith. Will you please forward same to Traffic Manager for approval as to accommodation, &c.—J. PARRY. Engineer for Existing Lines.

Forwarded to Traffic Manager as to accommodation.—G.C., 30/3/85. Mr. Read. The accommodation as proposed will do.—W.V.R., 11/5/85. Engineer for Existing Lines. Mr. Parry.—G.C., 13/5/85.

I forward herewith tracings showing proposed rearrangement of station yards at South Creek, Rooty Hill, and Mount Druitt, in connection with the duplication of line Parramatta to Penrith. At South Creek and Rooty Hill I have provided more accommodation for goods than is necessary at present, but have marked on plan which sidings are to go in at once. The others can of course be put in at any time without having to rearrange the yard. I presume you will forward these to the Traffic Department before estimates are prepared.—J. PARRY, 10/3/85. Engineer for Existing Lines.

Forwarded to Mr. Read as regards accommodation.—G.C., 31/3/85. Mr. Read. Superintendent Richardson for report.—W. V. READ, 2/4/85.

Mount Druitt—There should be a through road connecting up and down roads at the South Creek end of yard, as there is no entering into siding at the Rooty Hill end from down road. At Rooty Hill and South Creek there should be a second through road, so that engines can run round the trucks and draw them on to up road, as there is no way of getting into sidings from down road. The cattle pen at South Creek should be on up side and not on down side. The water-closets and urinals should be at the one end of station only, and detached from main building, the same as on Illawarra Line Stations. Lamp-rooms should be provided at Rooty Hill and South Creek. No necessity for station-master's rooms—a good ticket office is all that is required.—H. RICHARDSON, 4/4/85. Traffic Manager.

I agree with Mr. Richardson as regards the accommodation, but it appears to me that the cross-over roads he asks for are already provided for on the tracings. He will be good enough to look at them again. Do these tracings show sufficient siding accommodation for the traffic?—D.K. Mr. Richardson.

I did not notice the through roads from main up road to the sidings on down side were compound crossings. Being compound crossings, there is no necessity for the extra roads I applied for. Yes, I think ample provision has been made at each station. I visited each place with Mr. Parry, prior to these plans being prepared, and we agreed as to accommodation required.—H. RICHARDSON, 13/4/85. Traffic Manager.

I agree with Mr. Richardson, that the cattle pen at South Creek should be on the up side. All gentlemen's water-closets and urinals should be detached from the main buildings, and a lamp-room should be provided at Rooty Hill and South Creek. A station-master's office is not necessary at either of these places, but the booking offices should be fairly large.—W.V.R., 24/4/85. Engineer for Existing Lines.

Mr. Parry to see and forward estimate.—G.C., 28/4/85.

Will Mr. Leggatt please furnish estimate for new station, waiting sheds on down side, and platforms at South Creek, also new goods shed and stage for same. New waiting sheds and platform on down side lengthening in timber, the up platform removing of goods shed and stage at Rooty Hill as per plans.—J.P., 1/5/85.

Estimate herewith.—A.L., 11/5/85. Mr. Parry.

APPROXIMATE Estimate for alterations to Sidings, New Stations, &c., for duplication of line—Parramatta to Penrith.

<i>South Creek Station :—</i>	£	s.	d.
Excavation.....	750	0	0
New sidings, and removing old ones, removal of crane, fencing, &c.....	860	0	0
Cattle pen.....	60	0	0
Metalling apparatus to sidings.....	4,600	0	0
New station, platforms, &c.....	3,710	0	0
Total.....	£9,980	0	0
<i>Rooty Hill Station :—</i>			
14,000 cubic yards filling.....	1,750	0	0
New sidings, crane, &c.....	1,473	0	0
Metalling approach to sidings.....	440	0	0
New station, platforms, &c.....	1,612	0	0
Total.....	£5,275	0	0
<i>Seven Hills Station :—</i>			
New siding and Goods shed, draining, &c.....	440	0	0
New station, platform, &c.....	3,000	0	0
Total.....	£3,440	0	0

Cross Roads and Mount Druitt are only extensions of crossing.

Plans and estimates for new station arrangements—Parramatta to Penrith—duplication of line.

I FORWARD herewith tracings $\frac{s}{280}$ $\frac{s}{306}$ $\frac{s}{307}$ $\frac{s}{329}$ and $\frac{s}{333}$ showing proposals for rearranging station yards, and new station, &c., at South Creek, Rooty Hill, Seven Hills, Cross Roads, and Mount Druitt.

These alterations are necessitated by the duplication of line—Parramatta to Penrith—and will require to be proceeded with so as to be ready for opening new line.

The estimates for same are herewith attached.

Engineer for Existing Lines.

J. PARRY, 21/5/85.

Mr. Leggatt's estimate attached.—G.C., 11/5/85. Mr. Parry. Estimates herewith.—J.P., 21/5/85. Engineer.

In reference to your minute as to work yet to be done on this duplication and value of same, I beg to state that I estimate it at about £37,600, computed since the return of the last certificate May 1st, and is comprised as follows:—

Earthwork, 8,000 cubic yards, at 2s. 9d.	£1,100	0	0
Brickwork, 1,800 cubic yards, at £2 10s.	4,200	0	0
Concrete, 350 cubic yards, at £2	700	0	0
Excavation, foundations, 1,500 cubic yards, at 5s.	375	0	0
Ironbark, 400 cubic yards, at 5s. 6d.	110	0	0
Hardwood, bridge sleepers, &c., 6,850 cubic yards, at 4s. 6d.	1,541	0	0
Ballast, 32,300 lineal yards, at 7s.	11,305	0	0
Forming 400 chains, at 10s.	200	0	0
Sleepers, 26,300, at 5s. 6d.	7,232	10	0
Laying permanent-way, 32,400 lineal yards, at 2s. 6d.	4,050	0	0
Iron girders, &c.	1,686	10	0
Stonework, 400 cubic yards, at £5 8s.	2,160	0	0
		34,660	0
Sum required to complete bridges over streets, Parramatta		1,950	0
Total	£36,610	0	0

G. R. COWDERY,
Resident Engineer, 20/5/85.

Mr. Max Thomson.

Seen.—M.T., 21/5/85.

Detailed estimate herewith with five tracings which I recommend be approved. This work is caused by the duplication of the line.—G.C., 29/5/85. Commissioner. Is the site for the station at Seven Hills to be altered? I made some enquiry about this sometime ago, when some gentlemen from Seven Hills, accompanied by Mr. Lackey, were making representations of a suggested change as to which it was stated there was no foundation.—CH.A.G., 3/6/85.

The expense of all these alterations amount to nearly £19,000. Was this outlay included in the original estimate for doubling the line, and will the vote clear it?—CH.A.G. Mr. Cowdery, B.C. It is not intended to alter the site of the present station. The cost of this work was not included in the original estimate. The present vote will not bear it.—G.C., 26/6/85. Commissioner.

I cannot too strongly condemn this negligent system of making estimates. It seems that these alterations are the direct consequence of doubling the line, and yet the cost of them is not included in estimate. Who made the estimate, and what explanation can be offered?—CH.A.G., 27/6/85. Mr. Cowdery, B.C.

The estimate was made by Mr. Townsend of this Department. The total cost of the new bridges and culverts on duplication of line—Parramatta to Penrith—will be approximately £55,000. The amount to be charged to the renewal of the existing bridges will be approximately £28,500. The exact amount cannot be given before the work is completed, but the above figures represent the cost as nearly as can be ascertained at present.—G.C., 24/7/85. Commissioner.

I wish to have a clear statement of the case. Amount voted for doubling the line; the amount which is to be charged to working expenses by reason of the work being replacement; the amount required to complete work (estimated); the works which require to be authorized.—CH.A.G., 27/7/85.

Mr. Cowdery, B.C.

Mr. Thomson for reply to Commissioner's minute 27/7/85.—G.C., 28/7/85. Please see statement attached.—M.T., 30/7/85. Engineer for Existing Lines.

Duplicating line—Parramatta to Penrith—Statement of Estimated Cost.

Cost of Parramatta Town Bridges	£18,240
Less amount to be charged to working expenses	12,583
To be charged to Vote (say)	£5,700
Construction of Line—	
Ahearn's contract	£76,800
Estimated excess of contract	10,000
Rails and fastenings, 2,500 tons	20,000
Total... ..	£107,000
	Iron

Iron Superstructures (contract prices)	£14,800
Alterations to Parramatta and Penrith Stations (say)	2,000
Other station arrangements	19,000
Temporary cross-over roads, and strengthening old bridges... ..	2,500
	<hr/>
	£151,000
Engineering expenses and contingencies	4,000
	<hr/>
Total estimated cost of works	£155,000
To be divided as under:—	
1. Working expenses— (A.)	
Renewing existing bridges... ..	£28,500
Station arrangements	4,500
	<hr/>
	33,000
2. Capital amount	122,000
	<hr/>
Total... ..	£155,000
	<hr/>
The following items are authorized:—	
Parramatta bridges	£5,700
Renewing existing bridges	28,500
Amount voted for duplicating line	85,000
	<hr/>
Total... ..	£119,200
	<hr/>
The following items require to be authorized:—	
Chargeable to Vote—	
To complete construction of line	£12,300
Alterations—Parramatta and Penrith	2,000
Other station arrangements	14,500
Temporary cross-over road, &c.	2,500
	<hr/>
	£31,300
Chargeable to Working Expenses—	
Station arrangements—Renewals... ..	4,500
	<hr/>
Total... ..	£35,800
	<hr/>
The amount required to complete the works is £70,000 (besides the £85,000 already voted), divided as under:—	
Parramatta bridges	£5,700
Renewing existing bridges	28,500
To complete construction of line	12,300
Alterations—Parramatta and Penrith	2,000
Other station arrangements—	
Chargeable to Vote... ..	14,500
do Renewals	4,500
Temporary cross-over road, &c.	2,500
	<hr/>
Total... ..	£70,000
	<hr/>

MAX THOMSON, 30/7/85.

Full statement herewith.—G.C., 11/8/85. Commissioner.

It may be full, but it is not clear. In the first place, the first total is wrong, viz., £155,000, as it does not include that portion of the cost of the bridges which is to be charged to working expenses. Let me know how much of the whole sum is to be charged to working expenses, and why? And what amount in addition to the £85,000 voted for duplicating line is required to be provided by capital?—CH.A.G., 13/8/85.

Mr. Cowdery, B.C. Mr. Thomson.—G.C., 14/8/85. Urgent.

The £155,000 includes the cost of running the existing bridges and station arrangements, which is to be charged to working expenses, as will be seen from the summary marked (A) and the details on page 2 of the statement; but of the whole sum (£155,000) the following amounts are chargeable to working expenses, viz.:—

Renewing existing bridges	£28,500
Renewing and improving present station arrangements	4,500
	<hr/>
Total	£33,000

The amount for bridges (£28,500) is chargeable to working expenses by reason of the work requiring to be renewed irrespective of duplicating the line, and the amount for station arrangements (4,500) is chargeable to working expenses for the same reason. In addition to the £85,000 already voted, £37,000 is required to be provided by capital, divided as under:—

Completing Parramatta bridges	£5,700
To complete construction of line	12,300
Alterations—Parramatta and Penrith Stations	2,000
Other station arrangements	14,500
Temporary cross-over roads	2,500
	<hr/>
Total	£37,000

Engineer for Existing Lines.

M.T., 15/8/85.
Commissioner.—

Commissioner.—G.C., 17/8/85. I wish to know how the £28,000 is made up—what bridges; and let me see authority for charging same to working expenses.—CH.A.G., 20/8/85. Mr. Cowdery, B.C. Mr. Thomson for reply to Commissioner's minute, 20/8/85.—G.C., 20/8/85. Please let me have previous papers referring to this matter (duplicating line, Parramatta to Penrith).—M.T., 21/8/85. Engineer for Existing Lines. Papers herewith.—G.C., 22/8/85. Mr. Thomson.

The total cost of the new bridges between Parramatta and Penrith will be about £55,000. Half of this amount, or £27,500; plus £1,000 for strengthening the old bridges=£28,500, will be the cost of renewing the existing bridges. List of bridges attached. The Commissioner minuted, 24/3/83, that the cost of renewals would be chargeable to working expenses.—M.T., 25/8/85. Engineer for Existing Lines. Commissioner.—G.C., 26/8/85.

Full cost of doubling line from Parramatta to Penrith	...	...	...	...	...	...	...	£155,000
Deduct amount chargeable to working expenses for renewals	...	...	...	...	...	...	...	33,000
								£122,000
Account voted...	...	...	...	...	...	...	...	85,000
								£37,000

I wish an explanation of the reason the cost of this work chargeable to capital was under-estimated, viz., £37,000, being nearly 50 per cent.

Mr. Cowdery, B.C.

CH.A.G., 28/8/85.

This estimate was prepared by Mr. Townsend, under Mr. Hyndman, and I regret to say was very much under the amount required, nothing being allowed for station arrangements.—G.C., 27/8/85. Commissioner.

The additional amount of £37,000 must be provided for. Will Minister approve of its being placed on estimate?—CH.A.G., 1/9/85. I cannot acquit Mr. Cowdery of contributory negligence in this matter; he should have carefully revised the estimate.

Seen.—G.C., 11/9/85. Commissioner. Accountant to note for estimates.—D.C.M'L., 12/9/85.

No. 24.

The Deputy Engineer to The Engineer for Existing Lines.

Station Arrangements—Parramatta to Penrith.

REFERRING to my memo. of 31st October, 1884, *re* arrangements of stations between Parramatta and Penrith in consequence of duplicating line, I would again point out the necessity for a speedy settlement of this matter, as if not taken in hand at once serious inconvenience and delay to the traffic will ensue, the works of duplicating being otherwise in a very forward state of progress.

MAX THOMSON, 30/6/85.

See minute paper returned to you to-day.—G.C., 2/7/85. Mr. Thomson. Mr. G. R. Cowdery to see, also note my minute on separate slip attached.—M.T., 3/7/85. Noted.—G.R.C., 7/7/85. District Engineer. Seen.—M.T., 8/7/85. Engineer for Existing Lines.

List of bridges to be renewed in duplication of line—Parramatta to Penrith.

At 15 miles	20 chains	7 20 ft. Bays.	At 24 miles	78 chains	8 12 ft. Bays.
" 16	" 47	" 6 20 ft.	" 27	" 50	" 3 12 ft.
" 17	" 52	" 4 20 ft.	" 28	" 5	" 13 20 ft.
" 18	" 53	" 5 20 ft.	" 28	" 12	" 7 12 ft.
" 19	" 34	" 3 12 ft.	" 30	" 12	" 36 20 ft.
" 20	" 36	" 6 12 ft.	" 30	" 14	" 7 20 ft.
" 20	" 72	" 4 20 ft.	" 31	" 43	" 3 10 ft.
" 24	" 23	" 25 20 ft.	" 31	" 76	" 4 20 ft.

M.T., 26/8/85.

No. 25.

Mr. J. Ahearn to The Commissioner for Railways.

Sir,

Petersham, 7 September, 1885.

Of the deposit of £4,000 which is to your credit in the Commercial Bank, Campbelltown, a security for the completion of my contract for duplicating the line, Parramatta to Penrith, one half of it, or £2,000 is at interest, and the time (12 months) expires to day. Will you please forward to the Local Manager, the deposit receipt for renewal for a further period of six months at the ruling rate of interest.

I am, &c.,

JOHN AHEARN.

Accountant.—D.C.M'L., 9/9/85. I am not aware of the date on which the contract expires for this work. Should the deposit be renewed? Please say.—J.V., 11/9/85. Secretary. Urgent. Will Mr. Cowdery please say.—G.B., B.C., 11/9/85. Urgent. The contract time expires on 31 March, 1886.—G.C., 12/9/85. Commissioner. Deposit should be renewed.—D.C.M'L., 14/9/85. Accountant. Better renew for 6 months.—J.V., 15/9/85. Mr. Neale. Renewed to 6 March, 1886.—J.R.N., 17/9/85. Accountant. Entered.—W.W., B.C., 1/10/85. Secretary.

No. 26.

Mr. J. Ahearn to The Commissioner for Railways.

Sir

Burwood, 23 October, 1885.

My last certificate for the duplication of line—Parramatta to Penrith—is still unpaid, owing, I believe, to the vote having been exhausted.

As the work is so far advanced could you not recommend the payment to me of one-half the £4,000 deposit held by you as security for the due performance of the contract. I could then willingly await the uncertainty of a fresh vote being granted within a reasonable time by the new Parliament.

I wish respectfully to point out that the Department hold of my money at present the sum of £11,600 upon this contract, made up as follows:—

	£	s.	d.
Deposit as security.	4,000	0	0
Retention money, 10 per cent.	3,800	0	0
Last certificate	1,800	0	0
Work done and not yet returned for	2,000	0	0
	£11,600	0	0

I think you will admit that the amount above stated is rather excessive and will justify me in assuming that you will take a favourable view of this application.

I have, &c.,

JOHN AHEARN.

Mr. Cowdery.—D.C.M'L., 24/10/85. If the vote is exhausted I see no objection.—G.C., 26/10/85. Commissioner. Accountant. Is vote exhausted?—D.C.M'L., 26/10/85. Urgent. Yes.—W.W., B.C., 27/10/85.

I recommend that £2,000 be allowed Mr. Ahearn out of security money. Indeed, as it seems we have £3,800 in hand as retention money, I should offer under the circumstances no objection to the contractor having all the security money, but he applies only for half and promises to wait till further vote be taken if half be granted. I recommend that course.—CH.A.G., 28/10/85.

Approved.—W.J.L., 3/11/85. Mr. Cowdery, B.C. Seen.—G.C., 6/11/85. Commissioner. Accountant—Please have the matter arranged.—D.C.M'L., 10/11/85. Deposit receipt herewith for Commissioner's signature.—W.W., 11/11/85. Signed.—CH.A.G. Received the above.—JOHN AHEARN. Noted.—J.H.N., 17/11/85. W.W. Accountant, B.C., 23/11/85. Secretary.

Sir,

Department of Railways, Sydney, 10 November, 1885.

I have the honor to acknowledge your letter of the 23rd ultimo, respecting the non-payment of your last certificate for the duplication of the line—Parramatta to Penrith—owing to the vote having been exhausted, and asking for return of one-half the £4,000 deposit for due performance of the contract pending a further vote. In reply, I have to inform you that the matter has been considered, and Mr. Secretary Lyne has approved of a compliance with your request.

I have, &c.,

CH. A. GOODCHAP,

Commissioner for Railways.

John Ahearn, contractor, Burwood.

No. 27.

Minute from The Deputy Engineer to The Engineer for Existing Lines.

Station Arrangements—Parramatta to Penrith.

REFERRING to my previous memos. *re* this subject, I will again point out the necessity for these works (including Blacktown) being taken in hand without delay. The contractor is progressing very fast with the laying of the permanent-way, and in order not to stop the progress of his work I have to make all sorts of temporary provisions (temporary cross-overs, &c.), which all means additional expense that might have been avoided if the stations were rearranged as required, or at least the work of doing so in hand.

The Engineer for Existing Lines.

MAX THOMSON, 4/9/85.

Urgent.

Forwarded to Commissioner. This refers to minute paper returned to Commissioner, 28/8/85.—G.C., 9/9/85. Commissioner. Mr. Cowdery, 10/9/85. Papers returned to-day. Will Commissioner please say if station arrangements can be proceeded with as it is urgent.—G.C., 11/9/85. Commissioner. Yes.—CH.A.G., 14/9/85. Mr. Cowdery, B.C. Mr. Thomson to carry out.—G.C., 16/9/85. Please have duplicate tracings made of these station arrangements (Blacktown included) at once.—M.T., 17/9/85. Mr. Halligan. Very urgent. One set of tracings herewith; second copies being made.—E.M.H., 23/9/85. District Engineer. Mr. Waring to carry out according to tracings herewith. Mr. G. R. Cowdery will set out the work and furnish levels and other information required.—M.T., 24/9/85. Mr. Waring. Noted.—J. WARING, 26/9/85. District Engineer. Mr. Purton to carry out platforms, &c., required in accordance with tracings, which will be ready in a few days. Mr. G. R. Cowdery will set out and furnish particulars.—M.T., 28/9/85. Mr. Purton. Noted.—J. T. PURTON, 30/9/85. District Engineer. Please set out this work, and furnish levels, &c., as required. See tracings herewith, of which please take copies for your own use, and return originals as soon as possible. Duplicate tracing of Cross Roads, Mount Druitt, attached for your own use.—M.T., 7/10/85. Mr. G. R. Cowdery. I return original plans of Cross Roads, Mount Druitt, and Seven Hills, retaining South Creek, Rooty Hill, and Blacktown until copies have been taken.—G.R.C., 10/10/85. District Engineer.

I think the small waiting sheds at Seven Hills and Mount Druitt, as well as several goods sheds and loading platforms, might with advantage be constructed by the Department in connection with platforms and sidings—the goods shed at South Creek has already been approved of in another paper, to

be renewed by the Department.—M.T., 11/10/85. Engineer for Existing Lines. Approved.—G.C., 12/10/85. Mr. Thomson. Mr. Purton to carry out.—M.T., 14/10/85. Noted.—J. Purton, 15/10/85. District Engineer. Mr. G. R. Cowdery to note.—M.T., 17/10/85. Noted.—G.R.C., 21/10/85.

It will be necessary to have the plans for main station buildings at Seven Hills and South Creek, as well as Station-master's residence at the latter place, prepared as soon as possible.—M.T., 24/10/85. Engineer for Existing Lines. Mr. Leggatt for plan.—G.C., 26/10/85.

No. 28.

Messrs. D. & W. Robertson to The Commissioner for Railways.

Exchange Buildings, York-street, Sydney, 12 August, 1885.

Penrith to Parramatta bridges.

Dear Sir,

The question of penalties having been raised by the Department, we desire to bring under your notice the following—why no penalties whatever should be deducted from vouchers for this contract:—

1st.—The time of completion originally specified is 1st July, 1885; but as our tender was not accepted until the 20th August, or twenty-two days after tenders closed, and that thereafter the whole design of the bridges were altered—adding a great deal of extra work which took us time to do, and delayed the plans and final instructions to proceed for an additional two months—our time for completion is therefore 20th September, 1885.

2nd.—One delivery was in our own premises, Pymont, and we have had this work finished for a considerable time, waiting instructions, and have been told that we were completing it too rapidly, as they were not able to utilize it, and could not remove it. We wrote, frequently urging the Department to take delivery. We will have the whole of this work away by the 20th September. We have only some 15 tons to supply still out of a total quantity of 670 tons.

Yours, &c.,

D. & W. ROBERTSON.

Mr. Cowdery for report upon these representations.—D.C.M'L., 13/8/85 Mr. Thomson for report.—G.C., 14/8/85.

The representations made by the contractors are quite correct, and I do not think the Department is justified in incurring any penalties in this case. In the first instance, the contractors were considerably delayed (nearly three months, I believe) through the design being altered, and through delays in accepting the tender. Secondly.—The contractors were debarred from delivering the girders when ready, through the delay in obtaining lighters to carry the work round to the Railway wharf. Thirdly.—The work is even now being delivered faster than required.—M.T., 15/8/85. Engineer for Existing Lines.

Under the circumstances I recommend no penalties be enforced.—G.C., 17/8/85. Commissioner. Penalties cannot be enforced under the circumstances.—Ch.A.G., 21/8/85. Inform.

Gentlemen,

Department of Railways, Sydney, 24 August, 1885.

Referring to your letter of the 12th instant, in which you urge reasons why the penalties incurred by your firm in connection with contract for iron bridges, Penrith to Parramatta, should not be enforced, I have the honor to inform you that upon a careful consideration of the facts of the case I have approved of the fines being remitted.

I have, &c.,

CH. A. GOODCHAP,

Commissioner for Railways.

Messrs. D. & W. Robertson, York-street, Sydney.

Mr. Cowdery.—D.C.M'L., 25/8/85. Mr. Thomson to note.—G.C., 26/8/85. Noted.—M.T., 28/8/85. Engineer for Existing Lines.

No. 29.

Minute by The Examiner of Accounts.

Supply of iron bridges for duplication of line from Parramatta to Penrith. D. & W. Robertson Contractors.

THE tender for the above work was accepted on 20/8/84; specified time for completion, 1/7/85.

The contract was completed on 31/8/85, and Commissioner decided on M.P. 85-4,707c, that penalties for non-completion at specified time could not be enforced, as delay was caused by Department.

The contract price is	£11,365	6	3
Authorized extra £30 on each span—forty spans	1,200	0	0
	£12,565	6	3
Amount of final certificate	12,976	15	7
Amount in excess	£411	9	4

This is caused by the increased weight of girders, &c., 699 tons 8 cwt. 3 qrs. being supplied, and only 675 tons specified. I presume final certificate may be passed.

The Secretary.

JOHN P. FINEGAN.

I shall require some explanation of this increased weight; was it authorized?—CH.A.G., 18/9/85. Mr. Cowdery, B.C. Mr. Avern for report.—G.C., 18/9/85. The weight of girders was increased in consequence of an alteration in design, and was approved on Commissioner's minute attached.—G.C., 23/9/85. Pass.—CH.A.G., 24/9/85. Examiner, B.C. The examiner calls my attention to the wording of the minute, upon which my approval was obtained, for allowing £30 per span additional. It would seem that the increased weight of iron was included in that item.—CH.A.G., 25/9/85. Mr. Cowdery, B.C.

The difference in weight is caused by the iron being rolled slightly heavier than the calculated sizes, and as it is only a small percentage on the whole, and the bridges are proportionately stronger, I think it should be allowed. The allowance of £30 per span does not interfere with it.—G.C., 26/9/85. Commissioner. Approved.—CH.A.G., 28/9/85. Examiner, B.C. Voucher forwarded for payment.—T.S., 29/9/85. Secretary. Mr. Cowdery.—L.P.J., 1/10/85. Seen.—G.C., 2/10/85. Commissioner.

No. 30.

Minute by The Assistant Accountant.

THE enclosed voucher, being advance (No. 4) to John Ahearn, in contract for doubling the line to Penrith, has been returned from the Treasury, there not being a sufficient balance on the vote for this work to meet this payment.

I would suggest that a letter be written to the Treasury enclosing the account, and requesting that this and similar items may be paid from the Treasurer's Advance pending the passing of a supplementary vote for the work.

The matter is urgent, as the sum due should be paid without delay.

The Secretary.

J. VERNON, 17/9/85.

The Commissioner, B.C., 17/9/85. For Minister's approval.—CH.A.G., 17/9/85. Approved.—F.A.W., 19/9/85.

No. 31.

The Commissioner for Railways to The Under Secretary for Finance and Trade.

Sir, Department of Railways, Sydney, 21 September, 1885.

Referring to the voucher advance (No. 4) to Mr. John Ahearn, on his contract for doubling the line to Penrith, returned by you to this Department, the balance of vote for the work in question being insufficient to cover payment of the certificate, I have the honor to enclose the account, and shall be glad if this and similar items can be paid from the Treasurer's advance, pending the passing of a supplementary vote for the work.

I have, &c.,

CH. A. GOODCHAP,
Commissioner for Railways.

The advance account will not cover this or similar items. The Commissioner must give me full particulars of the extent to which he is likely to require—payments in excess of votes—that I may ask Parliament for a special vote (temporary).—G.R.D., 25/9/85.

The Commissioner for Railways.—G.E., B.C., 28/9/85. The accountant will please prepare statement showing amount required to cover liabilities incurred and to be incurred in excess of votes—say to June, 1886.—CH.A.G., 29/9/85.

No. 32.

The Commissioner for Railways to The Under Secretary for Finance and Trade.

Sir, Department of Railways, Sydney, 26 November, 1885.

With reference to the endorsement of the Honorable the Colonial Treasurer upon my letter of the 21st September, in which he inquires particulars as to the extent the Department is likely to require payment in excess of votes for railway works, I have the honor to inform you that the votes exceeded are "Tamworth to Tenterfield," "Wallerawang to Mudgee," "Albury to the River Murray," and "doubling the Western Line to Penrith." Information regarding the first-named vote has, I understand, been sent to the Public Works Department, and doubtless the Engineer-in-Chief has perused the same course in respect to the items "Wallerawang to Mudgee" and "Albury to the River Murray." As regards the doubling of the line to Penrith, however, the sum of £70,000 is required to complete before June next.

I have, &c.,

CH. A. GOODCHAP,
Commissioner for Railways.

Mr. Thomson.—G.E., 8/12/85. It is impossible for me to deal with this unless the sums required are mentioned in connection with each service. Perhaps the Commissioner might be requested to give them.—J.T., 8/12/85. The Commissioner for Railways.—J.T., B.C., 22/12/85.

No. 33.

Mr. J. Ahearn to The Commissioner for Railways.

Sir, Burwood, 4 December, 1885.

In connection with my contract for duplicating the line, Parramatta to Penrith, I have respectfully to point out that my last three certificates for payment of advances remain unpaid, notwithstanding that one of the clauses in the general conditions states that the "Contractor will be paid 90 per cent. monthly as the work proceeds."

I think you can pay it out of some vote other than the one taken for the contract, and in view of the fact that bank interest on overdrafts, which I have to avail myself of, is 8 per cent., the Department should find some means of paying me.

I have, &c.,

JOHN AHEARN.

Mr.

Mr. Ahearn said that if we gave him what he last asked for—return of part of security money, he would wait for a vote.—CH.A.G., 5/12/85.

What was the amount of the three last certificates, and to what extent did the advance of £2,000 from security money pay them. Could not the balance of the security money be returned, and could not the vote for additions and alterations be made available for the payment of the amount due?—it is a vote peculiarly applicable to this particular service.—CH.A.G., 7/12/85.

Accountant, B.C., 7/12/85.

Memo. by Accountant.

Mr. Ahearn's Certificates:—

	£	s.	d.
No. 12.—	1,789	1	7
13.—	2,431	5	9
11.—	4,071	1	5
			£8,291 8 9
Security returned	...	2,000	0 0
Balance ...	...	...	£6,291 8 9

The retention money amounts to £4,243 18s. 3d., and security now held is £2,000.

The vote for alterations and additions has been operated upon to a large extent by the Treasury advancing, temporarily, for claims—Tamworth to Tenterfield and other extensions. I see no reason why Mr. Ahearn's claims should not be paid from the same source.
Commissioner.

H. WICKHAM, 9/12/85.

Approved. Please make arrangements, and inform Mr. Ahearn when he can get money.—CH.A.G., 9/12/85. Mr. Ahearn has been paid.—H.W., 18/12/85. Commissioner.

Duplication of line from Parramatta to Penrith—John Ahearn, contractor. On the certificate of work performed on the above contract during the month of December there is an amount of £66 10s. for cartage of iron girders from Finegan's Siding to Parramatta at the rate of 7s. per ton. Will you be good enough to let me have Commissioner's authority for this.—J.P.F., 12/1/86. Mr. Cowdery.

I arranged with Mr. Ahearn to cart these girders direct, as required, and now forward for Commissioner's approval.—G.C., 13/1/86. Commissioner. Approved.—CH.A.G., 16/1/86. Mr. Cowdery, B.C., 17/1/86. Noted.—G.C., 19/1/86.

No. 34.

Mr. J. Ahearn to The Commissioner for Railways.

Sir,

Burwood, 9 April, 1886.

I have respectfully to apply for an advance of £2,000 upon the retention money for the contract for the duplication line, Parramatta to Penrith. Should you accede to my request you will then have as security for the completion of the work the following amounts:—

Deposit receipt	...	...	...	...	...	...	...	...	£2,000
Retention money	...	...	...	...	...	...	...	...	3,300
Work unpaid for	...	...	...	...	...	...	...	...	1,000
Material worked, but not fixed, and for which no advance has been made	...	...	...	...	...	...	...	...	1,000
									£7,300

The contract being so near completion the above amount should be considered fair security, as £5,000 will complete the whole of the work now to be performed. I may state in justification of this request, that I require the money for working other contracts I have with your Department. Trusting you will take a favourable view of this application.

I have, &c.,

JOHN AHEARN.

Mr. Cowdery, B.C., 10/4/86. Mr. Thomson for full report.—G.C., 12/4/86.

The value of the work yet remaining to be done on this contract is estimated at about £8,800. I would suggest, that if the contractor's application for extension of contract time (now under consideration) be granted, he be paid in accordance with the monthly returns of work performed until the job is completed.—M.T., 18/4/86. Mr. Cowdery.

As the extension of time has been granted the monthly payments can be made as usual.—G.C., 22/4/86. Commissioner.

Since writing the above I have seen Mr. Ahearn, and he wishes £2,000 of the retention money paid to him, independent of the monthly payments. I see no objection to this, as we will then have over £3,000 retention money, and £2,000 balance of security, in hand.—G.C., 27/4/86. Commissioner.

Approved.—CH.A.G., 27/4/86. Mr. Cowdery, B.C., 27/4/86. Noted.—G.C., 29/4/86. Commissioner.

No. 35.

Minute by Mr. J. Waring to The District Engineer.

THE new up-line between St. Mary's and Penrith will in a short time be ready for traffic. This cannot be opened for traffic until necessary alterations are made at the east end of Penrith Station. I have not been supplied with a tracing of necessary alterations. I saw Mr. Parry this morning, and find this matter has not yet been settled. Please see into this, and supply me with a tracing as soon as convenient.

J. WARING, 1/6/86.

Very

Very urgent. Has Mr. Parry arranged the plan for these alterations.—M.T., 3/6/86. Engineer for Existing Lines. Mr. Parry.—G.C., 3/6/86. Plan herewith.—J.P., 3/6/86.

Penrith station-yard—Alteration for duplication of line.—I forward herewith tracing^s₇₉₈, showing in red alterations to roads at Penrith, which will be required for the opening of the duplication of line, Parramatta to Penrith. The District Engineer has made application for this plan in order to do the work, so as not to delay the opening.—J. PARRY, 3/6/86. Engineer for Existing Lines.

Approved.—G.C., 3/6/86. Mr. Shellshear. Mr. Waring to carry out.—W.S., 5/6/86. Will be carried out immediately tracing is received.—J.W., 7/6/86. District Engineer. Tracing to Mr. Waring.—H.J.M., 7/6/86. This work will be taken in hand at once.—M.T., 8/6/86. The Engineer for Existing Lines.—G.C., 9/6/86.

No. 36.

Mr. J. Ahearn to The Commissioner for Railways.

Sir,

Burwood, 2 July, 1886.

In connection with my contract for the duplication of line, Parramatta to Penrith, I have respectfully to call your attention to the fact that although the section from St. Mary's to Penrith was ready for opening five weeks ago, owing to delays of the Department that portion is not yet open for traffic, thus preventing me completing the South Creek Bridge within my contract time, which time expired yesterday. As it is uncertain when this section will be opened, Executive sanction not yet having been obtained, I have to apply for an extension of time of two months.

I am, &c.,

JOHN AHEARN.

Mr. Pickering.—Please see about this at once. We applied for Executive sanction about a week ago.—D.C.M'L., 5/7/86. Mr. Budge informs me that Executive sanction was given to-day to the opening of the line referred to. Papers will be sent to this office to-morrow morning.—J.E.P., 6/7/86.

Sir,

Department of Railways, Sydney, 10 July, 1886.

In reply to your letter of the 2nd instant, stating that in consequence of the delay which has occurred in opening the duplicated railway line from St. Mary's to Penrith you have been prevented from completing the South Creek Bridge, I have the honor to inform you that Executive sanction was given on the 6th instant to the opening of the line in question.

I have, &c.,

CH. A. GOODCHAP,

Commissioner for Railways.

John Ahearn, Esq., Burwood.

Mr. Cowdery for report *re* extension of time asked for.—D.C.M'L., 12/7/86. Mr. Shellshear for report.—G.C., 14/7/86. Mr. G. R. Cowdery for report.—W.S., 17/7/86.

Delay of about three weeks arose in obtaining Executive sanction. This, coupled with the delay of a fortnight in making the necessary alterations by Department at Penrith to work the new up-line, has hindered the contractor from commencing work on the down side line, St. Mary's to Penrith. The contractor is also being further delayed in the Department removing the old wooden bridges. South Creek Bridge cannot be pulled down within the next three weeks unless a larger gang is employed. Of course this is delay to the contractor, and prevents him from completing the work expeditiously.—G.R.C., 9/7/86. The District Engineer.

The new line from Parramatta to Penrith is complete, and the work remaining to be done by the contractor is the renewal of the bridges at South Creek. There has been some considerable delay in getting Executive sanction for opening the different sections of the new line, and the work of removing the old bridges by the Department has delayed the contractor. I consider he has a fair claim for an extension of time.—W.S., 22/7/86. Mr. Cowdery.

No. 37.

Mr. J. Ahearn to The Commissioner for Railways.

Sir,

Burwood, 15 July, 1886.

Referring to my letter of 2nd July, applying for an extension of time of two months for my contract—duplication line, Parramatta to Penrith—I have now to apply for an extension of time for three months on this contract. The line to Penrith was opened on the 13th instant. The Department have still to pull down South Creek old bridge before I can commence the erection of the new one. This operation will probably occupy the men three weeks more, so that practically I cannot proceed until five weeks of the time has elapsed. The delay having been caused through the line not being taken over, as completed, I respectfully submit that my application should receive your favourable consideration.

I have, &c.,

JOHN AHEARN.

Mr. Cowdery for report.—D.C.M'L., 17/7/86.

As the completion of this contract is being delayed through work having to be done by this Department in pulling down the old bridges, &c., and through the long time elapsing before obtaining Executive sanction to open the line, I recommend that the extension asked for be granted.—G.C., 24/7/86. Commissioner.

What has delayed the pulling down of South Creek old bridge?—CH.A.G., 28/7/86. Mr. Cowdery, B.C., 28/7/86. Mr. Shellshear for report.—G.C., 28/7/86.

The work of removing the old bridge could not be taken in hand until the traffic had been turned on to the new up-line. This was done on the 13th July. Since then a large gang of men have been employed, and the work is being proceeded with as rapidly as possible.—W.S., 30/7/86. Mr. Cowdery, Commissioner.—G.C., 30/7/86.

Under the circumstances stated the contractor is entitled to the extension of time asked for (3 months).—CH.A.G., 31/7/86. For Minister's approval. Approved.—W.J.L., 3/8/86.

No. 38.

No. 38.

Mr. J. Ahearn to Mr. Cowdery, Resident Engineer.

Sir,

Burwood, 16 September, 1886.

Before finally settling up for the iron bridges on the railway, Parramatta to Penrith, I wish to direct your attention to the fact that the bridges as erected by me from amended plans supplied to me by the Department, include a large quantity of extra riveting to bracing, &c., not contemplated by or calculated for by me, such riveting not appearing on the plans signed by me when I undertook to erect these bridges for a lump sum of £1,687 10s. The number of rivets in excess of the quantity originally contracted for is 400 per span. The riveting, as sublet to some of the men in the early part of the work, cost me for wages about £2 per 100 rivets. Add to this the cost of coal, tools, supervision, &c., I find that the cost in excess to me has been £2 10s. per 100 rivets, or £10 per span. This amount, although barely covering the cost, I am agreeable to accept for the forty spans of 40 feet each, which I have erected on the line. The total amount, therefore, that I claim will be £400.

A comparison of the original plan with the one that I have worked to, will convince you of the equity of this charge.

I have, &c.,

JOHN AHEARN.

As I have never seen original plan of these girders I cannot say the number of rivets in them. If there is a difference, as stated by Mr. Ahearn, I think it is clear he has a fair claim against the Department. The following are the number and sizes of rivets in the single 44 feet span, viz.:— $1\frac{7}{8}$ " x $\frac{3}{4}$ " rivets, 206; $2\frac{1}{8}$ " x $\frac{3}{4}$ " rivets, 176; $2\frac{1}{4}$ " x $\frac{3}{4}$ " rivets, 208; $3\frac{1}{4}$ " x $\frac{3}{4}$ " rivets, 48; total, 638.—G.R.C., 17/9/86. District Engineer.

This refers to the extra riveting in the cross bracing of the bridges. This bracing was added after the contract was let, and I consider the amount asked a reasonable claim for the extra work.—W.S., 18/9/86. Engineer for Existing Lines. Mr. Thomson for report.—G.C., 20/9/86.

After the contract was let and signed by Mr. Ahearn, the plan of the girders was altered and improved, involving the addition of about 400 extra rivets in each span. The contractor has a just claim for this extra work, and I consider his charge of £10 per span reasonable.—M.T., 22/9/86. Engineer for Existing Lines.

I recommend this extra of £10 per span be approved.—G.C., 22/9/86. Commissioner. Payment is not authorized.—Ch.A.G., 2/10/86.

I can see no justification for such a departure from the original plan without authority; besides, the contractor should have taken exception at the time. The lump sum was £1,687; to increase this by £400, nearly 25 per cent., apparently without authority, was unjustifiable. A very full explanation must be afforded.—Ch.A.G., 2/10/86. Mr. Cowdery, B.C., 2/10/86. Mr. Thomson for full explanation.—G.C., 5/10/86. The matter was, I believe, explained when the alterations to the girders were sanctioned. Please attach previous papers.—M.T., 5/10/86. Engineer for Existing Lines. Papers herewith.—G.C., 6/10/86. Mr. Thomson.

At the time the original design for these girders was revised and altered, it was pointed out that there would be additional riveting to be done, for which work it was approved to pay the manufacturers of the girders £30 per span extra. Please see Engineer's minute of 16/12/84, and Commissioner's approval. The contractor states that at the time he took no particular notice of the altered design, and did not notice the extra riveting before he started erecting the girders.—M.T., 7/10/86. Engineer for Existing Lines. Report herewith.—G.C., 7/10/86. Commissioner.

Examiner to see me. Ahearn, I presume, is the contractor for the erection, D. & W. Robertson for the construction. £30 a span was authorized for the construction. Did Ahearn tender to the old or new design? When did Ahearn tender—how long after the acceptance of D. & W. Robertson's tender for the construction of these bridges?—Ch.A.G., 10/10/86.

Ahearn is the contractor for the erection, D. & W. Robertson for the construction. £30 per span was authorized on 19/12/84. Ahearn tendered to the old designs and signed the original plans. D. & W. Robertson's tender was accepted on 20/8/84, Ahearn's tender accepted on 28/8/84.—J.P.F., 12/10/86.

For Minister's approval. The charge, it seems, is very reasonable.—Ch.A.G., 12/10/86. Since writing this minute I have been informed that Mr. Ahearn will have some further claim. I will not make any settlement till I know what the full amount of claim is.—Ch.A.G., 13/10/86. Mr. Cowdery, B.C., 14/10/86. Mr. Thomson for reply to Commissioner's minute.—G.C., 14/10/86.

Please let me have the following information:—1. The number of spans (44 and 20 feet respectively) originally provided for in the contract. 2. The number of extra spans (30 feet and 20 feet) afterwards introduced. 3. The number of rivets put in by Mr. Ahearn in the 30 feet and 20 feet spans, and the number of rivets which he would have had to put in the 20 feet spans as originally designed.—M.T., 21/10/86. District Engineer.

Mr. G. R. Cowdery to supply.—W.S., 22/10/86.

Attached is the information required.—1st. Forty 44-foot spans and one 20-foot span were originally provided in specification. 2nd. Three 20-foot spans and eight 33-foot spans were afterwards added. 3rd. Number of rivets put in a single 33-foot span by Mr. Ahearn was 285, and in a 20-foot span 174 rivets. As no bracing was shown in the original 20-foot span, of course no rivets were required.—G.R.C., 28/10/86. District Engineer.

The Deputy Engineer.—W.S., 28/10/86.

The original contract was for forty spans of 44 feet and one span of 20 feet—£1,687 10s. Since the contract was let eight 33-foot and three 20-foot spans were added, the price for erecting which at the original schedule price will be £31 5s. and £20 16s. 8d. per span respectively. For extra riveting £10 per span of 44 feet is claimed. Worked out *pro rata*, the total amount of extra on this then will be as under:—Erecting eight 33-foot spans at schedule rate, £31 5s.—£250; erecting three 20-foot spans, at £20 16s. 8d.—£62 10s. Extra riveting:—Forty 44-foot spans, at £10—£400; eight 33-foot spans, at £7 10s.—£60; four 20-foot spans, at £5—£20; total, £792 10s.—M.T., 3/11/86. Engineer for Existing Lines.

Commissioner.—G.C., 4/11/86.

Mr. Badham.—Please prepare *précis*.—D.C.M.L., 5/11/86.

Précis

Précis.

Mr. John Ahearn's claim for extra work in connection with duplication of line, Parramatta to Penrith.

UNDER date of 8th October, 1884, Mr. Ahearn entered into a contract for the duplication of the line from Parramatta to Penrith. In this contract an item of £1,686 10s. was included for erecting iron bridges.

The contract for the construction of these bridges was taken by D. and W. Robertson, who for certain extra work in them, rendered necessary by a departure from the original design, were paid £30 per span over and above the contract price.

Under date of 16/9/86 Mr. Ahearn wrote that the bridges as erected by him contained a quantity of extra riveting not shown in the plan which he had signed. There were 400 rivets per span more than he had contracted to supply. He had sublet some of the riveting and paid £2 per 100 rivets. Adding coal and other items the cost would be £2 10s. per 100 or £10 per span. That would barely cover the outlay, but he was willing to accept it for the forty spans, which would make £400.

Mr. Shellshear minuted that this was the riveting for the extra bracing which was added after the contract was let, and the claim was reasonable.

Mr. Thomson concurred, and Mr. Cowdery recommended payment.

Commissioner could see no justification for such a departure from plan without authority. The lump sum (in contract) was £1,687, and to add 25 per cent. (£400) to it was unjustifiable. A very full explanation would be required.

Mr. Thomson minuted that when the plan was altered it was pointed out that there would be extra riveting and that for this the makers with Commissioner's approval had been paid £30 per span extra.

Commissioner minuted that he presumed—(1) that Ahearn was contractor for the erection; (2) D. and W. Robertson for the construction; (3) that £30 per span was authorized for the construction; (4) did Ahearn tender to the old design; (5) how long after the acceptance of Robertson's tender did Ahearn send in his tender?

Examiner replied—(1) yes; (2) yes; (3) yes; (4) yes; (5) that Robertson's tender was accepted, 20/8/84; Ahearn's, 28/8/84.

Commissioner minuted that he was informed Ahearn would have some further claim and that he must know what the full amount would be.

Mr. Thomson reported that the original contract was for forty spans of 44 feet and one span of 20 feet, that eight 33-feet and three 20-feet spans had since been added, and these at the original schedule prices would be £31 5s. and £20 16s. 8d. each respectively. Worked out *pro rata* the claim would stand as under:—

Erecting additional spans—				£	s.	d.
Eight 33-feet spans, at £31 5s.	...	...	...	250	0	0
Three 20 do at £20 16s. 8d.	...	...	...	62	10	0
Extra riveting—						
Forty 44-feet spans, at £10	...	...	...	400	0	0
Eight 33 do at £7 10s.	...	...	...	60	0	0
Four 20 do at £5	...	...	...	20	0	0
				£792	10	0

C.A.B., 15/11/86.

Why was design altered? I should like to see Mr. Thomson.—CH.A.G., 21/11/86.

Please attach all papers referring to duplication of line, Parramatta to Penrith, also papers referring to Mr. Townsend's iron girders and papers referring to Wearne's contract for iron girders.—M.T., 23/11/86.

The design of these girders was altered in order to introduce a proper system of lateral bracing and flooring, so as to make better provision against wind-pressure and the effects of floods, the creeks carrying a lot of debris and drift-wood in time of flood. The extra 33-feet spans were obtained in order to preserve the original waterway at Eastern Creek, and the extra 20-feet spans were used for the same purpose at other creeks. (The papers referring to these extra spans are not with this file).—M.T., 1/12/86. Engineer for Existing Lines.

Commissioner.—G.C., 2/12/86. The papers should be found, and a *précis* made of them.—CH.A.G., 10/12/86. Papers herewith.—J.J.W., 20/12/86. Mr. Badham for *précis*.—D.C.M'L., 21/12/86.

Précis.—Mr. Ahearn's claim.

MR. COWDEY submitted a claim in favour of Mr. Ahearn for extra work on the bridges between Penrith and Parramatta.

Commissioner called for the papers on which the extra work was authorized.

These papers are now submitted, and it appears that, after the tenders had been received and accepted, the designs were altered, and three 20-feet and eight 30-feet bays added to the bridges.

Mr. Secretary Wright sanctioned the additions, but thought it was a pity a little more attention had not been paid to the question before the work was started.

The above agrees with the claim now put forward for Mr. Ahearn for additional bays.

As will be seen by the *précis*, there was also extra bracing to all the bridges, which involved additional riveting. This makes up the remainder of Mr. Ahearn's extra claim.

The amount claimed is £792 10s.

C.A.B., 2/2/87.

This is a very urgent matter. It has been so very long delayed through no fault of Mr. Ahearn, who has had to suffer.—A.R., 3/2/87. Pay—authority having now been found for incurring outlay.—CH.A.G., 3/2/87. Engineer for Existing Lines, B.C., 3/2/87. Please note, and furnish final certificate at once.—M.T., 4/2/87. District Engineer. Final certificate herewith.—G.C., 21/2/87.

No. 39.

Minute by The Examiner of Accounts.

Duplication of line—Parramatta to Penrith—John Ahearn, Contractor.

ENCLOSED is the final certificate for the above work amounting to £91,267 16s. 6d. This exceeds the sum of the contract price (£79,343 1s. 6d.) and authorized extras (£1,635 4s. 8d.) by £10,289 10s. 4d.

Will you please furnish particulars of the excess for the Commissioner's information.

JOHN P. FINEGAN,

Mr. Cowdery.

23/2/87.

There are other papers explaining this matter in which it was pointed out that an error had been made in the estimates and quantities of this work and fully explained to the Commissioner, who consequently obtained supplementary supplies to carry out the work. The papers referred to will show that I pointed out that the original estimates were not correct, and that consequently it would be necessary to obtain additional supply, and it was there further pointed out that Mr. Ahearn's contract would be exceeded by some £10,000 or more (I am speaking from memory only), and combined with other works the result was that the supplementary vote was obtained. The excess of this contract has been duly authorized, but at the same time the papers referred to should be found and attached. They contain the original and my amended estimates.—M.T., 24/2/87. Examiner.

Will Commissioner please say if final certificate may be passed.—J.P.F., 26/2/87. Secretary. Will Mr. Badham please make statement of case for submission to Commissioner.—D.C.M'L., 1/3/87.

DUPPLICATION of line, Parramatta to Penrith—Mr. Ahearn's Contract.

Particulars.	Amount.		Amount.	
	£	s. d.	£	s. d.
Total amount of final certificate.....			91,267	16 6
Mr. Ahearn's tender amounted to	79,343	1 6		
Authorized extras, as under :—				
To riveting and erecting additional spans of bridges consequent upon alterations of bridge designs.....	792	10 0		
To cartage of girders from Finegan's Siding	66	10 0		
To difference in cost between laying and ballasting hydra-headed rails, at 7s. 4d. per yard, and laying ordinary Permanent-way, at 2s. 6d. per yard; 3,212 yards, at 4s. 10d.....	776	4 8		
			80,978	6 2
Balance for which no specific authority has been obtained		*£	10,289	10 4

* As regards this difference between the amount of the final certificate and the tender and authorized extras quoted, Mr. Thomson informed me that he bases the authority for incurring this extra expenditure on an item of £10,000 which was included in the statement furnished by him on 30/9/85 in connection with the supplementary vote of £70,000 for the completion of the duplication of the line.

On the 8/9/85 the then Secretary for Public Works (Mr. Wright) in a condemnatory minute as to the careless manner in which the estimates for works are prepared, approved of the additional amount being provided for the completion of the line, but the papers do not, as Mr. Thomson admits, show any special authority (beyond the mere inclusion of the item referred to in the supplementary vote of £70,000) for the work which has absorbed the amount of the difference shown. Mr. Ahearn as per final certificate on file has been paid £90,267 10s. 5d. on account of contract, and the balance therefore due is £1,000 6s. 1d. G.A.S.; 1/4/87.

No. 40.

Mr. J. W. Townsend to The Secretary for Public Works.

Sir,

Athenæum Club, 26 January, 1888.

Referring to a recent conversation *re* estimate for doubling the line, Parramatta to Penrith, I have the honor to inform you that drawings and estimate for this work were prepared in the Sydney District Engineer's Office, of which office I was in charge as District Engineer. Drawings, estimate, and specification when completed were handed to Mr. Cowdery, were examined, and, I presume, found correct in his office, as they were signed by him. The contract was let for a term closely approximating the office estimate; but after the work was commenced numerous alterations were made that largely increased the cost of the work, for which I am in no way responsible, as before the work was commenced I had been transferred to Mr. Whitton's branch for the purpose of making the Colo Valley survey.

I have, &c.,

J. W. TOWNSEND.

The contract price for the iron bridges on this work, which were my design, was the lowest either per ton or per span for which such work has ever been done in the Colony.—J.W.T.

It had been represented to me that to a large extent Mr. Townsend was responsible for the under estimate of the cost of doubling line to Penrith, that several necessary works had been omitted by him. I do not know that he ever had an opportunity of explaining the matter before, but he does not seem disposed to accept any responsibility.—C.R.A.G., 8/2/88.

The Commissioner will be glad to receive your report *re* this, Engineer for Existing Lines.—A.R., 8/2/88. Full report herewith.—G.C., 9/3/88.

Duplicating

Duplicating line—Parramatta to Penrith.

In October, 1882, Mr. G. W. Townsend submitted preliminary estimate for this work, amounting to £84,203. A supply of £85,000 was obtained in consequence, and survey proceeded with. This estimate did not provide for the expenses to be incurred in altering the existing station arrangements, &c.

Subsequently tenders were accepted for the supply of ironwork for bridges and for the construction of the line, amounting to, as under:—

	£	s.	d.
1. Superstructure for bridges	11,365	6	3
Necessary alterations to bridges to make them safe	1,200	0	0
2. Additional bridges at Eastern Creek (superstructure)	2,138	9	5
3. Construction of line	79,343	1	6
	<u>£94,046</u>	<u>17</u>	<u>2</u>

To which is to be added extras:—

1. Under estimated weight of ironwork	419	9	4
3. Excess caused mainly by under estimated quantities, and concrete required to secure good foundations, &c.	11,924	15	0
	<u>£106,391</u>	<u>1</u>	<u>6</u>

To which should be added the cost of permanent-way material and station arrangements.

The total cost of the work, as far as can be ascertained, will be about £169,250, out of which £33,000 is to be charged to working expenses for removing existing bridges and stations, leaving £136,250 for new work, or some £52,000 in excess of the original estimate.

The alterations made, referred to by Mr. Townsend, were:—Dispensing with hand-packed rubble behind the abutments, and building the latter in cement instead of mortar, by which a saving of some £4,600 was effected, which, however, was swallowed up through the extra foundations which had to be provided for the abutments. The alterations to the bridge superstructures were necessary in order to ensure their stability and safety, and involved an extra expenditure of some £3,000.

It is true that Mr. Townsend afterwards submitted an estimate for constructing the line without supply of iron bridges, rails, or station arrangements, but it did not agree closely with the contract price as stated (being some £4,400 below the latter, and required revision and correction), and does not alter the fact that the original estimate was wrong and the quantities undermentioned, as shown above.

M.T., 2/3/88.

Mr. Townsend may be supplied with a copy of report. I have not seen Mr. Townsend's estimated quantities, &c., nor the comparison which I asked for between the actual quantities and Mr. Townsend's quantities.—CH.A.G., 13/3/88. Engineer for Existing Lines.

Comparative statement of original estimate and actual cost now attached—the latter as near as can be ascertained at present, to which will have to be added some £400 for completing St. Mary's Station, now under construction.—M.T., 27/3/88. Secretary.

GREAT WESTERN RAILWAY.—Duplication of line—Parramatta to Penrith.

STATEMENT showing comparison between Mr. Townsend's Estimate and Actual Cost.

Mr. Townsend's Estimate.		Actual Cost			Over Estimate.	Under Estimate.
Description.	Amount.	Description.	Amount.	Total.	Amount.	Amount.
		EARTHWORKS.				
Earthworks...	£ 8,502 0 0	Cuttings	£ 18,303 14 6	£ 18,303 14 6	.....	£ 9,801 14 6
		BRIDGES AND CULVERTS.				
		Excavations to foundations	4,991 17 6			
		Concrete	6,626 0 0			
		Brickwork in cement	21,928 2 6			
		Masonry	2,215 10 0			
		Hardwood timber	3,113 2 0			
		Fixing iron bridges	2,479 0 0			
		Strengthening, pulling down old wooden bridges	4,608 3 9			
Doubling bridges.	28,512 0 0	Constructing iron bridges	16,199 4 3			
Lengthening culverts.	850 0 0		62,161 0 0			
	<u>29,362 0 0</u>	Less bridges on old line to be charged "Working Expenses."	28,500 0 0	33,661 0 0	.....	4,299 0 0
		LEVEL CROSSINGS.				
		Removing and re-erecting gates	144 0 0			
		12" drain pipes	123 15 0			
		Broken metal	21 0 0			
Level crossings.	250 0 0	Re-erecting wing fences	15 15 0	304 10 0	.....	54 10 0
Stations	250 0 0	Alterations to stations and sidings	£ 23,433 16 8	23,433 16 8	.....	23,183 16 8

Mr. Townsend's Estimate.		Actual Cost.			Over Estimate.	Under Estimate.
Description.	Amount.	Description.	Amount.	Total.	Amount.	Amount
	£ s. d.	PERMANENT-WAY.	£ s. d.	£ s. d.	£ s. d.	£ s. d.
		Ballast	11,112 10 0			
		Sleepers	8,566 10 6			
		Forming	257 0 0			
		Laying Permanent-way	3,474 2 6			
		Laying and ballasting hydra-headed rails	1,177 14 8			
		Rails and fastenings—main line	14,016 14 6			
		Making connection with main line and diverting traffic	5,185 16 10			
Permanent-way.	43,939 0 0	.....	.....	43,790 9 0	148 11 0	.....
		OVERBRIDGES AND TIMBER OPENINGS				
		Ironbark	632 10 0			
Overbridges... Timber openings.	1,500 0 0 150 0 0	Iron bolts, straps, &c.	344 19 9	977 9 9	672 10 3	.....
	1,650 0 0					
		PLATFORMS.				
Platform	250 0 0	Removing and re-erecting platforms	1,206 0 0	1,206 0 0	.....	956 0 0
		Compensation for land	200 0 0	200 0 0	.....	200 0 0
		Contract day labour, &c.	328 2 1	328 2 1	.....	328 2 1
		Engineering expenses	1,300 10 8	4,300 10 8	.....	4,300 10 8
		Inspection approximate	3,000 0 0			
	£ 84,203 0 0			£ 126,505 12 8	821 1 3	43,123 13 11 821 1 3
						£ 42,302 12 8

M.T., 27/3/88.

No. 41.

Minute by The Chief Commissioner for Railways.

Is there any correspondence in the office—tempus 1884—re Townsend girders? Some press correspondence, I think.—CH.A.G., 5/5/88.

Herewith.—C.A.B., 11/5/88.

Be good enough to separate the papers referring to the design of girders. Make a *précis* of them, and place the whole with Professor Warren's report on these bridges. I wish Mr. Townsend to see these papers; they may account for some discrepancies to which he has called my attention. I refer to the correspondence with D. and W. Robertson re price to be charged for extras, and the late Mr. Avern's report thereon.—CH.A.G., 10/5/88.

Mr. Badham, please make *précis*. Mr. Townsend has seen papers.—H.M.L., 10/5/88.

Mr. Townsend's design of girder for bridges—Parramatta to Penrith.

UNDER date of 18th February, 1884, Mr. Townsend reported that the girders he had designed under Commissioner's instructions to place wooden bridges and viaducts had proved a complete success under a very severe test. Mr. Townsend also made some suggestions in regard to providing machinery for the making of a bridge for further trial, but as they were not acted upon no further reference need be made to them.

Commissioner thereupon directed Mr. Cowdery to make an independent test of the girders, reporting their behaviour under test, and expressing his view as to their stability and suitability.

Mr. Cowdery reported that the girders had been tested with the heaviest running load that could be put upon them, and that he found them perfectly rigid, the deflection being scarcely perceptible. They would be very suitable where there was sufficient roadway, and especially in duplicating a line, because the roadway could be completed without interfering with the old line.

Commissioner thought it would be well before submitting to state the cost of bridges to this design in comparison with the cost of wooden bridges, &c., for the duplication of the line, Parramatta to Penrith.

Mr. Cowdery reported that the bridges would cost, if made of this design, £42,600; if of timber, £58,000; if of plate, main girders, and cross girders, £70,000.

Commissioner recommended the adoption of the Townsend girder for the bridges, Parramatta to Penrith.

Mr. Secretary Wright approved. Tenders to be invited (1) for imported work, and (2) for work to be done in the Colony.

Tenders were invited accordingly, and the tender of D. & W. Robertson was accepted.

C.A.B., 11/5/88.

Did

Did the bridges cost more or less than £42,600?—CH.A.G., 14/5/88. Engineer for Existing Lines.—A.R., 15/5/88. The total cost of the bridges and culverts was £62,161. The cost of the culverts has not been kept separately, but would not amount to more than £2,000.—G.C., 18/5/88. Commissioner.

Perhaps Mr. Cowdery can explain why he estimated the cost of these bridges at £42,600, or rather, why they have cost £60,000. The alterations made to the design did not affect the price very much, and, if my memory serves me, the cost of the iron per ton was less than the original estimate.—CH.A.G., 23/5/88.

The estimate for these bridges (on which the money for carrying out the work was obtained) was £28,512 for single line bridges, which should have been pointed out in the prices, and corresponds pretty nearly with the actual cost taken in proportion to the double line. In addition to the bridges originally provided for eight spans of 30 ft., and three spans of 20 ft. were added, and the alteration to the design increased the cost, also both in the cost of the ironwork, and the quantity of timber for sleepers. The discrepancy between the original estimate of £28,512 for single line bridges, and Mr. Townsend's later estimate of £42,600 for double line bridges, escaped my notice at the time.—G.C., 30/5/88. Commissioner.

I wish to know what the figures £42,600 should have been at the time the estimate was given to me. Of course the eight spans of 30 ft., and the three spans of 20 ft., must be included, and also cost of alteration in design. Are the other figures correct—£58,000 for timber bridges, and £70,000 for bridges—in the design then in use when Mr. Townsend's girders were accepted?—CH.A.G., 1/6/88.

I am not aware what Mr. Townsend included in his estimate of £42,500, or what he intended to do for that amount, but the estimate should have approached nearer to the actual cost of the work and the estimate previously furnished to me by Mr. Townsend, and on which latter the moneys for the work were obtained. And I now notice that in this estimate of £42,600 Mr. Townsend has not made any allowance for masonry and excavation for foundations, nor for the strengthening of and pulling down the old bridges, which amount to some £12,000, bringing up the estimate to something like £54,000, being approximately the actual cost of the work, exclusive of the additional 30 feet and 20 feet spans. With regard to the other estimates of £58,000 and £70,000 submitted by Mr. Townsend for timber and plate girder bridges respectively, Mr. Thomson, Mr. Fischer, and myself have carefully considered the same, and basing the estimates on the figures assumed by Mr. Townsend, I find that timber bridges could have been constructed for about £45,000, and iron plate girder deck bridges for about £46,000, which in both cases includes the cost of strengthening and pulling down the old bridges (which amounts to about £4,500, and was not provided for in Mr. Townsend's estimate of £42,600); but in order to make the comparison equitable the masonry and excavation are not included, as these items were omitted by Mr. Townsend in his estimate. I notice, moreover, that Mr. Townsend in his estimate puts £36 per ton for plate girders against £20 per ton for his own design. The reason for this I do not know, as at any time plate girders would be obtained as cheap, if not cheaper, than lattice girders. I do not want to excuse myself if any blame can be attached to me in this matter, but I must point out that the estimates of Mr. Townsend now under question were submitted to me after the money for the work had been granted on a more accurate estimate, and then they were forwarded on to the Commissioner by my Chief Clerk during my absence without my seeing them in the first instance, hence I came to overlook them and not compare them with the original estimate. In matters of this kind I must of course rely on my subordinate officers to a certain extent. If I were to personally check all figures and quantities, whether in the field or office, I should find time for nothing else.—G.C., 11/6/88. Commissioner.

I think Mr. Townsend should have an opportunity of replying to this statement.—J.S., 12/6/88.

No. 42.

Reply by Mr. G. W. Townsend to Mr. Cowdery's 88-2,899.

MR. COWDERY says on his M.P.: I am not aware that Mr. Townsend included in his estimate of £42,600, or what he intended to do for that amount, but the estimate should have approached nearer to the actual cost of the work than the estimate previously furnished to me by Mr. Townsend, and on which latter the moneys for the work were obtained.

Estimate previously furnished.

Mr. Cowdery's M.P.: And I now notice (11/6/88) that in this estimate of £42,600 Mr. Townsend has not made any allowance for masonry and excavations for foundations, nor for the strengthening of and pulling down the old bridges, which amount to some £12,000, bringing up the estimate to something like £54,000, being approximately the actual cost of the work, exclusive of the additional 30 feet and 20 feet spans.

My estimate of £42,600 for forty 44-foot spans of iron bridges on brick piers and abutments as designed by me, included all necessary masonry for coping and bedstones, and all excavations for foundations, those being covered by the price of £3 per cube yard for brickwork (50s.) being a fair price. The designs were not completed when this estimate was furnished, so I put a high price on the brickwork to cover detail contingencies. This estimate allowed £28,000 for single-line bridges on a less economical design than that which was subsequently adopted.

As above stated the masonry and foundations were included in the high price of £3 per cube yard for brickwork, 50s. being a fair price.

Strengthening the old bridges I considered should certainly not be charged to the cost of the new ones, but to maintenance. Pulling down the old bridges should have been paid for by sale of material.

My estimate of £42,600 was for forty spans of 44 feet each.

The work done comprised fifty-one spans, viz., forty of 44 feet, eight of 30 feet, and three of 20 feet. These have been made to cost £62,161, but that sum really includes about £2,000 for culverts, leaving £60,161 for the cost of the fifty-one spans.

The brickwork, concrete, masonry, and excavations cost about the same for large and small spans.

The cost of superstructure will be about £960 less for the eleven small spans than it would for the same number of 44-foot spans. By deducting the sum of £4,500 for strengthening and pulling down the old bridge from and adding £960 to £60,161, we get £56,621 as the actual price for comparison, and can arrive at what the forty spans of 44 feet cost, viz., £44,408. This gives an excess of £1,808 over my estimate of £42,600, which, considering the alterations which were made from my design, is close enough. With

With regard to the other estimates of £58,000 and £70,000, submitted by Mr. Townsend for timber and plate girder bridges respectively, Mr. Thomson, Mr. Fischer, and myself have carefully considered the same; and, basing the estimates on the figures assumed by Mr. Townsend, I find that timber bridges could have been constructed for about £45,000, and iron plate girder deck bridges for about £46,000, which, in both cases, include the cost of strengthening and pulling down the old bridges (which amounts to about £4,500, and was not provided for in Mr. Townsend's estimate of £42,600); but, in order to make the comparison equitable, the masonry and excavations are not included, as these items were omitted by Mr. Townsend in his estimate. I notice, moreover, that Mr. Townsend puts £36 per ton for plate girders against £20 for his own design. The reason for this I do not know, as at any time plate girders would be obtained as cheap, if not cheaper, than lattice girders.

Mr. Cowdery's M.P.: I do not want to excuse myself if any blame can be attached to me in this matter; but I must point out that the estimates of Mr. Townsend now in question was submitted to me after the money for the work had been granted on a more accurate estimate.

And they were forwarded on to the Commissioner by my Chief Clerk during my absence, without my seeing them in the first instance; hence, I came to overlook them and not compare them with the original estimate.

Mr. Cowdery's M.P.: In matters of this kind I must of course rely on my subordinate officers to a certain extent. If I were to personally check all figures and quantities whether in the field or office, I should find time for nothing else.

G.C., 11/6/88.

Please make a *précis* leaving out personal references.—CH.A.G., 24/6/88.

Mr. Townsend's design of girder for bridges, Parramatta to Penrith.

In *précis* of 11/5/88, it is shown that the estimated cost of the above bridges if Mr. Townsend's design of girders were used was £42,600. If timber were used £58,000; and if plate-iron main girders and cross girders were used £70,000. These estimates were prepared by Mr. Townsend while acting as District Engineer under Mr. Cowdery.

Townsend's girders were used in the bridges for the duplication of the line from Parramatta to Penrith, and the bridges cost £60,000.

Commissioner asked for an explanation of this, and Mr. Cowdery replied, stating that the original estimate was £28,512 for single line bridges, and that amount doubled would be pretty near to the actual cost. The discrepancy between the original estimate and Mr. Townsend's later figures £42,600 for double bridges, escaped his notice at the time. In addition to the bridges originally estimated for, eight spans of 30 feet each, and three spans of 20 feet each were supplied, and the designs being altered as well as the cost was increased.

Commissioner then requested to know what the figures £42,600 should have been at the time the estimate was given to him.

My price for the timber bridges was £43,521; cost of keeping traffic open during construction, £14,479; making a total of £58,000. This was for a length of 2,670 feet, the extra length being required to keep the toe of the banks clear of the running water.

I gave no estimate for deck bridges with plate girders; but for through bridges, such as were then being built, with two main girders and cross girders. Four such bridges were being erected over the streets in Parramatta at the time I made the estimate in question, the ironwork for which cost, I believe, £22 per ton, and the erection, including temporary work, cost fully £14 a ton more. It was upon this work that I based my price of £36 per ton, as stated in note upon the estimate—£22 per ton, with £14 per ton added for erection and temporary work—which was about the cost of the Parramatta bridges. My bridges cost, erected, about £20 a ton. Those four bridges in Parramatta, of an aggregate length of about 350 feet, were estimated to cost £22,000. Numerous others, equally wasteful and extravagant work, were being carried on about the same time, from 1883 to 1885; and I determined, if possible, to make a change.

As to plate girder deck bridges, Professor Warren has shown that of the very highest and best construction possible they would cost £42 per span more than mine. If of the type of the Phoenix Co's design, which has been copied and made use of at Strathfield, which Professor Warren reduced in weight considerably for comparison, the difference in favour of my design would be £57 per span for 44-foot spans—the brickwork, masonry, and excavations being the same in either case; but these are far more economical than any plate girders in use at that time, and are of the newest and most approved American design.

Then why was the money not sufficient?

There was no necessity for the extra openings that were put in at Eastern Creek. I had allowed ample waterway from an accurate knowledge of the watershed area. It is this and other extra work ordered after the estimate was prepared that caused the estimate to be exceeded.

The estimate in question was prepared by me and sent to Mr. Cowdery, from whom I received it back with a request that I would give some instance in support of the high price given by me for through bridges with two main plate girders and cross girders. I copied the first estimate exactly with the exception that I inserted a note as follows, "The four bridges in Parramatta are estimated to cost £22,000, the same replaced by timber would have cost about £14,000." I then sent to Mr. Cowdery the original estimate together with the copy with note inserted. A few days afterwards I received the two back with the following note on the second one in Mr. Cowdery's own handwriting. "Return must be made without reference to works under contract." I wrote across the note objected to, "I put this information in the return as the last I sent in was returned for this same information." I then made a fresh copy of the original, and sent the three back to Mr. Cowdery. Mr. Cowdery's note is signed, G.C., 27/3/84. The date of my last copy of estimate is 10/4/84. The three papers in question I saw recently amongst the papers relating to this subject. Mr. Cowdery is therefore in error when he says he did not see or check these estimates.

G. W. TOWNSEND, 22/6/88.

23/5/88;

1/6/88

Of

Of course the eleven additional spans must be excluded and also the cost of the alteration of design. ^{1/6/88.} Would like also to know if the other figures £58,000 and £70,000 were correct for bridges to the design then in use when Townsend's girders were accepted.

Mr. Cowdery says he is not aware what Mr. Townsend included in the estimate of £42,600, or what he intended to do for that amount, but notices now that no allowance was made for masonry, excavations for foundations, strengthening of some and pulling down other old bridges, which exclusive of the eleven additional spans would bring the £42,600 to something like £54,000. ^{11/6/88.}

Regarding the other items of £58,000 and £70,000, Mr. Cowdery says, he together with Messrs. Thomson and Fischer have carefully considered them and find that timber bridges could have been built for about £45,000 and iron plate girder deck bridges for about £46,000. These figures include the cost of strengthening and pulling down the old bridges (about £4,500), but they exclude the cost of masonry and excavations in order to make the comparison with Mr. Townsend's figures an equitable one.

Mr. Cowdery observes further that Mr. Townsend estimated £36 per ton for plate girders against £20 per ton for his own design, whereas at any time plate girders would be as cheap if not cheaper than lattice girders.

The Minister thought Mr. Townsend should have an opportunity of replying to Mr. Cowdery's statement, and he has now done so.

Mr. Townsend says his estimate of £42,600 did include the cost of masonry and excavations, but he did not include the cost of strengthening or pulling down of old bridges. He thought the strengthening of bridges was a charge against maintenance, and the pulling down of the old bridges should have been paid for by sale of material.

From the actual cost of the bridges, viz., £60,161, the following amount must be deducted:—

Item strengthening bridges and pulling down	... ..	£4,500
		£55,661

Add difference in proportionate cost of superstructure of eleven spans and the price of the 44 ft. spans originally stipulated for	960
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Total cost of fifty-one spans	£56,621
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The forty spans originally estimated for will thus be £44,408, which exceeds the original by £1,808:

The estimate for timber bridges, viz., £58,000, is arrived at as under:—

Timber and construction	£43,521 (for a length of 2,670 ft.)	
Extra cost in having to keep trains running	... ..	£14,479
		£58,000

In his estimate of £70,000 for iron bridges of two main girders and cross girders, such as were being built at the time, Mr. Townsend estimated £22 per ton for ironwork, and £14 per ton more for erection and temporary work, which was the same as the work then proceeding over the streets in Parramatta was costing.

His own design of girders cost about £20 per ton including erection.

As to plate girder deck bridges Professor Warren has shown that the very lightest and best construction would cost £42 per span more than his (Mr. Townsend's) design, and in the Phoenix type which has been reduced in weight considerably for comparison, the difference in favour of Townsend's design is £57 per span of 44 feet. These are of the newest and most approved American design and in either case are far more economical than any plate girders in use at the time of Mr. Townsend's estimate.

Extra work ordered after the estimate was prepared caused the amount to be exceeded. There was no necessity for instance, for the extra openings that were put in at Eastern Creek.

A.P., 28/6/88.

This case is now ready for submission to the Minister—it seems that £4,500 incurred for removing old structures, charged as portion of Mr. Townsend's figures, were not included in his estimate, and that his estimate of £42,600 has only been exceeded by £1,808, the expenditure in excess of this amount, viz., £11,253, was caused by extra work ordered after the estimate was made.—CH.A.G., 29/6/88.

No. 43.

Minute by The Commissioner for Railways.

Mr. Townsend's reply to Mr. Cowdery's report of 11/6/88 *re* the causes which explain why the cost and estimate of cost of certain bridges do not correspond.

I SHOULD like to know how the sum of £4,500 for strengthening some and removing others of the old bridges was made up. Has credit been taken for the value of the old material?

It seems to me that Mr. Townsend, in framing his estimate of the cost of timber bridges, was right to take into consideration the cost of keeping traffic open during construction.

One of the reasons urged for the adoption of the Townsend girders was that they would admit of the traffic being carried on at small cost, and in regard to the plate girder bridges estimate Mr. Townsend was also right to compare the cost of his new girders with the cost of plate girder bridges at that time in existence. It seems the Parramatta bridges did cost £36 a ton as against £20 for the Townsend Bridges; the cost of erection in the former case being £14 a ton, while in the latter it was something less than £4.

Mr. Cowdery may have some observations to offer on the point to which Mr. Townsend has addressed himself.

I shall be glad to have papers back by the 12th instant.

CH.A.G., 5/7/88.

Please see report attached.—G.C., 12/7/88. Secretary.

Report.

IN reply to Commissioner's minute, 5/7/88, I may mention that no credit has been taken for the old material from the old timber bridges between Parramatta and Penrith, as the timber cannot be used for any similar purpose again, but only for backing up and small repairs.

The item of £4,500 for strengthening and pulling down the old bridges was made up from the actual expenditure on this item, which amounted to £4,608 3s. 9d. in all. A large amount of this was incurred through several piers of the new bridges coming just in the site of the old ones, which necessitated the employment of temporary piers during construction.

With regard to Mr. Townsend's statement that he included the excavation and masonry in his price for brickwork, I am not inclined to believe that such was the case, as at the time he made his estimate in question we paid as much as £3 and more per cubic yard for brickwork, and up to the end of 1884 not less than £2 15s. (Mr. Townsend's estimate was furnished in the beginning of 1884); and this belief is borne out by Mr. Townsend's own figures, as in his first estimate he provides for 8,180 cubic yards of brickwork only, which is said to include excavation and masonry, whereas in his Schedule quantities for the contract he provides for 10,330 cubic yards of brickwork, exclusive of excavation and masonry, which latter items are provided for separately, besides 900 cubic yards of dry rubble not mentioned in his first estimate.

I notice that in his report Mr. Townsend avoids any reference to the extra expenditure which had to be incurred in order to secure a safe formation for the abutments and piers. Mr. Townsend represented to me at the time that he had made accurate borings, showing the depths to which the piers and abutments had to be carried, and these supposed depths were submitted to me on the general plan of the bridges, and I naturally took Mr. Townsend's report and representations as being correct, he being deputed to carry out and conduct all details connected with the work in question. On carrying out the work in practice it was found that the abutments and piers had in all instances to be carried to a greater depth in order to secure a firm foundation than what was provided for by Mr. Townsend.

The cost of strengthening the old bridges having to be incurred as a consequence of the construction of the new ones, should, I think, be charged against the construction. With regard to the pulling down the old bridges, it would be a matter of opinion how the cost should be charged. Such portions as were pulled down in consequence of the new bridges having to be erected, but not requiring immediate renewals, otherwise the cost might fairly be charged to construction, and in case of such as required immediate renewal the cost would of course be chargeable to maintenance. Mr. Townsend's estimate of £14,479 for keeping the traffic open during constructing timber bridges is altogether excessive and out of proportion, as the construction of timber bridges would not impede the traffic more than the construction of iron bridges, as in either case one line could be constructed independently of the other with a judicious arrangement of details.

Mr. Townsend states that he based his estimate for plate girders on the basis of those at that time being constructed in Parramatta. These latter had of necessity to be made "through bridges" with cross girders in order to obtain headway for the street traffic under them, but in the case of the duplication no one would have thought to adopt a similar construction, because the circumstances were quite different, and, as a matter of course, if plate girders had been adopted the bridges would have been constructed as "deck bridges," and in order to show what reliance can be put on Mr. Townsend's figures, I would point out that while he says that the Parramatta bridges cost £36 per ton erected, the actual cost was only £23 16s., viz., £19 5s. per ton of ironwork supplied, and £4 11s. for erection, including temporary staging, &c., and it might further be pointed out that when Mr. Townsend submitted his estimate we were obtaining girder-work, both plate and lattice work, such as Redfern tunnel, Orange footbridge, &c., for £17 per ton, and extra high-class work such as roofs at Eveleigh, at £17 15s. per ton, so there was no justification for Mr. Townsend to put such a high price on his estimate for plate girder-work.

With regard to Professor Warren's report on those bridges, I can have nothing to say as it has not been sent to me for either report or perusal, and I have never seen it, whereas Mr. Townsend has apparently had the advantage of having perused it.

With regard to the bridge at Strathfield, I would point out that it is not a copy of the Phoenix Co.'s design; it contains as much of the Keystone Co.'s design as of the former or any other design, if in any case it can be said that any bridge design can belong to any particular company or individual. The bridge at Strathfield is one of our recent standard patterns designed specially for renewal of timber bridges; and the depth of girders, dimensions, and general construction are specially adapted for this particular purpose.

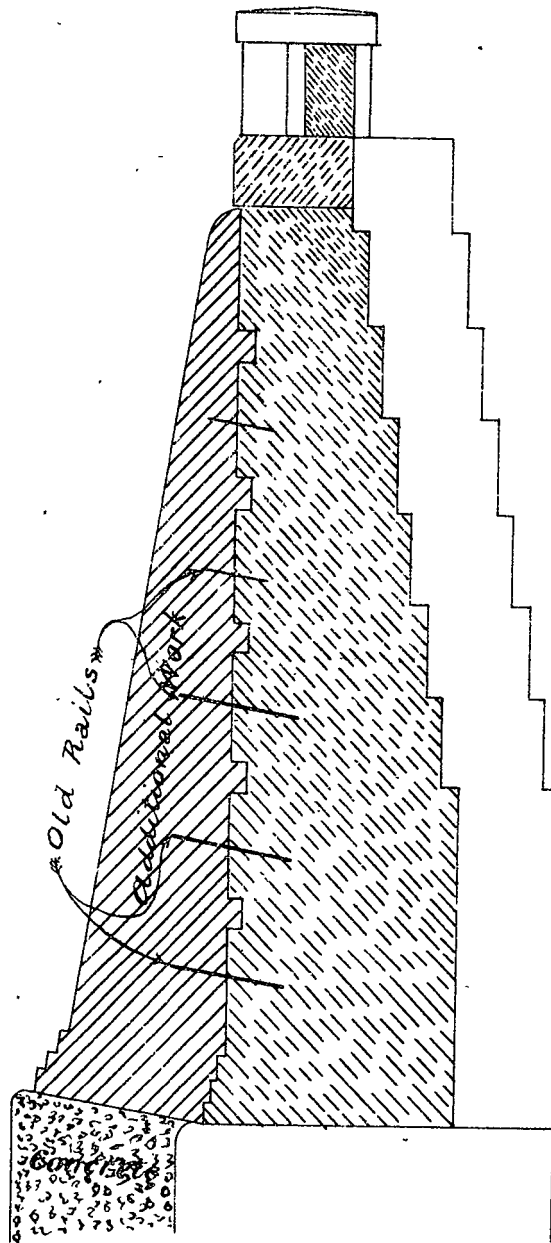
With regard to the necessity for the extra openings put in at Eastern Creek, I have simply to state that in times of flood during the time of the old timber bridges the water has been known to rise nearly up to rail level, which sufficiently proves, I think, the necessity for not decreasing the waterway from what it was before, as Mr. Townsend proposed to do, and that I acted wisely in preserving the original waterway.

I think that on a fair comparison the above explanation will put a different aspect on this case to that which Mr. Townsend has been trying to imply.

Commissioner.

G.C., 12/7/88.

[7 plans.]



— SKETCH —
 — Showing Section of breast Wall on Abutments —
 OF
 — 4 BRIDGES —
 — PARRAMATTA TO BLACKTOWN —

(Sig. 136-)

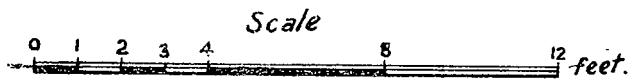


PHOTO-LITHOGRAPHED AT THE GOVT. PRINTING OFFICE,
 SYDNEY, NEW SOUTH WALES.

BRIDGE DRAWING N° 4

SCALES

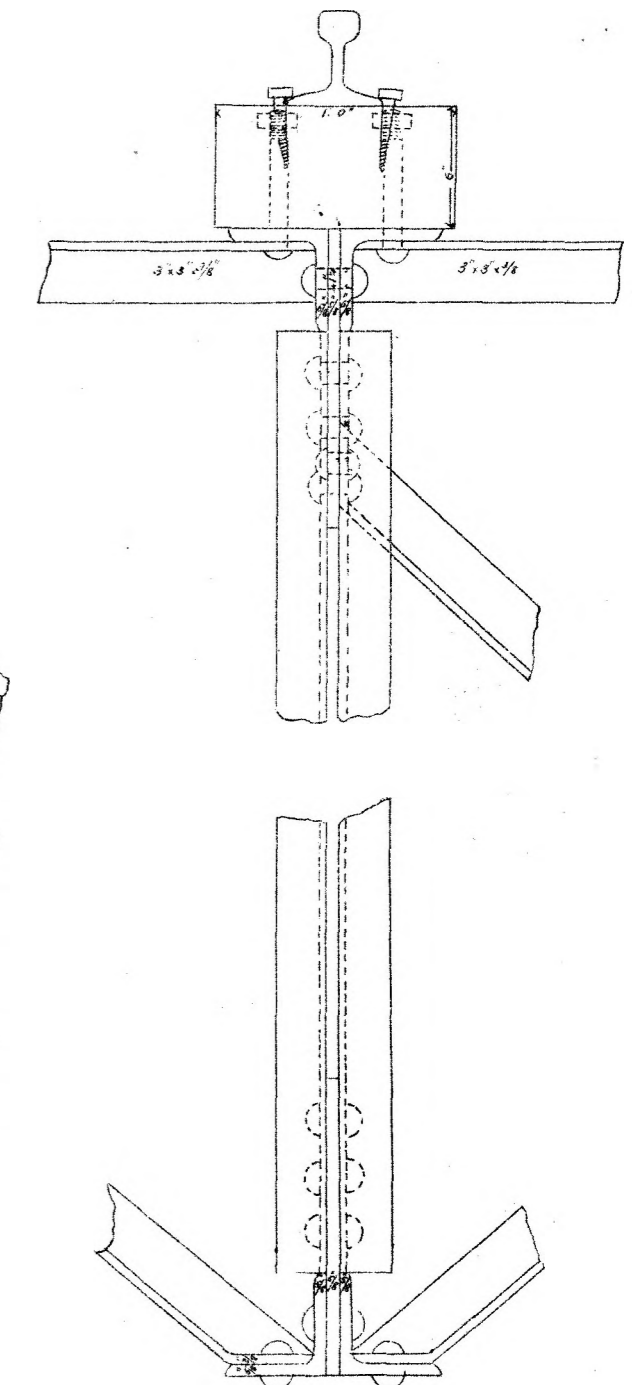
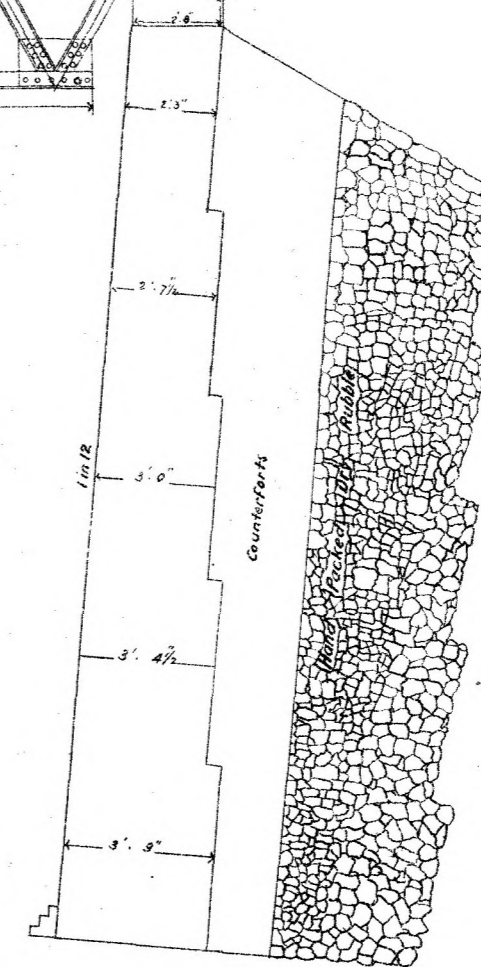
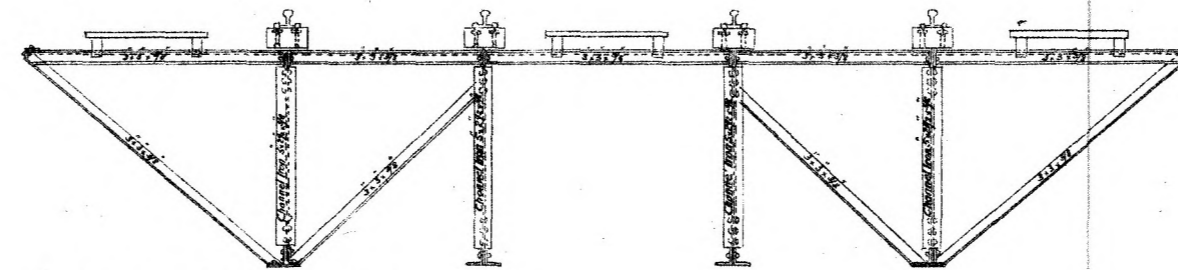
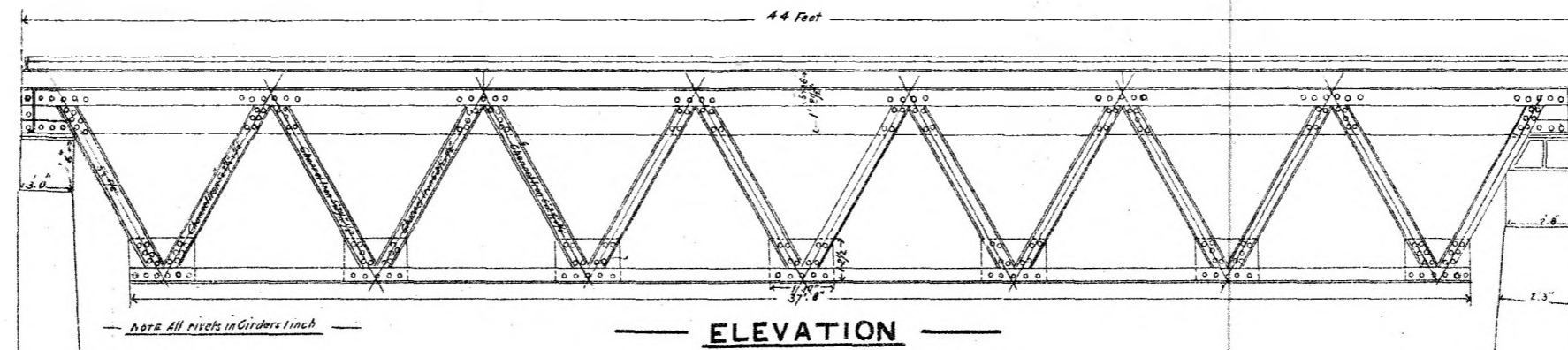
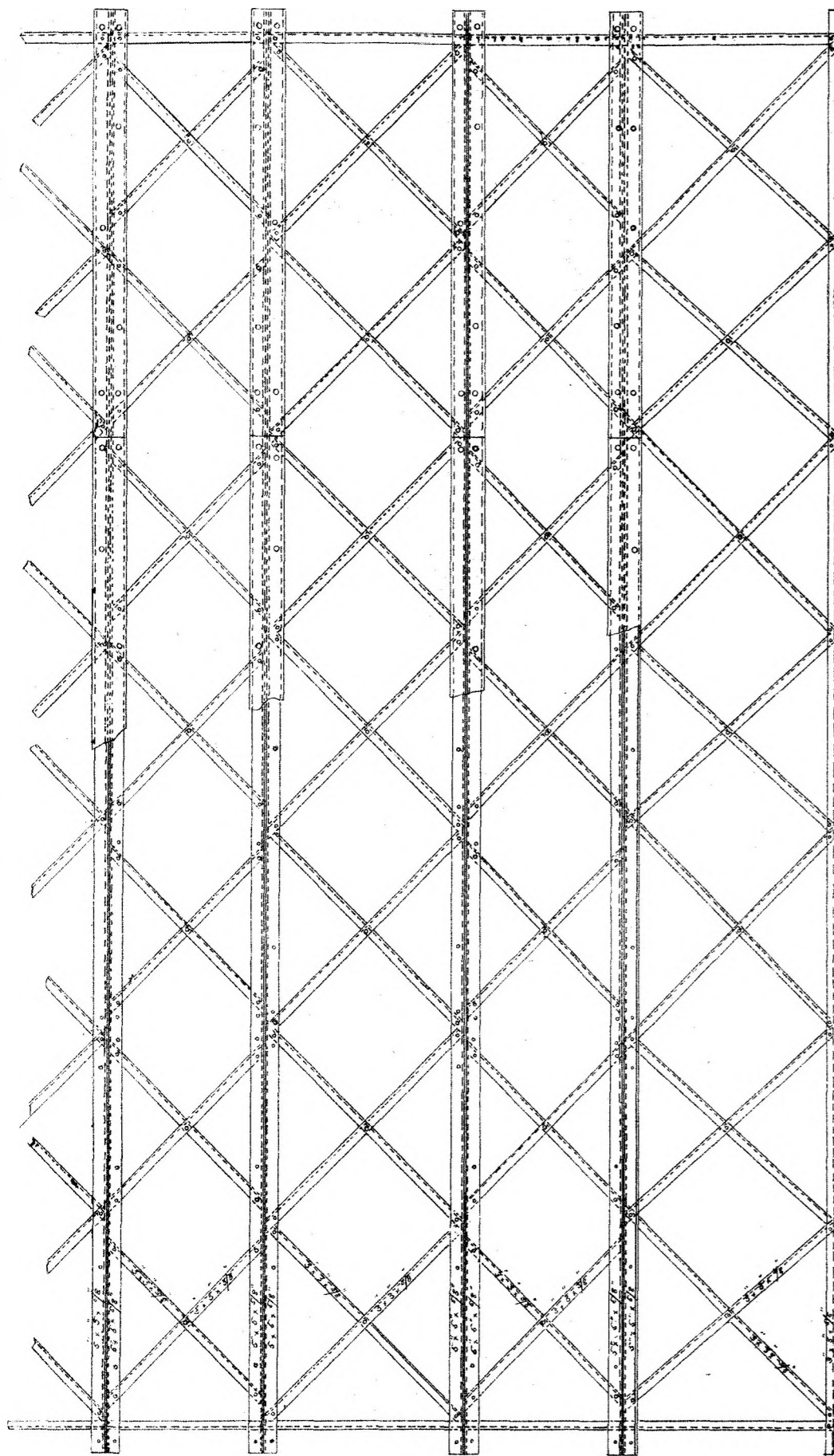
0 1 2 3 4 5 6 7 8 9 10 11 12 FEET

DETAILS

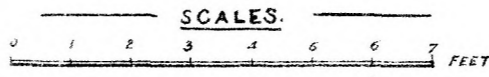
0 1 2 FEET

M^r Townsend's Design.

PHOTO-LITHOGRAPHED AT THE GOVT. PRINTING OFFICE
SYDNEY, NEW SOUTH WALES.

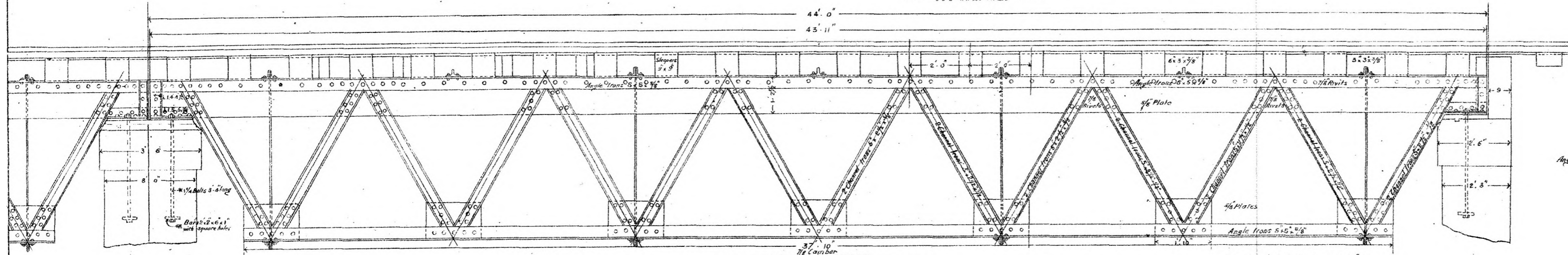


BRIDGE DRAWING N^o 4 [AND N^o 4C]



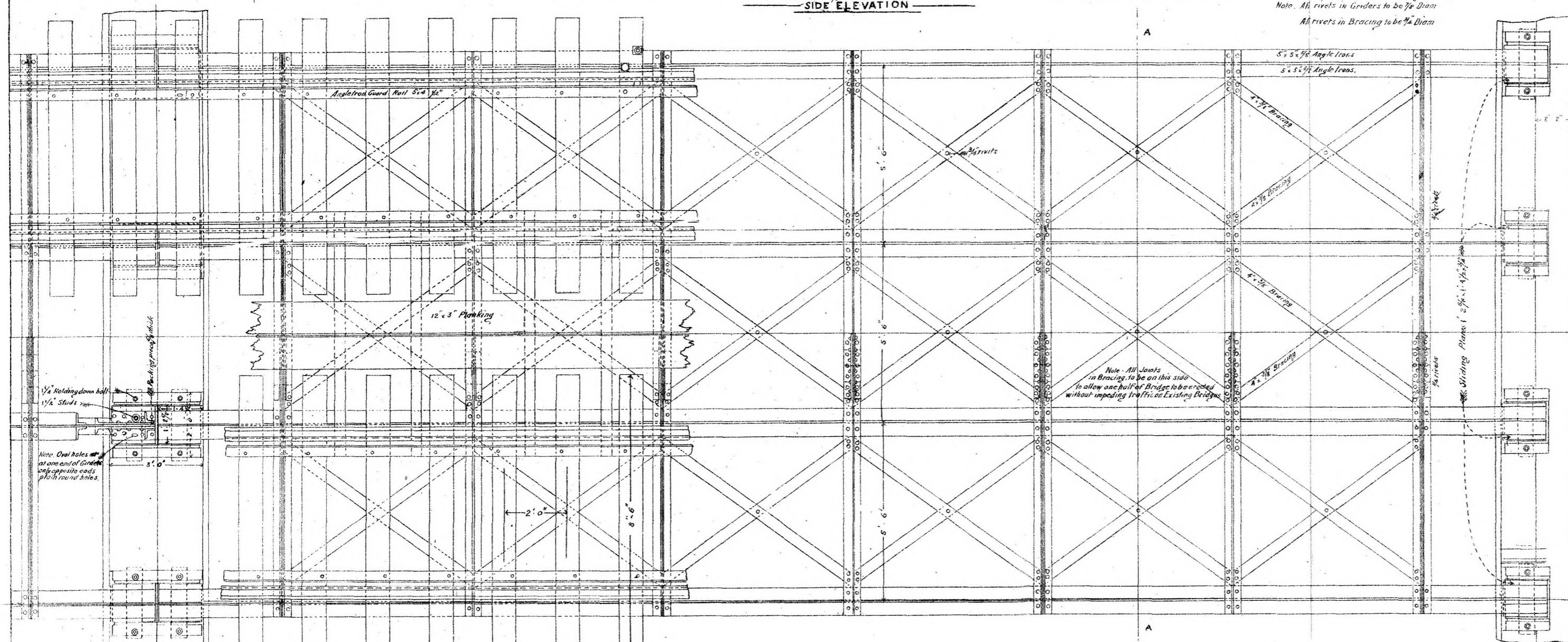
Design, as carried out.

PHOTO-LITHOGRAPHED BY THE REV. ENGINEERING OFFICE, BRISTOL, ENGLAND.

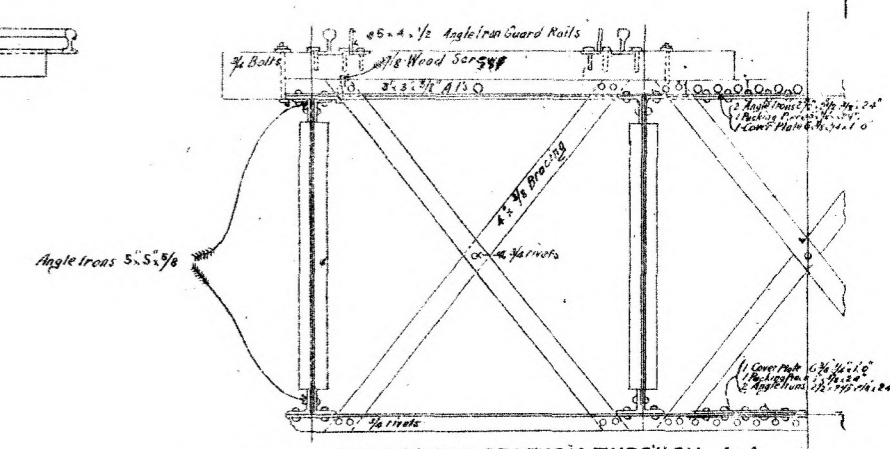


SIDE ELEVATION

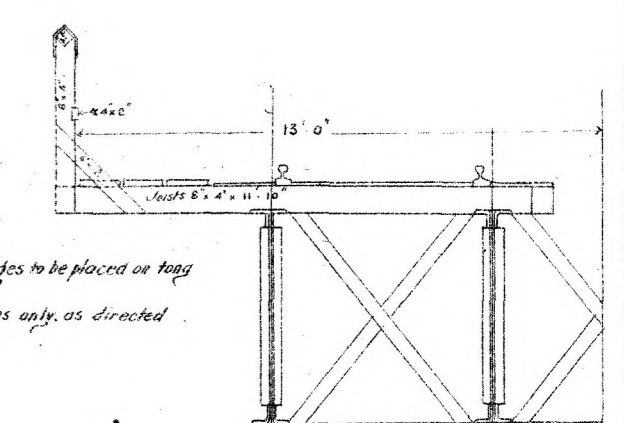
Note. All rivets in Girders to be 7/8\"/>



PLAN

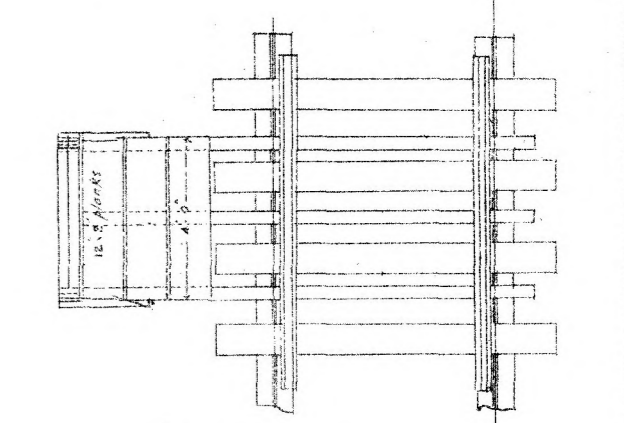


HALF CROSS SECTION THROUGH A-A

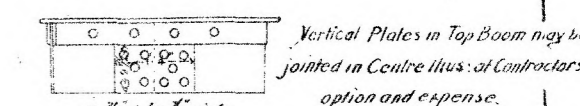


Note. Refuges to be placed on top Spans only, as directed.

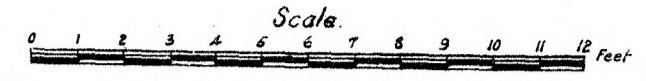
ELEVATION OF REFUGE



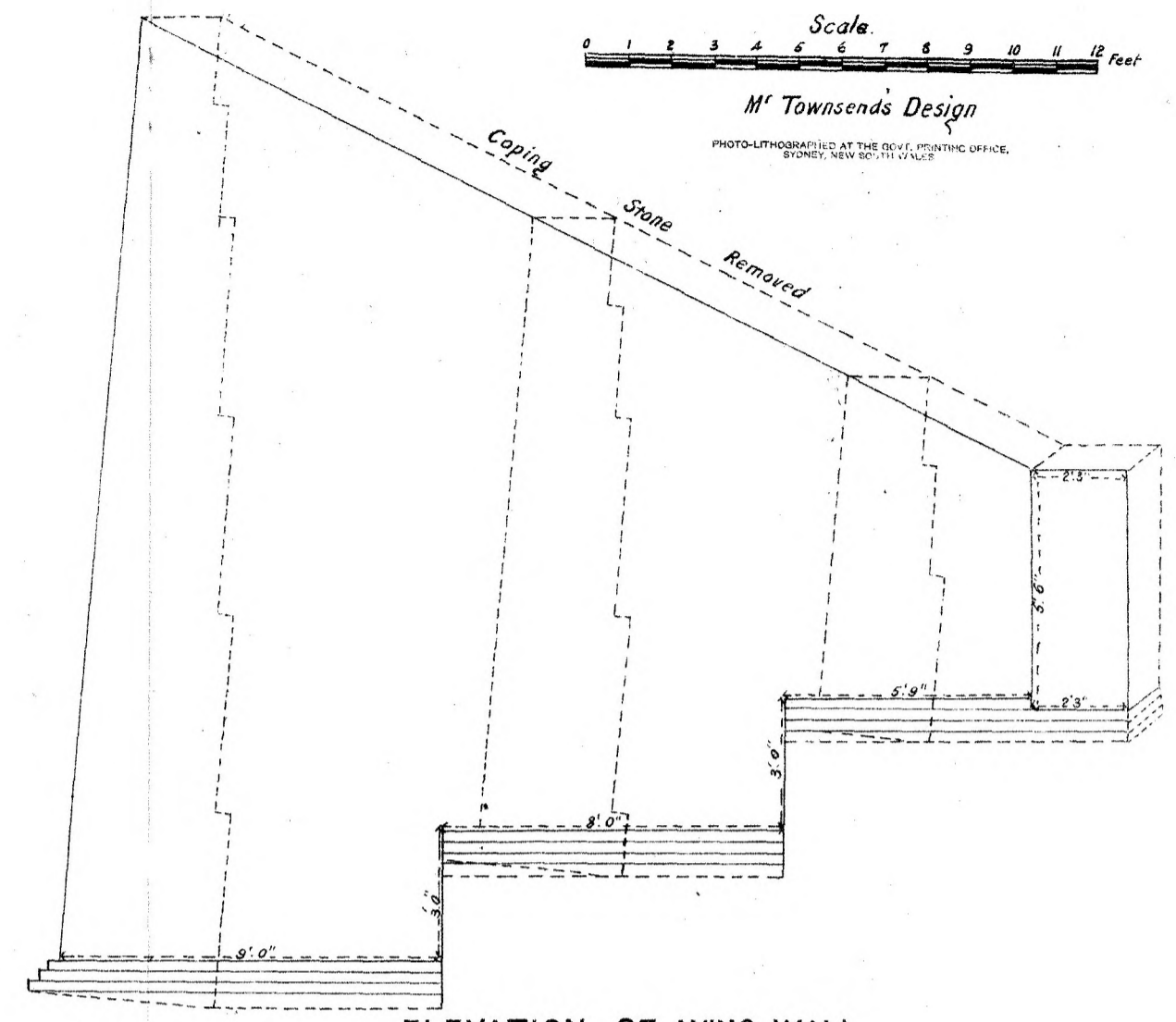
PLAN OF REFUGE



BRIDGE DRAWING N° 4A

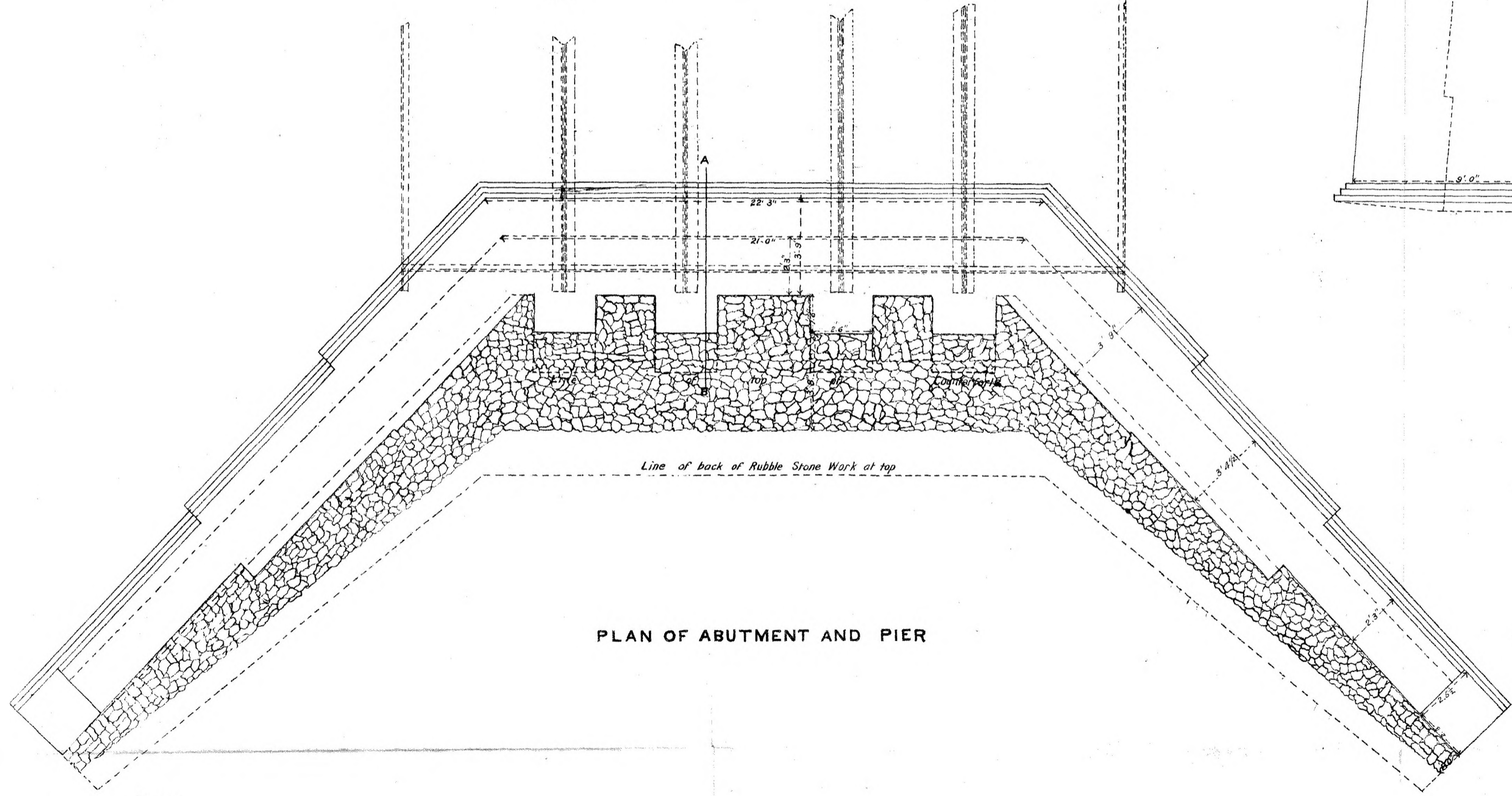
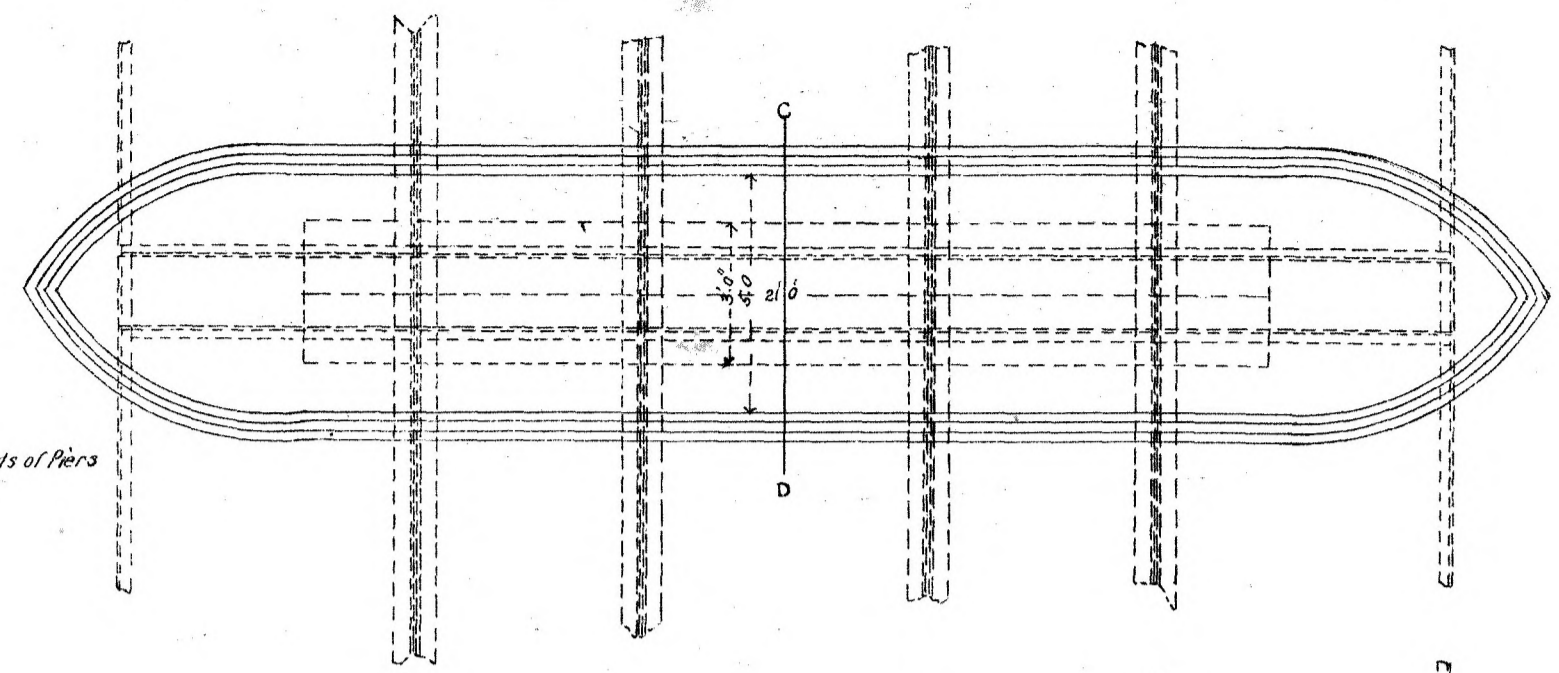


M^r Townsend's Design
PHOTO-LITHOGRAPHED AT THE GOVERNMENT PRINTING OFFICE,
SYDNEY, NEW SOUTH WALES.



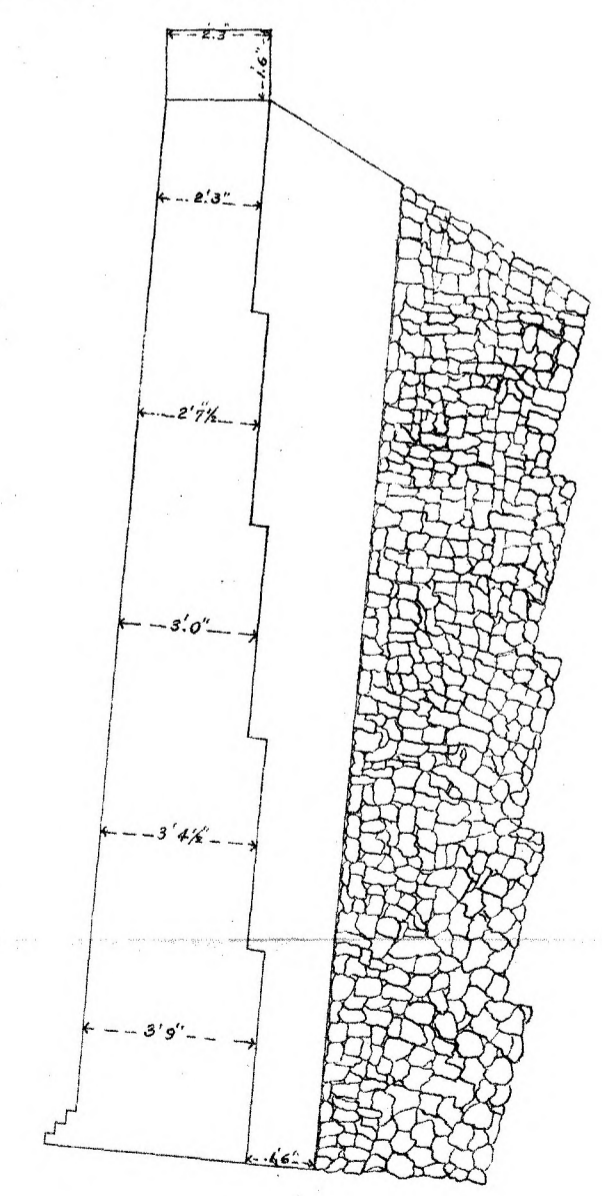
ELEVATION OF WING-WALL

NOTE: Where no scour occurs the ends of Piers to be finished square.

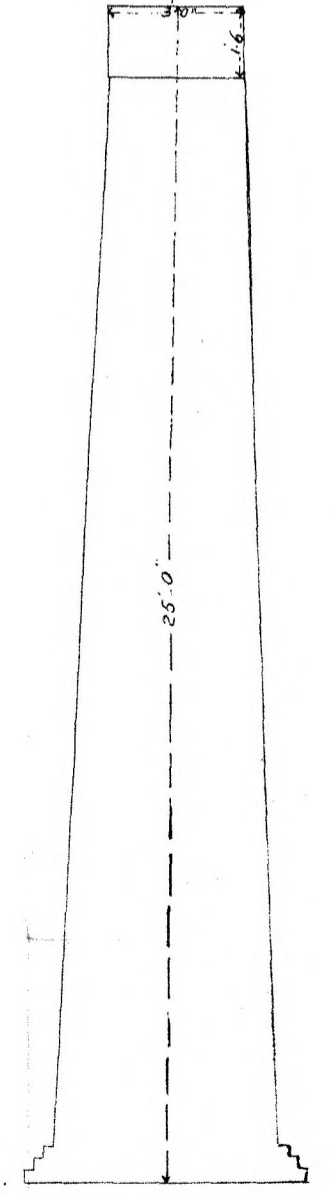


PLAN OF ABUTMENT AND PIER

(Sig. 136)

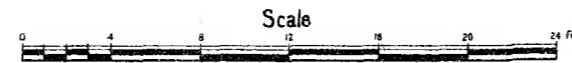


SECTION THRO A.B.



SECTION THRO C.D.

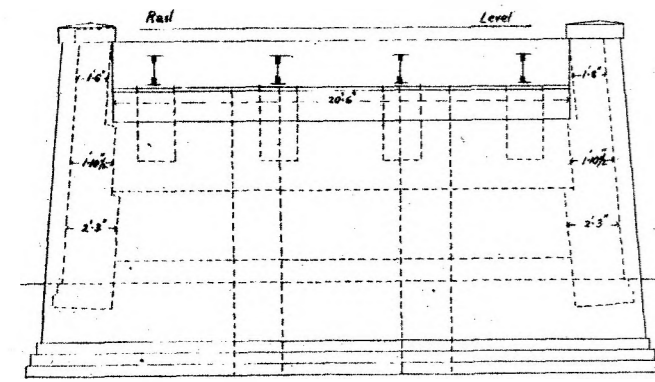
BRIDGE DRAWING N^o 4 A



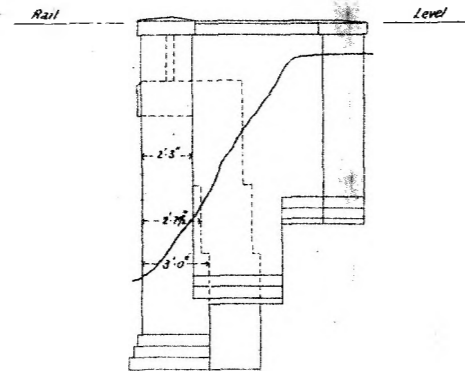
Design as carried out

PHOTO-LITHOGRAPHED AT THE GOVT. PRINTING OFFICE,
SYDNEY, NEW SOUTH WALES

ABUTMENT WITH RETURN WALLS

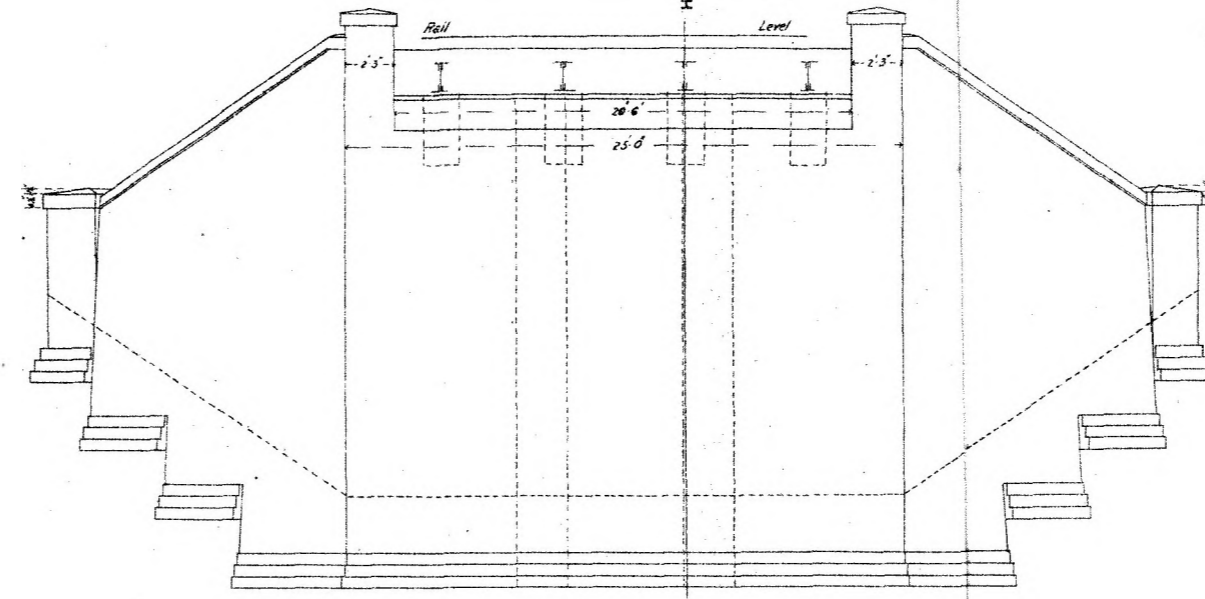


FRONT ELEVATION

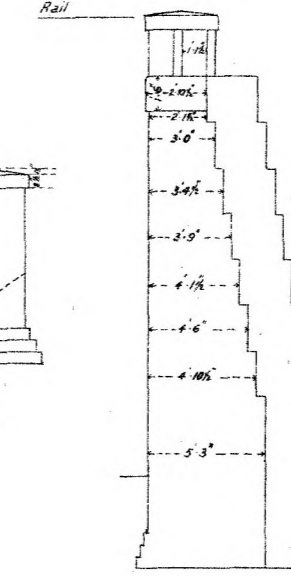


SIDE ELEVATION

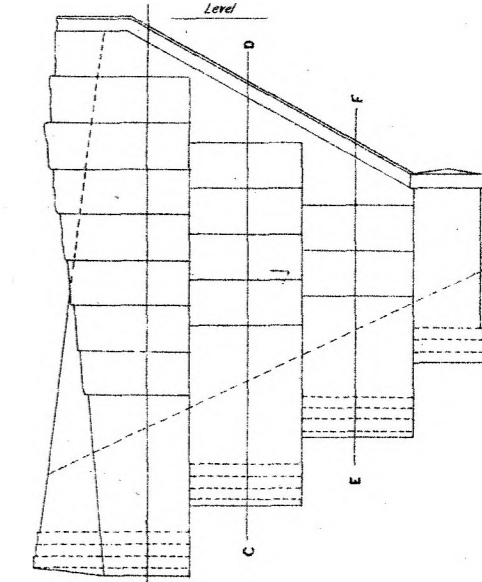
ABUTMENT WITH WING WALLS



FRONT ELEVATION

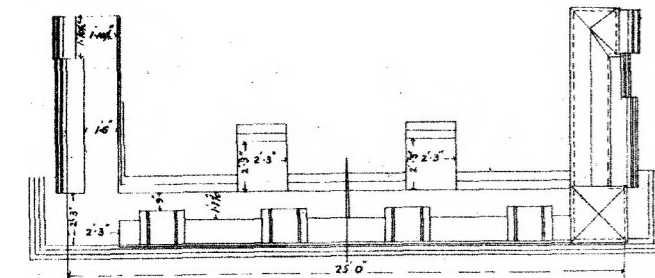


SECTION ON LINE G.H.



BACK ELEVATION OF WING

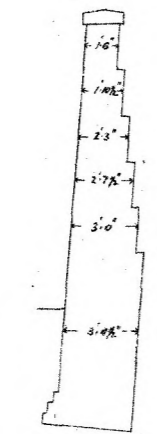
PIERS



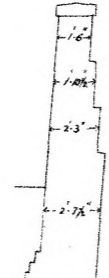
HALF PLAN UNDER COPING HALF PLAN



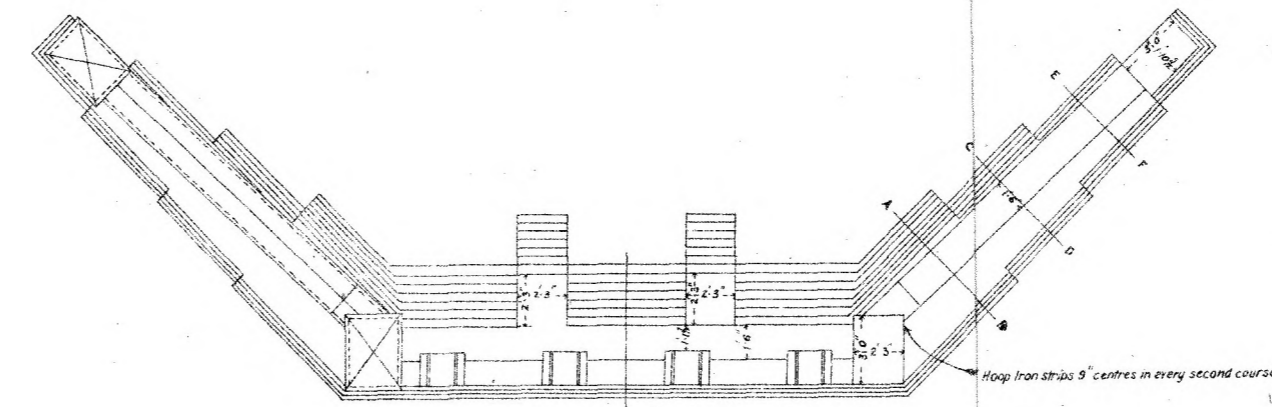
SECTION ON LINE A.B.



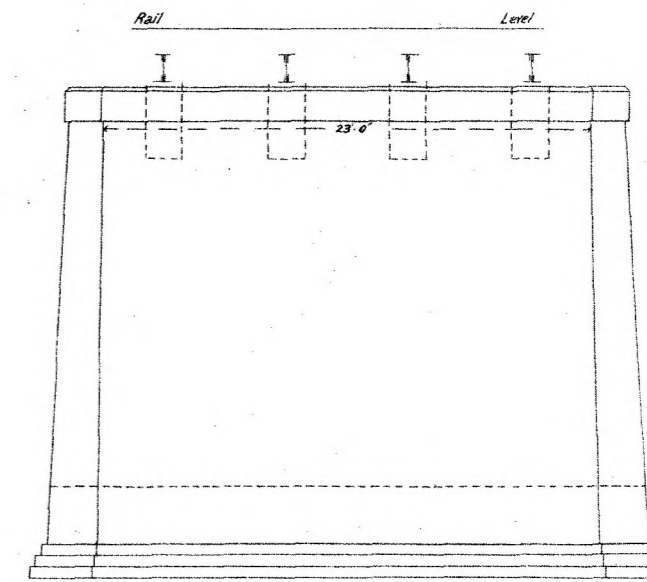
SECTION ON LINE C.D.



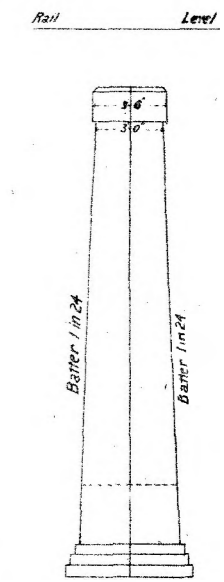
SECTION ON LINE E.F.



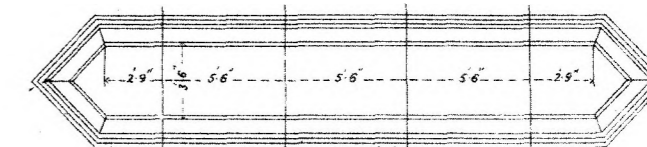
HALF PLAN HALF PLAN UNDER COPING



ELEVATION



END ELEVATION



PLAN

NOTE: Foundations of Piers and Abutments to be taken down to the depth required by the Engineer

BRIDGE DRAWING N° 4B

Scales.

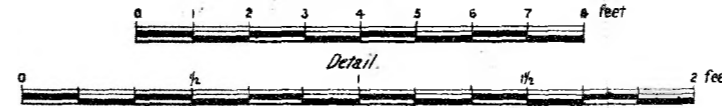
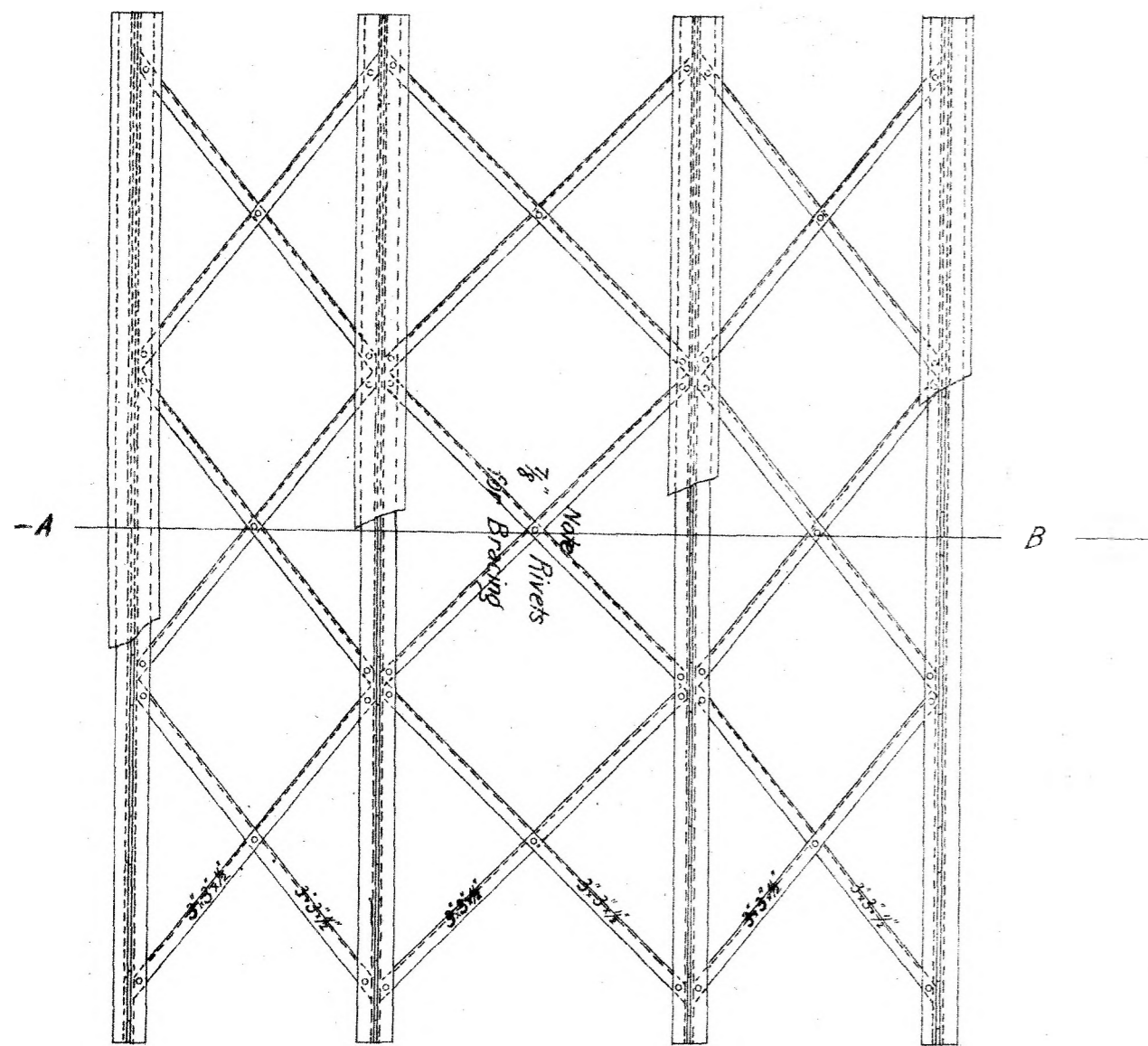


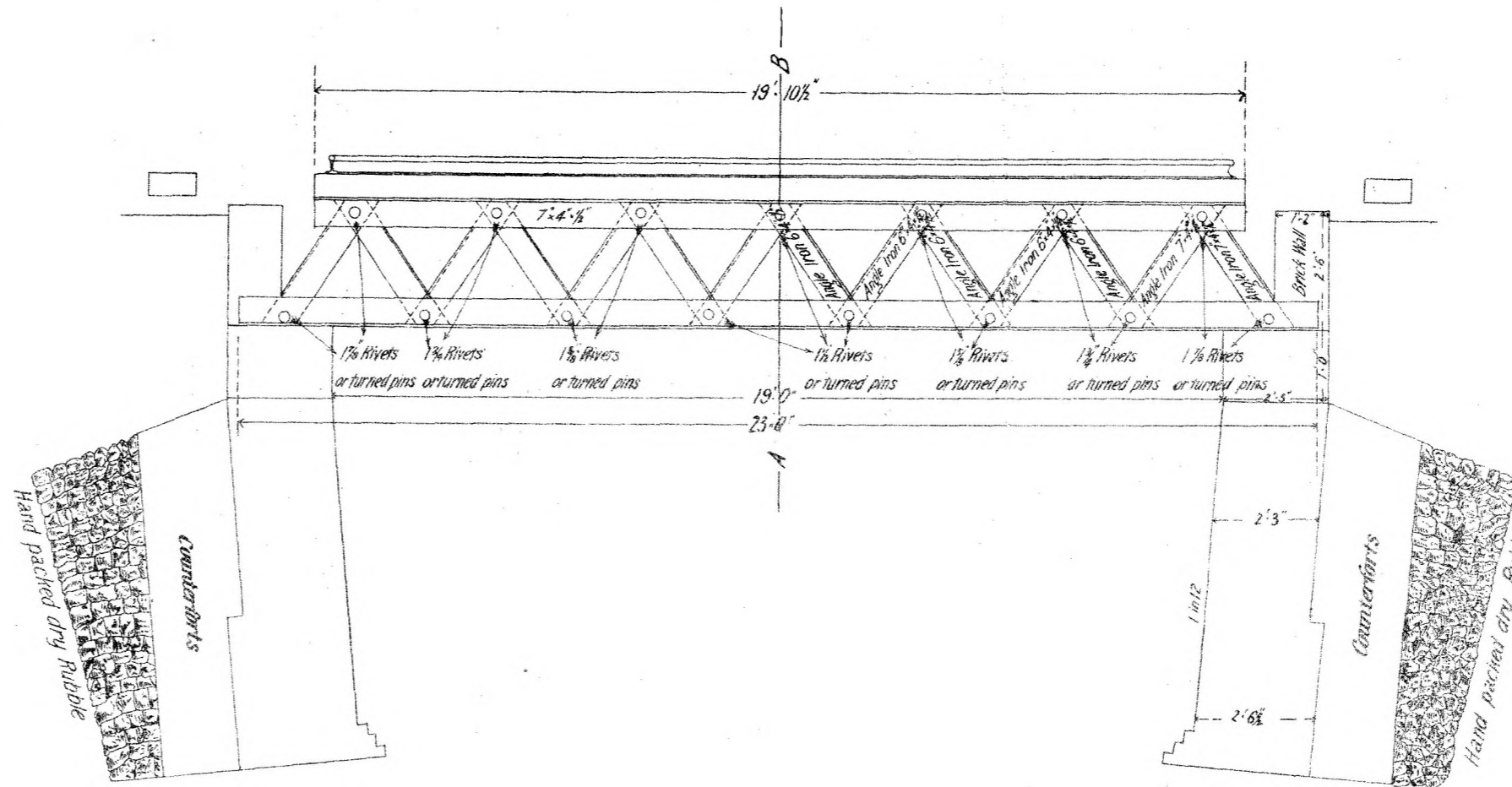
PHOTO-LITHOGRAPHED AT THE GOVT. PRINTING OFFICE,
SYDNEY, NEW SOUTH WALES.

Original Design.

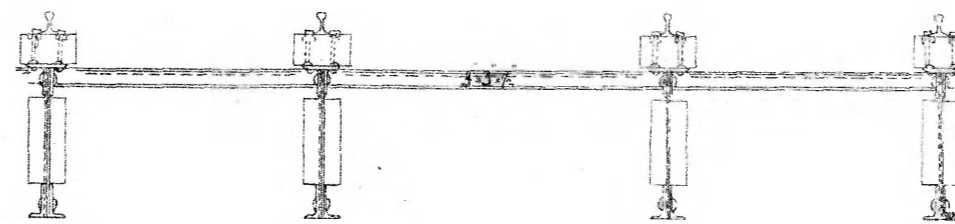


(Sig. 136-)

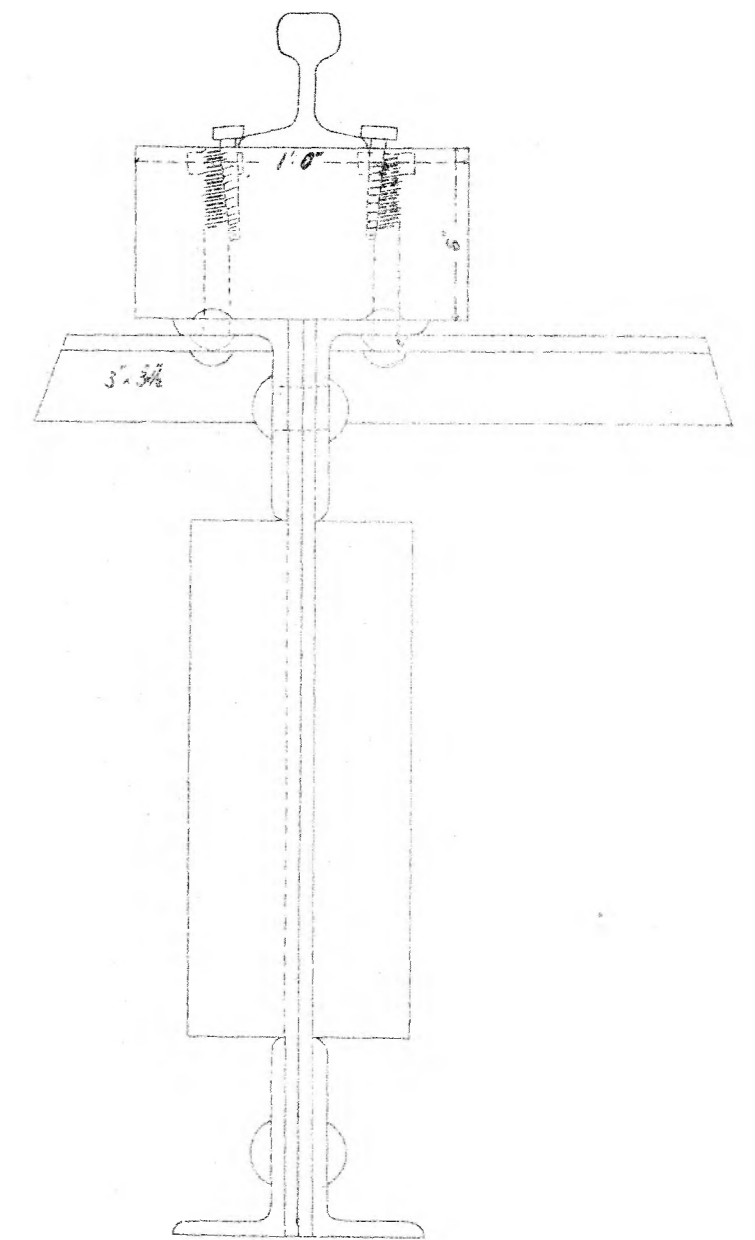
Plan.



Elevation.



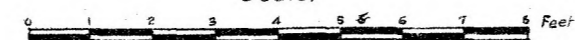
Cross Section at A.B.



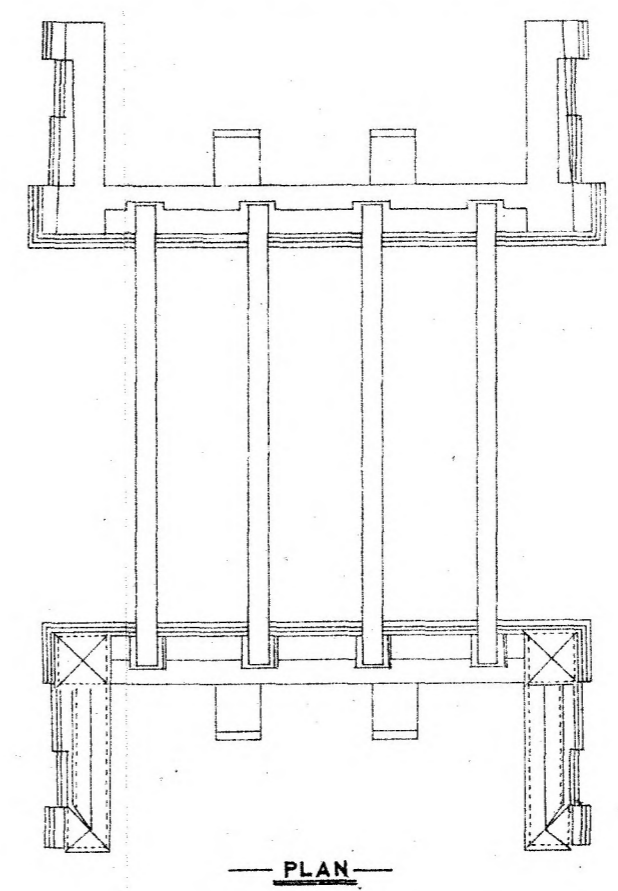
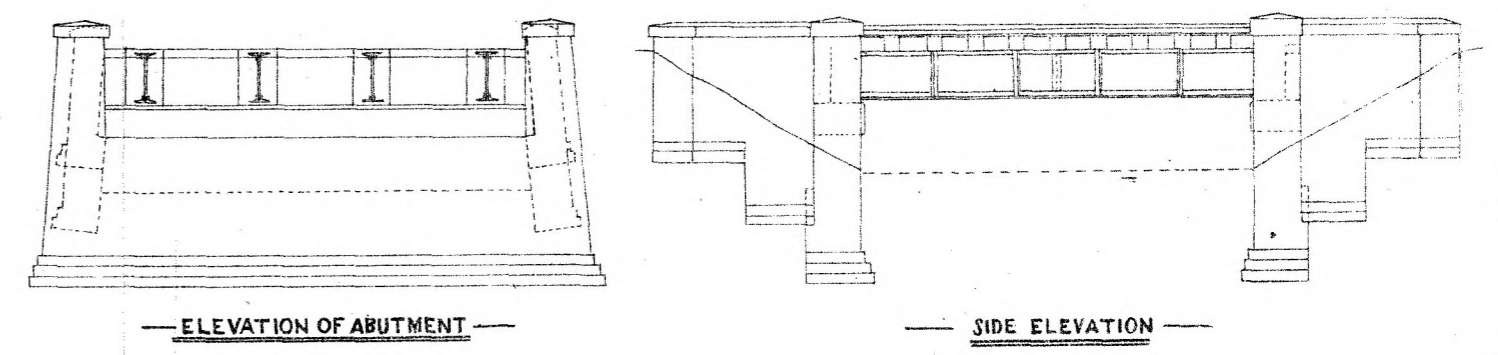
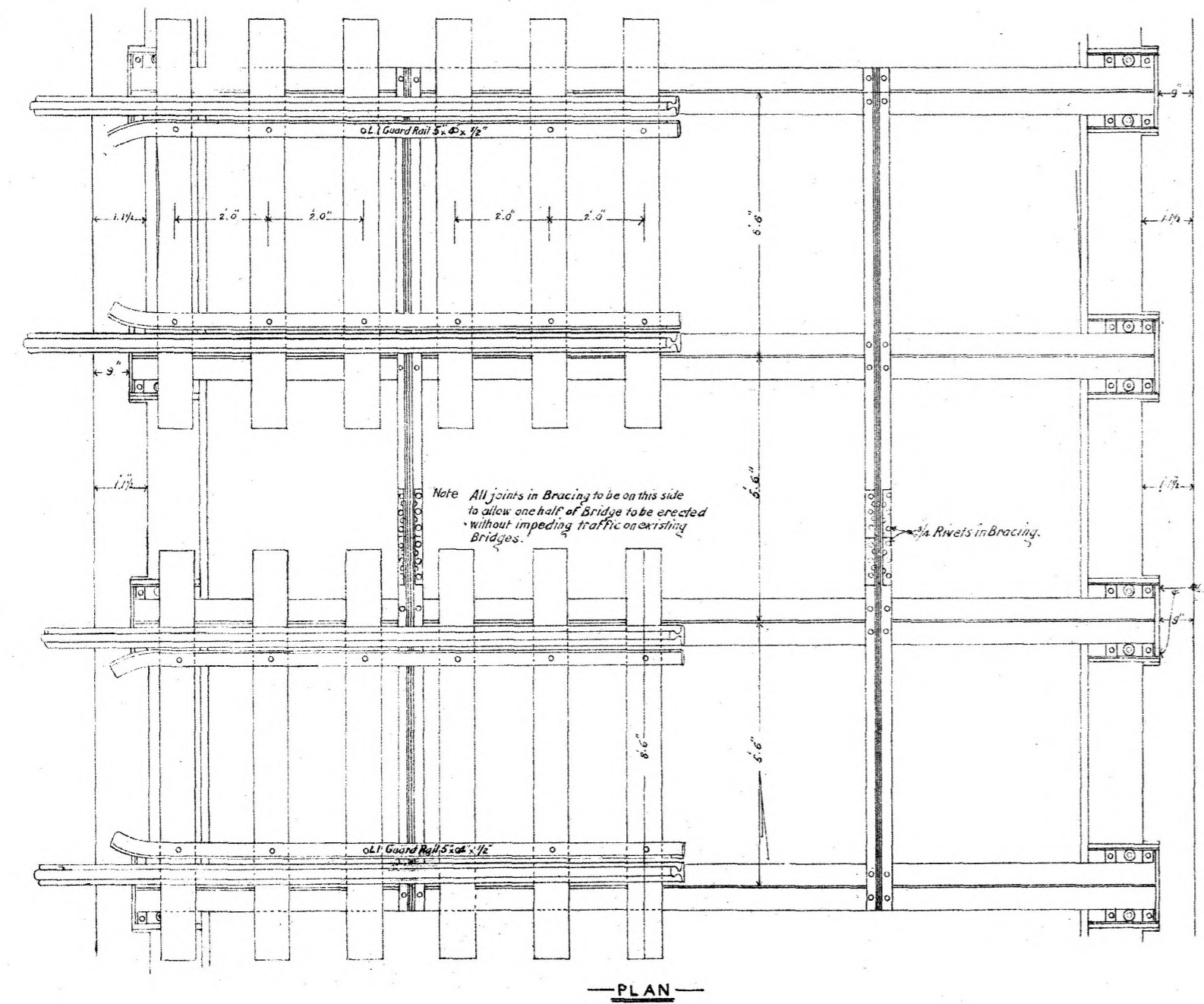
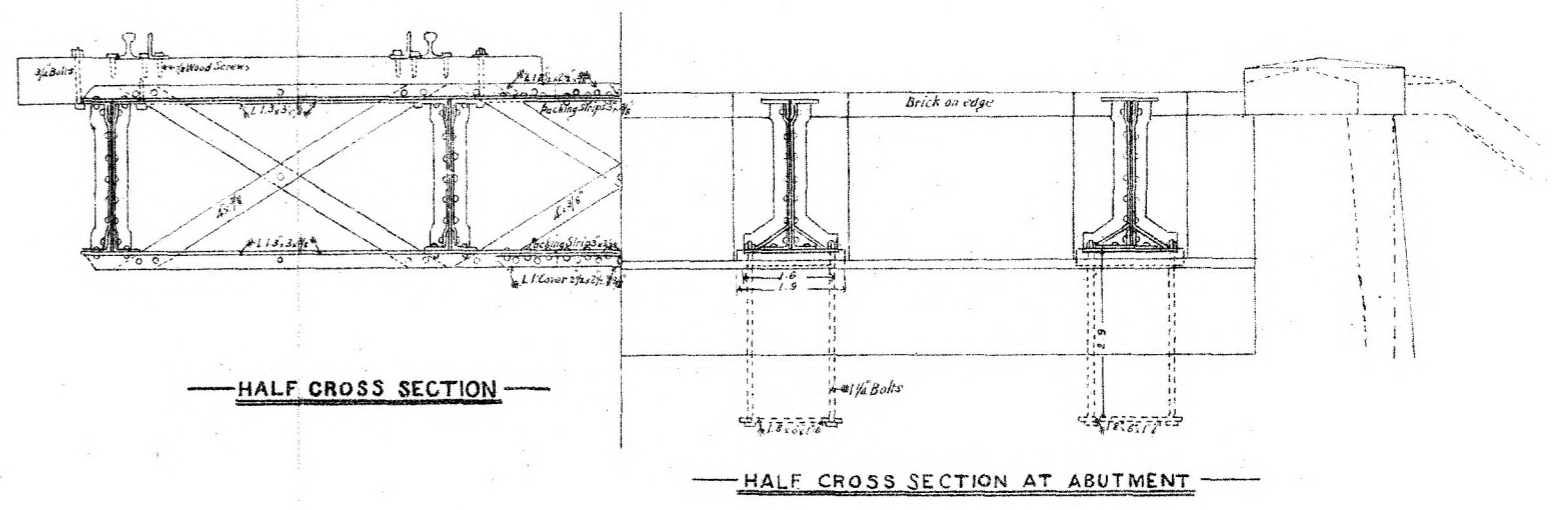
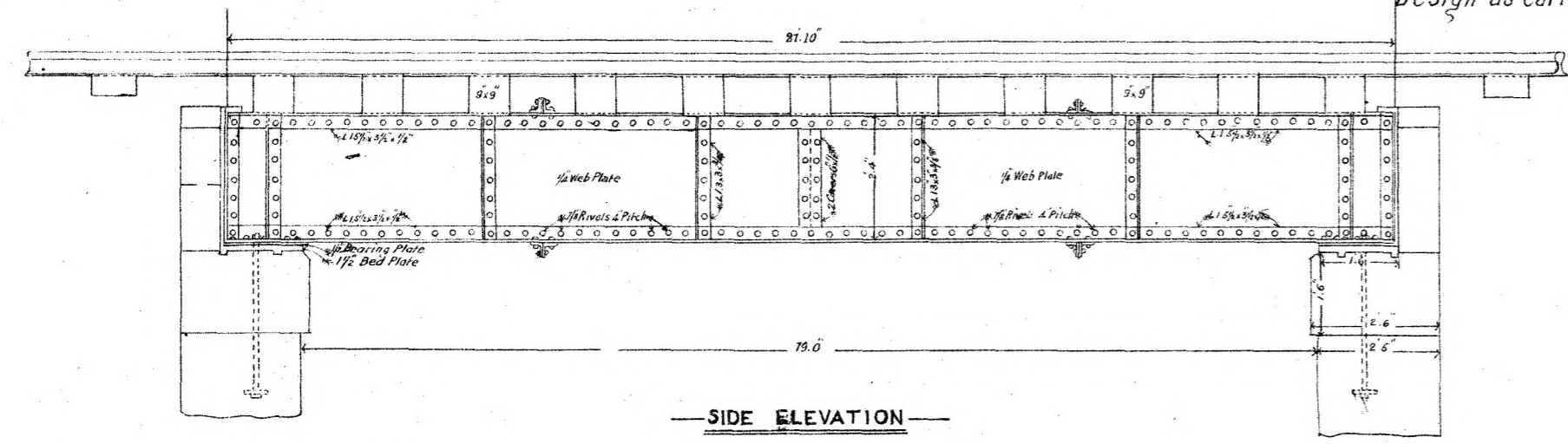
Section of Girder.

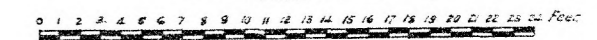
BRIDGE DRAWING N^o 4 b.

DETAIL OF 20"^F PLATE GIRDER

Scale.  Feet

Design as carried out



Scale.  Feet

PHOTOGRAPHED AT THE PHOTO ENGRAVING CO. NEW YORK, N. Y.

1888.

LEGISLATIVE ASSEMBLY.

NEW SOUTH WALES.

RAILWAY DIFFERENTIAL RATES.

(CORRESPONDENCE, &c., IN REFERENCE TO.)

Ordered by the Legislative Assembly to be printed, 1 November, 1888.

RETURN to an *Order* of the Honorable the Legislative Assembly of New South Wales, dated 27th October, 1887, That there be laid upon the Table of this House,—

“Copies of all papers, correspondence, petitions, and other documents in reference to the origin and continuation of differential rates upon the Railways.”

(Mr. Lyne.)

NO.	SCHEDULE.	PAGE.
1.	Letter from Heyde, Todman & Co., enquiring rates for goods sent from Sydney to Wagga, with reply of Commissioner thereto. 6 September, 1879.....	2
2.	Minute of instructions to Traffic-Inspector Roberts to procure information relative to traffic in Riverina district and Mr. Roberts's reply. 27 September, 1879	3
3.	Minute of directions to the Secretary of Railways to visit Hay and district and report upon traffic. Secretary's report. 23 October, 1879.....	5
4.	Robert Barbour, Esq., M.P., to the Secretary for Public Works on the subject of securing the trade of the Riverina district. 22 September, 1879.....	6
5.	Mr. Turnbull to the Secretary for Works forwarding statement of rates charged for conveyance of goods from Melbourne to Hay, and minute of Commissioner thereon. 15 October, 1879	7
6.	Minutes relative to charges for goods forwarded to Junee. 7 January, 1880	7
7.	Report of Traffic Manager on prospective traffic of Hay and district, also report and recommendations by the Assistant Traffic Manager. 16 February, 1880	8
8.	Mr. Turnbull to the Traffic Manager forwarding an extract from Melbourne <i>Argus</i> on "The Murray River Trade." 5 April, 1880	12
9.	Reports from Mr. Connebee to Traffic Manager. 13 August, 1880, 16 August, 1880, 25 August, 1880, 26 August, 1880	12
10.	Minute by Commissioner on Victoria Railway Department's policy as to differential rates. 17 August, 1880.....	16
11.	Storekeepers of Cootamundra to Secretary of Works relative to rates on goods. Minutes by various officers, and opinion of Attorney-General as to the legality of certain charges. 19 August, 1880.....	16
12.	Reduced wool rates recommended by Traffic Manager. 24 April, 1882.....	19
13.	Secretary, Victorian Railways, to Commissioner for Railways, Sydney, asking whether a mutual arrangement could not be made in connection with rates for wool from Hay; also reply of Commissioner for Railways thereto; also minutes recommending and approving of a reduction of the rate for the conveyance of wool from Hay to Sydney. 19 May, 1882	20
14.	Report of Assistant Traffic Manager upon Riverina traffic recommendation and approval reduction of rates. 10 October, 1882.....	21
15.	Report of Assistant Traffic Manager upon passenger rates to and from Riverina, with minutes approving of certain reductions. 10 October, 1882	23
16.	Minutes referring to alleged diversion of New South Wales traffic to Melbourne. 28 September, 1882.....	24
17.	Letter from Mr. Julius Caro relative to differential rates, and minutes thereon. 28 October, 1882.....	24
18.	Brewers of Orange to Commissioner for Railways on the subject of differential rates, with minutes thereon; also modifications in rates proposed, and further correspondence. 22 December, 1882.....	25
19.	Dalton Brothers to Commissioner for Railways, enquiring whether truck rates apply to all lines equally, with reply thereto. 6 June, 1883	30
20.	Minutes relating to the issue of a new Goods Rate Pamphlet. 10 July, 1883	30
21.	Report of Station-master, Hay, on the river-borne traffic. 6 August, 1883.....	30
22.	Mr. G. E. Cass, M.P., to the Secretary for Public Works, relative to rates charged for conveyance of goods to Nyngan. 13 August, 1883	31
23.	Minutes relating to reductions in wool rates on Victorian lines. 14 August, 1883.....	31
24.	Memorials from residents of Mount Hope and Nymagee, praying for reductions in goods rates. 19 September, 1883	32
25.	Minutes relative to extension of Victorian wool rates concessions to certain districts of New South Wales. 14 August, 1883	32

133—A

[942 copies—Approximate cost of Printing (labour and material), £76 7s. 2d.]

NO.	PAGE.
26. Report of Traffic Manager upon statements made in the Press respecting rates charged upon goods sent to and forwarded from the Riverina district. 2 November, 1883	33
27. <i>Précis</i> of correspondence relating to railway requirements at Hay; letters from Mr. C. Simson urging reductions in rates, with minutes bearing thereon. 22 August, 1884	33
28. Mr. W. H. Mathews to the Commissioner for Railways, referring to the differential rates charged between the towns between Harden and Wagga; minutes thereon and reply forwarded. 1 September, 1884	35
29. Mr. F. S. Falkiner to the Commissioner for Railways, asking for reduced rate for his wool to Sydney, and reply thereto. 4 September, 1884	36
30. Minute of Traffic Manager upon competitive rates. 22 October, 1884	36
31. Correspondence relative to a revision of wool rates; also Executive authority for such revision. 18 May, 1885.	38
32. Correspondence relative to the opening of railway to Bourke and the securing of the trade of the Darling River district. 15 September, 1885	40
33. Correspondence relative to the effect upon Albury manufacturers of the restrictive goods rates upon the up journey. 1 December, 1885	47
34. Mr. Bolton, M.P., to the Secretary for Works, on the subject of the rates charged for goods sent to Junee Junction. 24 November, 1885	48
35. Correspondence relative to reduced rates for goods and wool forwarded to and from Sydney and the Darling River districts. 8 February, 1886	49
36. Correspondence relative to the position of Junee with regard to the differential rates. 15 May, 1886	51
37. Mr. D. Brown to Commissioner for Railways, asking for reduced rates for Kallara wool, and reply thereto. 19 May, 1886	52
38. Correspondence relative to rates for wool from Bourke. 23 June, 1886	53
39. Travers Jones, Esq., M.P., to the Secretary for Public Works, forwarding complaint <i>re</i> rates to and from Gundagai, with minutes thereon. 20 August, 1886	54
40. Correspondence relative to securing the trade of the Darling and Murrumbidgee Rivers. 3 August, 1886	54
41. Correspondence relative to the proposed reapplication of the truck rate system to Coolaman. 16 September, 1886	55
42. Correspondence relative to proposed extension of truck rates to Goulburn. 11 March, 1887	56
43. Minute by Commissioner for Railways on Mr. Teece's, M.P., proposal for equal mileage rates, and correspondence following thereon. 12 May, 1887	63
44. Correspondence upon rates for traffic to and from Bourke district. 16 July, 1887	68
45. Paper addressed to the Chief Secretary, by Mr. Haynes, M.P., on the subject of New South Wales railway rates, with minutes and comments thereon. 15 October, 1887	69

No. 1.

Memo. from Heyde, Todman, & Co. to The Secretary for Railways.

York-street, Wynyard Square, Sydney, 6-15 September, 1879.

A VALUABLE constituent of ours in Hay, New South Wales, writes:—"Will you get us a copy of the railway rates on goods from Sydney to Wagga also-memo. of rebates allowed by the Department (if any) on goods to be shipped by river steamers."

Will you kindly furnish us with the required information, as you may be aware all the goods for this district have hitherto been forwarded *via* Melbourne, so that if there is any rebate or inducement within the power of the Department to offer, it is as well to do so as an inducement to have goods forwarded through our own Colony.

HEYDE, TODMAN, & CO.

Inform of the rebates allowed for distances which in effect are rebates for goods being carried to Hay and other places in Riverina. Show what the rate would be Sydney to Wagga—if no rebate was allowed, and what it is.—CH.A.G., 16/9/79.

Messrs. Heyde, Todman, informed, 19/9/79.

Department of Public Works, Railway Branch, Sydney, 19 September, 1879.

Gentlemen,—

In reply to your memo. of the 6th instant, asking to be furnished with a copy of the rates charged on the New South Wales lines, and enquiring whether any rebate is allowed on goods consigned for shipment by the Riverina steamers, I have the honor to inform you that no special rebate is made on goods to be shipped by the river steamers, but a general reduction is made on all goods carried for long distances, which in effect is a rebate on all goods consigned to any part of Riverina. The reduction is in proportion to the distance carried, thus on goods over 100 miles a reduction of 10 per cent. is allowed on the rate per mile; over 150 miles, 20 per cent.; over 200 miles, 40 per cent., and a further reduction of 20 per cent. is made on all goods comprised in the 1st, 2nd, 3rd, and 4th classes, conveyed for distances over 300 miles (the distance from Sydney to South Wagga Wagga is 309 miles). The character of the rebate will be seen more plainly by the figures quoted in the margin, where I have shown the price that would be paid per ton for goods consigned to Wagga Wagga if the uniform rate per mile was charged, and the amount that is charged with the reductions allowed. It will be observed on reference to the figures quoted that the concessions made are very liberal, and such as to offer every reasonable inducement to residents in the Riverina districts to obtain their supplies direct from Sydney.

Enclosed please find rate sheet asked for.

I have, &c.,

D. VERNON,
Secretary of Railways.

Messrs. Heyde, Todman, & Co., York-street, Sydney.

No. 2.

Minute to Mr. Traffic-Inspector Roberts.

THE Commissioner would be obliged if Mr. Roberts could give him any and all information possible as to the nature and amount of the traffic which we do now by river, so that he could form some idea of the extent to which present revenue would be affected by any changes which may be made in the direction referred to by Heyde, Todman, & Co.

If any extra traffic could be gained the proposition would be worth entertaining.
Reply early.

D.V., 27/9/79.

RETURN showing Tonnage of Goods forwarded from South Wagga by steamer, for month ending September, 1879.

Consignee.	Description of Goods.	Tonnage.		
		ton	cwt.	qr.
Hebden & Son	Groceries, &c.	0	14	1
"	Sugar, soap, &c.	1	9	3
Barbour	Onions, fruit, &c.	1	6	3
"	Potatoes	12	15	0
"	Groceries and oil stores	2	3	3
"	Wire and salt	2	11	0
"	Sugar, &c.	1	11	0
"	Cheese	0	5	1
"	Woolpacks	0	10	1
Andrew and Turnbull	Groceries	0	1	2
		23	8	2

RETURN of goods consigned to the different officers in charge of steamers at North Wagga for the months of July, August, and September, 1879. Captain Laing, Sinclair, and Mr. Barbour.

July, 1879—Captain Sinclair.

		tons	cwt.	qr.	lb.
1 July, 1879	8 bars iron, 1 bag bolts and nuts	0	8	1	0
	August, 1879—R. Barbour.				
18 August	18 bags flour	1	16	0	0
	September, 1879—Capt. J. Laing.				
5 September	5 boxes soap, 10 cases kerosene oil, 2 cases salmon, 2 cases sardines, 2 cases starch, 1 cask soda, 2 casks currants, 2 cases apples, 10 boxes sperms, 6½ chests tea, 10 boxes tea, 8 bags rice, 4 cases jams	1	1	0	0
	5 September.—R. Barbour.				
	15 cases brandy, 15 cases whisky	0	12	2	0
	5 cases pickles, 5 cases lobsters, 5 cases marmalade	0	15	1	0
	Tons	4	13	0	0

RETURN of goods received at North Wagga Station, for transmission by steamer to Hay and Narrandera, from the 1st July to the 30th September, 1879.

Date.	Consignee.	Description of Goods.	Tonnage.		
			tons	cwt.	qr. lb.
1879.					
2 July	Bench of Magistrates	9 cases furniture	1	0	0 0
	A. Lakeman	8 boxes tobacco	0	10	1 0
	F. Jenkins	3 boxes soap, 1 package brooms, 1 package groceries, 1 bag salt, 5½ chests tea, 12 cases kerosene oil, 1 case groceries, 11 bags salt.	1	10	3 0
	H.M. Government	4 gallon tubs, 4 buckets, 1 package clothing, 1 bale blankets.	0	2	2 0
	Mr. Bryne	1 package saddlery	0	0	1 0
	Mr. Simpson	1 package saddlery, 1 box	0	0	2 7
	Bentwith & Co.	11 boxes tobacco, 1 bundle trees	0	4	0 0
	Bench of Magistrates	1 bale blankets	0	1	0 0
	Postmaster	1 water-proof safe	0	3	0 0
	Max Monash	28 bags potatoes, 2 bags onions	2	4	1 4
	Whitcomb Bros.	10 cases jams	0	5	0 0
	G. H. Stevens	¼ cask brandy, 2 bags bacon, 8 cases fruit, 2 cases nails, 1 case hollow ware, 6 cases whisky, ¼ cask brandy, 1 cask currants, 6 cases pickles, 1 package, 1 case drapery, 12 boxes candles, ¼ cask brandy, 12 cases vinegar, package hops, 2 bags split peas, 6½ chests tea, 1 case herrings, 12 boxes tea, 1 case stationery, 1 case drapery, 1 case syrup, 1 package hollow ware.	2	3	1 0
23 July	Ferrier & Co.	¼ cask brandy, 16 cases cordials, ¼ cask rum, 1 package samples, 12 cases whisky, 12 cases brandy, 6 cases gin, 4 cases schnapps, 6 boxes sperms, 5 cases oil, 3 cases brandy, 1 case, 1 coil lashing, 1 case groceries, 1 case ironmongery, 4 drums oil,	4	13	3 0
	Max Monash	6 grindstones, 1 bundle boards, 2 boxes glass, 10 drums oil, 1 case hollow ware, 2 bundles bedsteads, 1 case, 1 case sundries, 8 cases nails, 1 box glass, 20 kegs lead, 12 cases gin, 28 bags potatoes, 3 bags onions.			

Date.	Consignee.	Description of Goods.	Tonnage.
1879.			
23 July	Clerk P.S.	1 case	tons cwt. qr. lb. 0 1 0 0
	M. Harmond	1 box tobacco, 1 paper parcel	0 1 0 0
	H.M. Government	1 paper parcel	0 0 1 0
	Denis M'Grath	1 package fittings	0 1 0 0
	W. Elliott	1 box plants	0 1 0 0
	J. & D. Adams	4 mats sugar, 1 cask brandy, 1 cask brandy, 1 case claret, 3 cases kerosene oil, 1 case bottled fruit, 1 box samples, 4 packages stoneware.	0 10 0 0
27 July	G. H. Stevens	1 ton drapery, $\frac{1}{4}$ rum, 1 case books, 1 small box	0 6 2 14
	Billington & Co.	2 cases boots	0 1 0 0
For July.—Tons.....			16 19 1 25
18 August	Carroll & Co.	1 case saddlery, 1 case grindery	0 2 0 0
	Mr. Gaw	7 cases fruit	0 3 2 0
	— Jancell	20 cases brandy, 7 cases schnapps, 1 case bitters, 2 $\frac{1}{2}$ chests tea.	0 14 2 0
	J. M'Gan	2 bales woolpacks	0 10 0 0
	G. W. Stevens	7 cases baking powder, 2 cases boots	0 5 1 0
	— Turnbull	1 package sundries	0 0 2 0
	F. W. Roberts	1 package sundries	0 0 2 0
	— Turnbull	1 case books, 19 bags potatoes, 7 cases cheese	2 18 1 0
	Max Monash	1 box glass, 1 keg screws, 1 case hollow ware, 23 bags potatoes.	2 3 3 0
	— Billington	2 boxes tobacco	0 2 0 0
	— Carroll	1 case saddlery, 1 case grindery	0 4 1 0
	H. Adams	1 case, 1 box	0 0 3 0
	Ferrier & Co.	5 cases gin, 5 cases whisky, 1 box C., floor, 1 bag peas, 4 cases groceries, bale woolpacks, 10 cases gin, 2 bundles mattresses, 1 case galvanized iron, 1 case confectionery, 5 cases oranges.	3 6 2 0
	F. W. Jenkins	11 bags salt, 2 boxes boots, 8 bales woolpacks, 86 bags sugar, 4 cases sundries, 13 bags potatoes, 10 drums tar, 2 bales drapery, 1 case sauce.	7 1 0 0
For August—Tons.....			17 12 3 0
8 September	Telegraph Master	2 cases, 1 keg bluestone	0 3 3 0
	G. H. Stevens	3 boxes tobacco, 1 case hollow ware, 3 cases oil, 20 bags rice, 3 cases groceries, 6 boxes raisins, 1 cask currants, 1 package, 2 boxes.	0 15 0 0
	H. D. Adams	12 cases brandy, 6 cases gin, 6 cases whisky, 2 cases wine, 1 bundle guttering, 1 case.	0 16 0 0
	F. Jenkins	15 bags potatoes	1 0 0 0
	Max Monash	29 bags potatoes, 6 bags oats, 1 case	2 16 3 0
	T. Gough	2 cases billiard tables, 3 cases furniture	1 2 0 0
	A.J.S. Bank	1 case stationery	0 1 1 0
	— Smith	3 cases sundries, 2 boxes tin, 1 seat	0 4 0 0
	Ferrier & Co.	1 case, 1 box drapery, 1 truss	0 3 3 0
12 September	— Turnbull	100 bags potatoes	8 0 1 0
	— Bentwell	7 packages tobacco, 32 bags sugar, 3 cases raisins, 10 boxes sperms, 10 cases vinegar, 3 boxes matches, 1 case ham, 2 cases currants.	3 18 0 0
	— Anderson	1 case hollow ware	0 0 3 0
	Police	1 case furniture	0 6 1 0
	— Simms	1 case	0 1 0 0
	— Gough	1 case lamps	0 1 3 0
	Hubden & Sons	1 case hardware, 2 cases oil, 3 kegs, 1 bundle, 2 boxes raisins, 5 bags rice, 5 cases, 4 boxes soap, 24 bags sugar, 2 bundles iron, 18 bars iron.	2 4 0 0
	S. Bowman	28 cases spirits, 1 box candles, 1 oct., brandy, 1 oct., whisky, 12 chests tea, 1 keg vinegar.	0 19 1 0
Grand Total—			22 13 3 0

Grand Total—

	Tonnage.			
	tons	cwt.	qr.	lb.
For July	16	19	1	25
For August	17	12	3	0
For September	22	13	3	0

Tons..... 57 5 3 25

Mr. Inspector Roberts.

J. WALKER, 11/10/79;

TONNAGE of Goods received by Mr. Barbour and his officers, and forwarded by his steamers, viz. :—

Tons	cwt.	qr.	lb.
25	16	0	0

TONNAGE of Goods forwarded by steamers for various consignees between Wagga and Narrandera (inclusive):—

Tons	cwt.	qr.	lb.
36	9	0	18

TONNAGE of Goods forwarded by steamers for various consignees between Narrandera and Hay (inclusive):—

Tons	cwt.	qr.	lb.
23	2	1	7

It is only within the last few months that we have had any traffic worth speaking of with the river steamers. Mr. Barbour, the proprietor of the steamers plying between Wagga and Hay, is the principal consignee of goods, such as flour, potatoes, groceries, &c., which he disposes of to the settlers on the banks of the river, as per statement attached. It appears he received 25 tons 16 cwt. For

For the various consignees who reside between Wagga and Narrandera, it appears that 36 tons 9 cwt. 0 qr. 18 lb. of goods was dispatched by the steamers. These are not new customers to us; they prefer getting their goods by steamer when the river is navigable, the freight being cheaper than by road.

The various consignees situated between Narrandera and Hay are all new customers, and appear to have received 23 tons 2 cwt. 1 qr. 17lb. of goods; but I am of opinion that these people would not trade with Sydney unless the river is navigable, the freight by road being too high, but will, on completion of the Narrandera line become permanent customers.

The Secretary.

G. J. ROBERTS,
14/10/79.

No. 3.

Minute by The Commissioner for Railways.

MR. COLIN SIMPSON, M.P., and Mr. Andrews (of Andrews and Turnbull, Hay), waited upon the Minister with reference to some scheme being adopted to enable storekeepers and others at Hay, and places between that and Narrandera, to obtain their supplies from Sydney instead of from Melbourne as heretofore, by a system of rebates on river-borne goods, similar to the system adopted by the Victorian Railway Department.

The Minister thinks it desirable that a scheme should be prepared for the consideration of the Government. The Victorian rates and rebates allowed are shown in accompanying paper. Will the Secretary be good enough to look into the matter, and submit a list of rates which will correspond with those of Victoria, and which would, in all probability, be the means of securing the object of the deputation.

CH.A.G., 23/10/79.

I think it is desirable that fuller information should be obtained in regard to the traffic to Hay, and the means of diverting it to our railways, and for the purpose, I propose that the Secretary (Mr. Vernon) accompanied by an officer of the Traffic Branch, should proceed to Hay by the river from Wagga Wagga, and should place himself in communication with the merchants, shopkeepers, and others who, being desirous of trading with Sydney, will be glad to afford him particulars of the traffic, and the most effectual means of securing it with the least disadvantage to the Department. I am disposed at present to concur in the proposal for a through rate, the Department undertaking to deliver at Hay; but it will be necessary to ascertain first what facilities are available for conducting the river traffic, &c.

It is not improbable that the Railway Department of Victoria will further reduce the rate for goods landed between the Wakool Junction and Wentworth to the rate which they charge for goods landed beyond that point, viz., 30s. a ton, but this action could be met I have no doubt.

48s to 30s a ton.

The first step, however, is, I think, to obtain full information respecting the traffic, and the way in which it can be controlled under existing circumstances, and I recommend the course I have suggested for the Minister's approval.

CH.A.G., 29/10/79.

As far as circumstances have permitted, since the date of Commissioner's minute of 23rd instant, I have looked into the question brought under notice by Messrs. Colin Simpson and Andrews with respect to the desirability of establishing business relations with Hay. With a view of obtaining as much and as recent information as possible I have, since Commissioner's minute, paid a visit to Wagga. There cannot, I think, be the slightest doubt as to the necessity which exists for measures being taken by this Department to secure traffic for the Railway, which we have now extended to the borders of a district, the trade of which hitherto has been solely with Victoria and South Australia. It is equally evident that, unless we are to content ourselves with merely the local traffic about Wagga (and the same thing may be said when we open to Narrandera), which, of course, would leave our railway extension comparatively useless and certainly unremunerative, if we are to secure any portion of this hitherto purely Victorian or South Australian trade we must be prepared to do it upon much the same terms. If equally favourable rates are not offered the result is very certain, we shall do no business. Taking for the present the district, of which Hay may be said to be the centre, and confining myself to river-borne traffic, the cost of carriage between Hay and Echuca and between Hay and Wagga is about equal. Considering how unequal the distances between these point are, this may at first be matter of surprise; but may be accounted for by remembering the amount of traffic which is being done, the efforts which are being made to keep it, the greater depth of water permitting of larger boats and larger cargoes, and such like facts. As regards the passage by river between Hay and Echuca, it is open, I understand, for about five or six months in the year. With the aid of the Engineer-in-Chief for Harbours and Rivers, and as far as present information will serve, I do not think there will be any difficulty in keeping the river between Wagga and Hay open pretty well the whole year round. Of course the boats used must be suitable for the purpose, drawing very little water, and, if necessary, they might carry light cargoes. Let the trade once offer, and I do not anticipate there will be any difficulty in the matter of boats and appliances for the traffic by water. To come now to the charges by rail. As the Commissioner is aware, the Victorian terminus, Echuca, is about 156 miles from Melbourne. The distance of the New South Wales terminus from Sydney being 309. The ordinary rates from Melbourne to Echuca for 1st, 2nd, 3rd, and 4th classes respectively are 52s., 65s., 78s., and 91s. per ton. That for all goods going below Wentworth on the Murray or beyond Wentworth on the Darling, these rates are reduced to a uniform rate of 30s. per ton only, and to 48s. per ton for all goods landed between the Wakool Junction and Wentworth. This latter represents the business with which we are more immediately concerned, and which we should direct either in part or whole. Our railway charges (309 miles) to Wagga are, for 1st, 2nd, 3rd, and 4th classes respectively, 61s. 8d., 84s., 117s. 1d., and 150s. 11d., and it appears to me we have no resource but to offer at once such rebates as will bring them down to a uniform rate per ton, corresponding to that of the Victorian Railway Department, viz., 48s. per ton for all goods going below "Darlington Point," on the Murrumbidgee, which is the point at which the Victorian rebates commence to operate. In carrying this into effect I would suggest it should be done by adopting a through rate. This would involve the necessity for proper arrangements being entered into by the Department for the carriage of the goods by river. Any risk could in this respect be covered by insurance. There would be no difficulty in carrying

this

this system out I think, and it is the one which offers the surest protection against fraud. The plan adopted by Victoria is, as Commissioner is aware, to require bonds, and declarations, &c., which, in my opinion, is not nearly so satisfactory. With respect to wool—river-borne. I believe that were proper facilities and appliances for the water carriage afforded, wool could be landed now as cheaply, per bale, in Sydney as it can at present be delivered in Melbourne. The saving of time will always be an advantage in favour of Sydney; as also will the fact of an open water-way for a much longer period than is the case between Hay and Echuca. I cannot, however, vouch for the correctness of the latter remark, indeed, on many points more precise and reliable information is desirable than was at all possible for me to obtain, and this should be obtained without loss of time. I should like to point out, while dealing with the wool other than river-borne, we draw nothing at present from stations south of the Murrumbidgee and west of a line drawn (say) from Wagga through Tarcutta, Oberon, and Adelong Crossing. A great deal of this might be drawn to Wagga by offering a slight rebate (say) of 1s. to 1s. 6d. a bale, and having certain impracticable portions of road put in order. In fact there are some few thousands of bales that might now be secured were the offer of a rebate sanctioned, at least, I believe, it is not too late. This is a step which I also think, in the interest of our railways, we should take, and which will bring in a great deal of business to Wagga which now goes to Wadonga. There is the Tumberumba district, which might perhaps be mentioned as an instance. Although 30 miles nearer to Wagga than to Wadonga, the traffic all goes to the latter station, on account of the nature of the road. Then again we have lost the wool from stations very much nearer Wagga, that we might have had by offering a rebate of 1s. or 1s. 6d. a bale. Unless the Department is prepared to adopt some such measures, it is out of the question to expect the traffic. There are one or two items, such as fencing wire and rock-salt, for which a special rate should be allowed, and here again I would suggest that we carry such articles on the same terms as they are at present conveyed by the Victorian Railway Department. I may observe the cost of carriage between Hay and Echuca and Hay and Wagga would be something like 40s. per ton. As traffic, however, became diverted to this side the tendency would be to cheapen this rate, while, as traffic grew slack on the other side, the tendency would be in an opposite direction—the less there was to do between Hay and Echuca the higher the price would rise. I must apologise for these crude and hasty observations, time has not permitted of my more efficiently dealing with the subject.—D.V., 28/10/79.

No. 4.

R. Barbour, Esq., M.P., to The Secretary for Public Works.

Dear sir,

Parliament House, Sydney, 22 September, 1879.

Now that our railways have reached Wagga Wagga, and tapped the Murrumbidgee, one of the navigable rivers of the south-western part of New South Wales, it is I have no doubt your desire to acquire a knowledge of the trade of this locality to enable you to make such arrangements as will increase the traffic returns upon our railways, and bring all the trade possible into New South Wales.

The great distance from the seaboard and from the metropolis has hitherto shut out this district from rapid direct communication with Sydney, the trade has consequently gravitated to Melbourne, and having so largely benefited thereby for the last fifteen years, she will no doubt make great exertions to retain it. However, as New South Wales has determined to extend her railways into the interior, she must also see that her trains shall not run empty, but that whatever traffic there is to be done with her own territory, shall be done by her, that her railways may become the benefit they are intended to be, not only as a source of revenue and profit, but to encourage settlement and bring trade to her merchants.

It was about the year 1865 that Victoria extended her railway system to Echuca, on the Murray River border, and as this connected her with the Edwards, the Murrumbidgee, and the Darling Rivers, all of which are in New South Wales territory, the building of river steamboats followed and increased rapidly, until the trade now done on these rivers is enormous. Now, however, that New South Wales railways have reached the Murrumbidgee River at Wagga, and will shortly reach the Murray at Albury, she will be expected to also compete for the river trade in addition to Victoria and South Australia, and the question is, will we allow the other two Colonies to run away with the trade, or will we seriously realize the position, and offer to the New South Wales colonists the opportunity of dealing with Sydney by making the rates of carriage upon our railways equivalent to those chargeable by the other Colonies.

As will be seen by the latest goods classification issued by the Victorian railways, a difference is made in the freight of goods that pass into New South Wales, there is the produce rate, corresponding to our own of about a 1d. a ton, the special or miscellaneous rate, and the 1st, 2nd, 3rd, and 4th class rates, ranging from 52s. to 91s. per ton from Melbourne to Echuca, and upon all such goods taken by steamers a rebate is made which reduces the classes 1, 2, 3, 4, to 48s. per ton, and fencing wire to 30s. a ton.

The connection with those navigable rivers will open a large extent of our own territory to us, but to induce our people to use our railways, and to draw them to our own capital we must at least place them on a par so far as prices are concerned with those of the other Colonies, for claiming to belong to a free trade Colony, they will also claim to buy in the cheapest market. I have every reason to believe that the steamers freight from Wagga Wagga will compete with these from Echuca in so far as the Murrumbidgee River is concerned, but our railway freights must be altered to compete with the Victorian railway freights, otherwise the trade on these rivers will still go to Melbourne.

I would therefore recommend that a rebate be made upon all freights on goods intended to be sent riverwards, equal to the rebate made upon the Victorian railways. And when we remember that a steamer takes 80 to 100 tons at a time, and that it secures an additional and altogether extra traffic and profit to our merchants, and that even in the matter of fencing wire at 30s. per ton (which may well be carried in empty cattle trucks), would bring £7 10 per truck, and for classification goods 48s., or about £12 per truck load; experience may yet prove that these are good payable rates after all.

I have not specially referred to wool carriage, because arrangements have already been made, and no alteration now will influence a single extra bale, but next season, say not later than June, inducements should be offered, and thousands of bales will come to Sydney in place of going to Melbourne.

I have, &c.,

ROBT. BARBOUR.

No. 5.

Mr. W. Turnbull to The Secretary for Public Works.

Sir,

Sydney, 15 October, 1879.

I have the honor herewith to hand you statement *re* railway goods charges as approved of by the deputation who waited on you this morning.

Any further information you may desire I shall be happy to afford.

I have, &c.

W. TURNBULL,
(Care of Messrs. Anderson & Son, York-street.)

[Enclosure.]

Sydney, 15th October, 1879.

STATEMENT made with the view of having the railway goods tariff so modified as to develop the trade of Sydney with Riverina.

THE following figures will show that the Victorian Government have taken active measures to counteract the legitimate results to be expected from the extension of the Railway to Wagga Wagga. By a system of drawbacks they have practically abolished the classification of goods, and made an uniform rate of 48s. per ton to Echuca. This action of the Victorian Government would be effectually checked by carrying 1st, 2nd, 3rd, and 4th class goods to Wagga Wagga, to be there shipped for stations below Wagga Wagga at an uniform rate of 48s. per ton; wire and galvanized iron (our greatest imports) at a rate of 30s. per ton; produce, as at present, viz., 26s. 2d. per ton to Wagga Wagga.

Goods are landed at Hay from Melbourne free of all charges (insurance excepted) by all the agents at an uniform rate (through) of £4 per ton; produce, wire, rock salt, at £3 per ton.

Wool is carried from Hay to Melbourne at a through rate of £3 15s. per ton (insurance extra), £1 5s.; total, £5.

Echuca and Melbourne Class.	Victoria : Usual Rates.	Victoria : Rebate in goods for Murrumbidgee.	Victoria : Net Charges.	New South Wales : Sydney to Wagga Wagga.
	£ s. d.	£ s. d.	£ s. d.	£ s. d.
Produce.....	1 0 6	Nil.	1 0 6	1 6 2
Wire	2 12 0	1 2 0	1 10 0	3 7 8
Rock salt	1 19 0	0 9 0	1 10 0	1 11 4
1st class goods.....	2 12 0	0 4 0	2 8 0	3 1 8
2nd „	3 5 0	0 17 0	2 8 0	4 4 0
3rd „	3 18 0	1 10 0	2 8 0	5 17 1
4th „	4 11 0	2 3 0	2 8 0	7 10 11
Wool downwards from Darlington Point, per bale of 4 cwt.	.....	.....	0 5 9	0 9 0
Wool dumped .....	.....	.....	0 4 9	0 7 6
Wool above Darlington Point .....	.....	.....	0 5 0	0 9 0
Wool dumped .....	.....	.....	0 4 0	0 7 6

River carriage may be considered from Wagga to Hay at same rate as from Echuca to Hay—30s. per ton.

Mr. Read should visit Narrandera, and see what is required to facilitate traffic between the railway terminus and the river—in what way the residents on the southern bank of river can best communicate with Narrandera, so as to reach the railway; what the facilities are for conveying goods between Hay and Narrandera, and what inducements should be offered so as to turn the tide of traffic from South Australia and Victoria to New South Wales. Mr. Read will ascertain whether there are any impediments to the navigation of the river between Narrandera and Hay, which it is desirable should be removed. The Traffic Manager will probably be unable to spare the time at present to visit Hay; but he should send an intelligent and trustworthy officer of his staff (Mr. Kirkcaldie might well be entrusted with this duty) along the river to Hay, and to make report as to wharfage accommodation at that place, the extent of trade done, the cost of carriage from where it comes from, including all charges of insurance, &c., &c.; and what the difference is between our charges and river charges to Hay, and the charge made where goods are obtained from or forwarded to South Australia and Victoria,—CH.A.G., 4/2/80.

No. 6.

Minutes relative to charges for goods forwarded to Junee.

Telegram from Station-master, Junee, to Sydney Goods, 7/1/80.

I SEE you are still invoicing 1st, 2nd, 3rd, and 4th class goods at North Wagga rates hence it causes me a great deal of trouble in rectifying the under charges. I have been advised by the Traffic Manager to charge goods in accordance with the new rate sheet from Sydney to Junee.

I presume Commissioner's 78-10,492, authorising the charge of Wagga Wagga rates for goods to Junee has not been withdrawn.—J. HARPER, 7/1/80. Superintendent.

Not that I am aware of. It may, however, be just as well to raise the question.—G. T. EVANS, 7/1/80. Traffic Manager.

Papers on same subject were sent from Audit. Would Commissioner please say if the Wagga rates are still to be charged on Junee goods.—W.V.R., 7/1/80. What effect has the reduction had in increasing the tonnage?—CH.A.G., 9/2/80. Traffic Manager. Urgent. B.C.

Since the opening of the line from Sydney to Junee in September, 1878, the higher tonnage during that month is attributed to the fact that Junee was the terminus of the Southern line for about ten days during the early part of September, and some 30 or 40 tons of Wagga goods were consigned there. The busy season of 1878-79, including October, November, December, and January, shows an average of 39 tons 15 cwt. per month. The busy season of 1879 and 1880, including September, October, November, December, and January, shows an average of 134 tons 7 cwt., but as Messrs. Fishburn and Morton commenced sending their contract material in September, 1879, this average requires to be reduced by 48 tons. That being the average tonnage of that firm for the month in question the net ordinary tonnage of the station has therefore been 86 tons 6 cwt., an increase of 46 tons 11 cwt., or over 100 per cent.—G. T. EVANS, 12/2/80. Traffic Manager.

Sydney

Sydney Goods.—Will Traffic Manager please decide whether we are correct in charging North Wagga rates on goods consigned to Junee, as per Commissioner's paper, No. 78-10,492. Up to the present time no notice of its withdrawal has reached us.—J. HARPER, 9/2/80.

I may state that owing to the action taken by Junee in the matter I understand consignors are now sending their goods to Wagga, and returning them from thence to Junee, thus involving an additional haulage of 17 miles.—J.H.

The Commissioner's authority has never been withdrawn so far as I am aware, and I recommend that the practice of charging North Wagga rates for Junee traffic be at once reverted to. I understand, however, Mr. Carlisle gave a decision to the contrary a short time ago. (For Goods Superintendent), DAVID KIRKCALDIE, Traffic Manager.

The Commissioner to see.—W.V.R., 12/2/80. Seen.—CH.A.G.

Memo. to The Traffic Auditor.

Sir,

Junee Station, 6 February, 1880.

Referring to my memo., No. 45, of 22nd January, relative to the way in which goods are being invoiced from Sydney to this station, viz., the wrong rates being charged. This is still being continued, and which is causing me a great deal of unnecessary work, by my having to make under-charges on nearly every entry. I shall be very thankful if you would kindly have this matter rectified at once.

CHAS. HORN.

Mr. Harper for report and particulars of wrong charges referred to by S.-M., Junee.—THOS. CARLISLE, 10/2/80. Clerk in Charge, Sydney Goods.

Junee goods, under authority of Commissioner's M.P. 78-10,492, which has never been withdrawn. I again submitted the question to the Traffic Manager, and have reason to think he decided that we were correct.—J. HARPER, 10/2/80. Traffic Auditor.

I presume the minute referred to is still in force, although the rates were revised on 1st January, 1880.—THOS. CARLISLE, 13/2/80. The Commissioner. Yes, for the present.—CH.A.G., 16/2/80.

Traffic Manager.—G.B., B.C., 17/2/80. Goods Superintendent to note.—W.V.R., 18/2/80. Station-master, Junee, to note.—G. T. EVANS, 18/2/80. Noted. I have made under charges on goods invoiced up to 18th instant, which I presume will be passed.—CHAS. HORN, 20/2/80. The Superintendent, Sydney. I presume the charges made by Junee had better remain as they are.—G. T. EVANS, 21/2/80. Traffic Manager. Yes.—W.V.R., 23/2/80. Goods Superintendent. Station-master, Junee, to note.—G. T. EVANS, 23/2/80. Noted.—CHAS. HORN, 24/2/80. Superintendent Evans, Sydney. The Commissioner.—W.V.R., 26/2/80.

No. 7.

Report of Mr. Traffic-Manager Read.

IN accordance with the Commissioner's instructions, as contained in M.P. 80, I visited Narrandera on the 13th and 14th instant, with the following results:—The railway station is conveniently situated for the town and surrounding districts, but is about $1\frac{1}{2}$ mile from the river, and will have ample accommodation for carrying on of the coaching and goods traffic; but no arrangements appear to have yet been made for the live stock traffic. There is a most suitable place for the yards on the opposite side to the station, about 100 yards on the Junee side of it. It can be approached by a public road through a Government reserve, as during the greater portion of the year the live stock will be the principal traffic. I would ask that the erection of yards be proceeded with in such time that they may be completed by the opening of the railway.

River Loading.—The station being about $1\frac{1}{2}$ mile from the river, some arrangements for receiving loading direct from vessels will be necessary. From information gained from old residents there is no site so suitable as that on which Fishburn and Morton are unloading the rails, &c., they have brought down the river from Wagga, as the water near it is deep. The banks are high, and parts of it have never been known to have been under water, even during the very high flood of 1870. It is situated on a Government reserve, and to it the contractors are laying a temporary line for hauling their material. This temporary line could be made available at least whilst the terminus is at Narrandera for the hauling of wool, &c., from and of stores to the vessels. A small wharf would have to be erected, and a small steam launch with a jib would be required for hoisting and lowering. The wharf, or part of it, should be built about 4 feet above our rail level, and connected with it should be an 8 or 10 feet wide platform, running out to take in about ten trucks, or the line should be brought round with a curve to run alongside the wharf. The erection of the wharf might be left to the Harbours and Rivers Department, one of whose officers (Mr. Bertham) has before erected wharves on the Murrumbidgee. Communication to the southern side of the river is by a punt. It is a very fair one. It is private property, and belongs to a Mr. Jenkins, who leases it to the man now working it at £190 per annum. The tolls charged are as follows:—Each passenger, 2d.; horses, &c., 6d. each; two-wheeled vehicles, 1s. each; four-wheeled vehicles, 1s. 6d. additional; cattle (under ten), 4d. each; cattle (over ten), 3d. each; lamb, sheep, or goat, $\frac{1}{2}$ d. each. The approaches to the punt are not good, and require repairing.

State of the River.—The river is now at summer level, and not navigable at least between Wagga and Hay. From inquiries made of masters of steamers and others it would appear that some little work at snagging it would make it navigable much longer in the year between Narrandera and Hay, and it was to this portion of the river that I chiefly directed my inquiries. From Narrandera, for about 120 miles, down to a place called Groongal, there is a considerable amount of snagging to be done. Beyond that, to Hay, the river is comparatively clear. There is nothing to prevent these difficulties being removed, so I am informed, by October next, if the work is proceeded vigorously with. There is no work going on at present. The steamers are laid up and the men discharged, it is reported, for want of funds, and this is the most suitable time of the year for snagging. The sole chance of our bringing the traffic from down the river depends on its being made navigable at reasonable times, and I would impress on the Commissioner the necessity of the work being at once vigorously proceeded with. There are five winches on the river belonging to the Government waiting to be employed.

Traffic

Traffic to Hay.—I sent Mr. Kirkcaldie on to Hay to make inquiries about this traffic, and will report further on his return; but there will be great difficulties in the way of our securing it until the railway is pushed on to Hay, and I would impress this fact upon the Commissioner, in order that the Parliamentary approval may be obtained to its construction this session. On the other matters mentioned by the Commissioner I will report on Mr. Kirkcaldie's return.

W.V.R., 16/2/80.

The Commissioner.

In continuation of previous report *re* arrangements opening Narrandera line and securing river traffic, I now beg to enclose Mr. Kirkcaldie's report. On Mr. Kirkcaldie's journey towards Hay he called upon nearly all the principal squatters, and they, as well as the people of Hay, all expressed a wish to trade with and forward their wool to Sydney, if satisfactory arrangements could be made. The information obtained shows that there is a very large traffic, and that it would be of great benefit not only to the railways but to Sydney if it could be secured. The trade is now with Melbourne, and the figures show that wool can be conveyed to Melbourne from Hay at from 75s. to 90s. per ton. Insurance would be about 25s. per ton. The rates on general merchandise from Melbourne to Hay are about the same *ex* insurance, which, of course, would be in accordance with value and quality of merchandise. Rates on produce and fencing wire are 20s. per ton lower. To compete with above charges, and, as Mr. Kirkcaldie points out, they may be lowered, we should have (taking Hay as point of competition) to carry between Sydney and Narrandera, wool at about 85s. per ton, as from what I can gather, the steamer charges between Hay and Narrandera will be about 15s. per ton, and the insurance from 7s. 6d. to 10s. per cent.—this would be at 17s. per bale—our rates will only be 10s. per bale from Narrandera, so that we may make pretty certain of the wool. But it is upon the 1st, 2nd, 3rd, and 4th class goods we shall have to make large concessions, and carry all goods at about the above-mentioned rates, viz., 85s. per ton. On the more valuable goods, on which insurance is high, a higher rate might be obtained. On galvanized iron and fencing wire extra concessions will have to be made. To offer extra advantages to those using the New South Wales railways I would suggest that the wharves at Hay belonging to the Government be reclaimed and made free New South Wales railway wharves, and that when used for traffic to or from the other Colonies wharfage dues be charged. There would be the expense of a wharfinger, but he could at the same time represent the Railway Department at Hay, and give information as required by the public. The matter of river dues, I am aware, the Commissioner has already taken in hand. I can only add that I hope they will be approved by the Government, as their adoption will enable us to compete on more even terms with the adjoining Colonies for the river traffic. Mr. Kirkcaldie's suggestions *re* live stock traffic are brought under the Commissioner's notice. In special cases reductions might be made, but I think the market will in a great measure influence the direction in which stock will be forwarded. We get so little out of this traffic now that I am hardly prepared to recommend further reductions, unless in special cases. The necessity for the early opening of the Narrandera line—August next—is also brought under notice.—W.V.R., 9/3/80. The Commissioner.

Murrumbidgee Traffic.

Sir,

Sydney, 27 February, 1880.

In accordance with your directions I proceeded to Hay for the purpose of obtaining some information as to the wharf accommodation there, the extent of trade done, and the rates of freight and insurance to and from the various quarters of that district, and have now the honor to submit my report thereon.

I may mention at the outset that I visited all the squatting stations—except two, and in those cases I was informed that the proprietors were out of the Colony—from a point 50 miles west of Narrandera, with the view of ascertaining the feeling of the owners or (in their absence) the managers as regards a diversion of their trade from Victoria to New South Wales, and I found that without exception they are all anxious to trade with Sydney instead of Melbourne, provided the rates are suitable, and that arrangements can be made for taking the wool regularly away from the stations as has been done hitherto, and for delivering it promptly on arrival at Sydney.

I should state, however, that the shearing at stations below Narrandera commences about the 5th to the 20th of August and finishes about the end of September or beginning of October, so that unless arrangements can be made for improving the navigation of the river between Narrandera and Hay, and for opening the railway to Narrandera during August next, there is little probability of our getting any wool to load there this season; and I fear the river rates between Hay and Wagga by river would be so high as to preclude the possibility of holding out any inducements to the squatters in that direction. The tenders for the freight of the wool are generally sent by the contractors at Hay to the squatters during the months of May and June, and are always accepted in July, so that in order to secure any of the trade some definite action would require to be taken before that time.

As soon, however, as the navigation of the river is improved, the railway opened to Narrandera, and facilities are provided there for removing the wool from the boats and loading it direct into the trucks—the squatters have an objection to their wool being too much handled—I think we are certain to secure a large proportion of the wool that now goes to Victoria; and when the railway is constructed through to Hay, I have no doubt but that we shall get every bale of it.

Storage and Wharfage Accommodation at Hay.

There are altogether six wharves, exclusive of one belonging to a firm of brewers, and used only for their own traffic; and in the busy season the river banks are also frequently, I might say constantly, used with advantage for the loading and unloading of boats.

Taking them in order as Hay is approached from Narrandera, the first wharf is at the east end of the town, and belongs to Messrs. Wm. M'Culloch & Co. (Limited), forwarding agents. It has a frontage of from 200 to 250 feet to the river, and although so awkwardly constructed as to have no room for the storage of goods upon the wharf itself, there is large shed accommodation immediately at the back of it, and a small tramway enables Messrs. M'Culloch & Co. to run all goods direct from the boats into the shed. There is also a small derrick crane upon the wharf capable of lifting from 25 to 30 cwt., and it is worked by a donkey-engine. Messrs. M'Culloch & Co. only discharge goods at this wharf. All the wool arriving

arriving in Hay by teams consigned through them is loaded into boats from the bank at a point about 2 miles further down the river—1 mile by road—where they have a shed capable of holding from 1,000 to 1,200 bales, but no crane or other facilities.

About 700 or 800 yards beyond Messrs. M'Culloch & Co's. wharf, and at the west end of the town the other five are all ranged adjacent to each other; for their positions I beg to refer you to the accompanying tracing.

Pollard's wharf has a frontage of about 12 feet to the river and carries a derrick (worked by hand power) capable of lifting about 20 cwt. It is on private ground and has fair shed accommodation.

Blewett's wharf has a frontage of about 10 feet to the river, but is not strong and is not, therefore, much used. It has, however, fair shed accommodation but no crane. The ground on which this wharf stands is Government leasehold property and I am informed that the lease expires in December next.

Moss's wharf has a frontage of about 20 feet to the river, and carries a derrick (worked by a donkey-engine) capable of lifting 15 to 20 cwt. The wharf is on Government leasehold property too, and I am informed that the lease expires in December next at the same time as Blewett's. Moss's wharf, and the store accommodation connected with it (the latter of which is private property), are at present occupied by Messrs. Permewan, Wright & Co., forwarding agents.

The Government wharf has a frontage of 75 feet to the river, is in a very good and convenient position, and, except that it has not so much frontage as M'Culloch & Co's., is in every respect the best in the place, as it is quite new and projects 10 or 12 feet nearer the channel of the river than any of the others, so that boats can lie alongside when they cannot get near the other wharves. It has, however, no shed or tramway accommodation nor crane appliances, but there is a Government Reserve immediately behind it capable of holding more goods or wool than are ever likely to be laid upon it. By referring to the tracing it will be seen that part of this reserve has been or is proposed to be granted to the town for the erection of Municipal Chambers, but it is still unfenced and is not likely to be used for a number of years.

Simson's wharf is about 50 or 60 yards on the west side of the Government wharf. It has about 25 feet frontage to the river, but is seldom or ever used, and has no appliances of any kind except that it has very fair shed accommodation.

When at Hay, I was informed that while a sum of £5,000 had been voted for the construction of the Government wharf there, it had only cost about half that amount, and that Messrs. M'Culloch & Co., had either applied or intend applying to the Government to expend the balance in building another wharf contiguous to their shed and loading place further down the river. Were it not intended to construct a railway to Hay, the best course, in my opinion, would be to cancel Blewett's and Moss's leases at the end of the year, and, as the wharf accommodation is limited, extend the wharf recently erected by some, thing like 150 feet so that two boats could be alongside at the same time (each boat is about 120 feet long), and provide sufficient sheds and cranes. But in view of the railway being constructed to Hay at no distant date, I think it would be preferable to erect a wharf adjoining Messrs. M'Culloch & Co's. shed about 2 miles further down the river, being as I was informed, the nearest point to the place at which it is intended that the railway station shall be built, and because the whole of the land between the two places belongs to the Government, so that a siding could be run alongside the wharf without encroaching on private property, while to gain similar access to any of the other wharves a good deal of private property would require to be purchased (*see* attached plan of the town of Hay). From these remarks it will be seen that more wharf accommodation is required, and it is just a matter for consideration where it should be placed. As far as I could see, however, there is no urgent need for it, because the traffic seems to have been satisfactorily conducted hitherto, and the Government wharf has since been added.

In the event of our commencing a river trade between Hay and Narrandera, I think it is worth consideration whether the new Government wharf should not be leased to one or other of the forwarding firms, because while it remains a purely public wharf every one will claim a right to it, and although it is not likely to be often used by the general public, it may be sufficiently often used by them as to make it practically useless to any of the two large firms, Messrs. M'Culloch & Co. and Permewan Wright & Co., either of whom would, I should think, be able to make good use of it, while the small wharves would be amply sufficient for any other boats plying on the river.

Extent of Trade.

During the season 1879-80 the following is as nearly as possible a correct statement of the traffic forwarded and received at Hay and the various stations on the river:—

Wool forwarded to Melbourne from stations between Narrandera and Hay	...	...	*15,026 bales.
" " Hay by river to Echuca from back country	...	...	22,382 "
" " Hay by teams to Deniliquin from back country, arrived too late for water carriage, say	...	...	3,500 "
" " stations between Hay and Lachlan Junction, say	...	...	7,100 "
" " stations between Lachlan Junction and Balranald, say	...	...	2,000 "
" " Balranald and stations below, say	...	...	10,000 "
		Total	60,008 bales.

Goods received from Melbourne at places between Lachlan Junction and Darlington, about 4,000 tons.

The season in question is generally represented as a bad one, but I could not get sufficiently reliable data of any previous ones. I was informed that in consequence of its having been a bad season the squatters had suspended all improvements which would otherwise have been carried on. It is said that next season the wool clip will not only be larger but that the inwards traffic may be expected to reach about 8,000 tons. I was told that in former season's the traffic has reached to from 8,000 to 10,000 tons.

Rates.

* These figures are correct, the others are estimated as nearly as possible.

Rates of Freight and Insurance.

The through rates on wool to Melbourne last season (exclusive of insurance) were as follows:—

	Greasy, per ton.	Scoured, per ton.
From Cuba and Darlington Point respectively, 59 and 66 miles west of Narrandera ...	105s.	120s.
„ Hay and Stations near Hay	75s.	90s.
„ stations below Hay	70s.	85s.

From stations above Darlington Point the rates are proportionately higher, and between Darlington Point and Hay they are gradually reduced according to distance. The through rates charged being so much per ton; scoured wool is charged 15s. per ton more than greasy on account of the railway trainage from Echuca to Melbourne being the same per bale, while the scoured bales are considerably lighter than the others; they occupy as much space. These rates may be divided as follows:—

Greasy Wool—

From Hay to Echuca	25s. per ton.	I am told this pays.
Commission to Forwarding Agents at Echuca	5s. „	
Wharfage at Echuca	3s. „	Collected by Victorian Customs.
Railway trainage to Melbourne, say	32s. „	Computing 5½ bales to the ton at 5s. 9d. per bale.
	65s. „	
Leaving	10s. profit to Agents at Hay.	
	75s.	

The trainage on scoured wool may be taken as about 12s. per ton more than the greasy, thus leaving a profit of about 13s. to the forwarding Agents.

The rates of insurance are equal to 5s. per bale, each bale being insured at £20 at 25s. per cent. I hear that these rates are likely to be reduced, and I may also mention that several stations have now a floating policy, and they thus get their insurance done considerably cheaper.

When wool has to be taken by team to Deniliquin the rate varies from 50s. to 60s. per ton.

I was unable to find out whether the Victorian Government allow any drawback on wool river-borne to Echuca from stations on the Murrumbidgee. It does not appear on their wool rate-sheet, and if there is such an arrangement it must be a private one.

Stores from Melbourne.

The through rates for general goods from Melbourne to Hay vary according to the competition on the river from 80s. to 90s. per ton, *ex* insurance. Last season the rate was 90s. For produce and fencing wire the rates were 60s. to 70s. per ton, *ex* insurance.

The general goods rates are made up as follows:—

Railway trainage Melbourne to Echuca	48s. per ton.
Commission to Forwarding Agents at Echuca	5s. „
Steamer freight	25s. „
	78s. „
Leaving from	2s. to 12s. per ton profit for the Agents at Hay.

The insurance rates by river are:—

	Imperishable Traffic.	Perishable Traffic.
Echuca to Balranald	20s. per cent.	40s. per cent.
„ Lachlan Junction	22s. 6d. „	45s. „
„ Hay	25s. „	50s. „
„ Cuba	27s. 6d. „	55s. „
„ Narrandera	30s. „	60s. „
„ Wagga Wagga	37s. 6d. „	75s. „

Liquids in bulk, timber, metals (not ore), and tallow, are insured at half the imperishable traffic rates.

When the river is not navigable the rates by team from Deniliquin to Hay vary from 60s. to 100s., and when feed is scarce, they reach as high as 140s. per ton. The following are as nearly as possible the rates for team carriage to and from the back country in good seasons:—

Under 50 miles, 1s. per ton per mile.
50 to 100 miles 10d. „ „
100 to 150 miles, 8d. „ „
Upwards 6d. to 7d. „ „

These rates are very much higher in bad seasons when feed is scarce. I think it right to mention these particulars, and to state that as regards wool the forwarding agents generally contract for a through rate from the stations to Melbourne and they arrange for the cartage.

As regards the wool traffic, I think it is highly probable that the Victorian Government will offer further inducement in the shape of reduced rates, and in order to counteract the effect of such a step, I am of opinion that power should be obtained to impose sufficiently high river dues both on cargo and the registered tonnage of the boats (they average from 80 to 300 tons each) as would keep the trade in the Colony, and still leave a margin of profit. As regards stores, I fear the same course will have to be adopted as the Victorian Government have had in force—viz., to make a general charge per ton on all classes of goods. River dues should be imposed on them too, and in all cases where the traffic is carried over the N.S.W. Railways (especially for long distances) the dues might be remitted.

I made inquiries respecting the probable cost of river freight from Hay to Narrandera, and was told it would be something like 20s. per ton, and insurance about 10s. per cent. additional.

From Hay to Wagga Wagga the rates would be about 40s. per ton, and insurance about 17s. 6d. to 20s. per cent. additional; but it is said that, in the present state of the river, it is seldom possible to take

take any but light draught boats higher up than Narrandera, and not often even so far. When they do go they are gradually loaded at the different stages on the way down the river, while the reverse would be the case if we were to take the trade up the river. I have no doubt that these rates would be considerably less if the river were more free of impediments.

There have been no South Australian boats in the Murrumbidgee during the past season.

Live Stock Traffic.

In consequence of the Victorian stock tax and the high rate of commissions charged in Melbourne as compared with those of Sydney, I am inclined to think that a large trade might be done with Sydney if it were generally known among the squatters that a discount is given on consignments of twenty trucks and upwards. Only those who are constituents of Messrs. Wilkinson, Graves, Minchin, and Lavender seemed to be aware of such an arrangement, and none of them forward less than 2,000 or 3,000 at a time. Such an arrangement should be generally known among the squatters, and it is worth consideration whether a similar concession should not be made on large consignments of cattle. I may add that in Victoria live stock are loaded by the Railway Department, while in this Colony the trucking agents charge the squatters from 3s. 6d. to 4s. per truck for this service.

I have, &c.,

DAVID KIRKCALDIE.

No. 8.

Mr. W. Turnbull to Mr. Traffic-Manager Read.

Dear Sir,

Hay, 5 April, 1880.

Enclosed I beg to hand you a clipping from the Melbourne *Argus* of the 2nd instant. This will give you an idea of the wool that left the Murrumbidgee for Echuca up to December, 1879; but since that date a large quantity has been conveyed by teams to Deniliquin, in transit to Melbourne. This is, of course, irrespective of any that may have gone to Adelaide.

I perceive that the Melbourne Frozen Meat Company intend establishing a depôt at Deniliquin for killing and sending meat to Melbourne; should a similar company be started in Sydney, Hay would be without description the best and most central position in the Colony, and should be glad if at any time you can say a word in its favour.

It is the general opinion here that the line from Hay to Narrandera, or rather *vice versa*, ought to be commenced at both ends, and should be stipulated for in applying for tenders. Would you kindly mention the matter to Mr. Goodchap?

I am, &c.,

W. TURNBULL.

[*Enclosure.*]

EXTRACT from the *Argus* dated April 2nd, 1880.

THE MURRAY RIVER TRADE.

THE official statistics of the Murray River trade for the year 1879 are not yet available for publication, but from trustworthy sources I have gathered sufficient information to prove that the season just closed was a very prosperous one in regard to imported tonnage, and a very inferior year as regards exported goods. In round numbers, 110,000 bales of wool were received at Echuca last season. Out of this total 81,000 bales were river-borne. Of the total river-carried wool, about 17,000 bales came from the Darling, about 8,000 from the Edwards, the great bulk of the wool being received from the Murrumbidgee, and a not inconsiderable quantity from stations with Murray River frontages. Last year only 98,000 bales of wool (all sources told) passed through Echuca, so an increase of 12,000 is apparent, due to favourable seasons, absence of drought, and the fact that the selectors are growing a large amount of wool. The inward tonnage (imports) for the season amount to 20,082 tons, and the outward tonnage (exports) to 7,290. The previous season's figures were:—Inward, 22,000 tons; outward, 12,000 tons; showing a falling off of inward, 2,000 tons; outward, 5,000 tons. The falling off is chiefly attributed to the extension of the Riverina railway, and the fact that the South Australian shippers reaped an advantage when the Darling was flooded before the Upper Murray rose. Complaints were made of the wharfage dues demanded on wool, 3s. per ton, equivalent to 7d. per bale of greasy. A new branch of the river trade is apparent in regard to the carriage of grain, of which 20,000 bags came by river to Echuca last season, against 3,000 during the preceding season. The red gum carriage has shown a great falling off, which is chiefly attributable to the action of the late Government in calling for tenders for 1,000 sleepers at a time, instead of ten times that amount. The wool which arrived at Echuca during the late season was valued at between two millions and a quarter, and two millions and a half sterling.

Forwarded for the Commissioner's information. Mr. Turnbull called on me when in Sydney some time back, and gave me considerable information *re* Riverina traffic.—W.V.R., 8/4/80.

No. 9.

Reports from Mr. Connebee to Mr. Traffic-Manager Read.

Sir,

Wagga Wagga, 13 August, 1880.

I now beg to report as follows:—

Pominalarna Station (Mr. G. Wilson).—I visited this on 5th instant. There will be 350 bales wool, which will be forwarded to Sydney, *via* South Wagga.

Berrigery (J. Leitch).—About 150 bales will be forwarded, same as last station.

Warrengoberry (Rudd).—Small clip will forward as above.

Finding that I could not proceed to Buckinbong, owing to creeks and lagoons being flooded, I returned to Wagga, and started for Narrandera, where I arrived on Saturday evening, 7th instant. On Monday, 9th, I visited the Narrandera punt, and with reference to this have to report:—

1. That the approaches on both sides to the punt are flooded when river is high, and that all traffic is stopped then.
2. That the difficulties of crossing from the south side to the north greatly impede wool and stock traffic, because the river is most liable to flood just at the wool season.
3. A steam punt would not meet the want here, as, without good approaches to the river on both sides, a punt is rendered useless.
4. There is not any good site for a punt within a distance of 2 miles.
5. To secure the traffic from the south side of the river, *i.e.*, Yanko South, Yamma, and other stations, at all times of the year, a bridge is necessary.

The

The scale of charges at this punt are as follows:—Sheep 40s. per 1,000, in small lots, and 30s. per 1,000 in large lots; horses, 6d. each; cattle, 4d. each.

Buckinbong Station.—I found that the manager was absent, and did not go there. The wool from this station will go to Melbourne, *via* Walignuyah.

North Yanko (H. and C. Douglas).—I visited on Monday evening, 9th. Mr. Douglas absent in Sydney. Mr. Flockhardt, manager, informed me that the wool would be sent to Melbourne, through Messrs. M'Culloch & Co. The rate to be paid will cost Messrs. Douglas quite 18s. per bale. Shearing commences on 26th instant. The clip will be 1,000 bales.

Tubbo (Executors of Mr. Peters).—This wool has been engaged for Melbourne, through Messrs. Permewan, Wright, & Co. Shearing commences 15th instant; clip about 800 bales; rate similar to North Yanko.

Gogeldree (Messrs. Hebden & Sons).—This clip was sent to Sydney last year, *via* Wagga. Mr. Hebden states that he had so much trouble with teams and Messrs. W. H. & Co. that he decided to send to Melbourne this year. Would have sent to Sydney had railway been completed to Narrandera in time. Shearing commences 13th instant; clip about 800 bales. Rate to Melbourne similar to Yanko and Tubbo.

Cuba (Messrs. M'Gaw & Co.).—Mr. M'Gaw was from home. This clip will go to Melbourne, through M'Culloch & Co.

I arrived at Darlington Point on Tuesday, 10th instant. The punt at this place requires great improvement. At present the punt used is quite inadequate for the traffic. At the most not more than 30 cwt. can be conveyed across. Teams have to unload. Not more than 100 sheep can be crossed at one time. A narrow pontoon bridge is being provided, but this will only help sheep traffic.

The cost of crossing is high, and much delay is caused.

The approaches to the punt are liable to flood, and there is not any place between Darlington Point and Waddae where a punt could work during flood, except a steam punt were provided. A good crossing could then be made between a point known as the Red Bluff, on the south side of the river, township of Waddae, and the point where Bennett's store is situated at Darlington Point.

If good provision is made here for crossing wool, goods, and stock, it will greatly help to induce the stations on the south side to send to Darlington Point railway station.

Bynya Station (Leonard.) This clip (500 bales) will be sent to Melbourne *via* Woligumyah. Messrs. Permewan & Co. have contracted at a through rate of £7 per ton, which cannot possibly pay them. Teams will want £5 10s. at least.

Benerembah, Kerarbury, and Groongall.—Wool from these stations will all go to Melbourne this season.

Bundigery.—This wool will come to Sydney;—a small clip.

Midgeon.—Will be loaded at Narrandera if railway open; otherwise sent to Wagga.

Grong Grong and Berembed.—To Sydney.

On Thursday I went along the line from Narrandera. The contractors are pushing work at the Narrandera end, and have now about 17 miles completed there. After making about 3 miles more, the supply of rails will have run out, and stop work there.

Kiandra (Mr. Stinson).—On my way to Junee I called, but found that Mr. Stinson had gone to Sydney. This wool will come to Sydney, and will be loaded at Cowabbie if line opened in time. Clip, about 300 bales. Shearing commences next month.

The line between Junee and Narrandera is completed from the Junee end up to 29-mile post. From what I can learn, there seems to be but little prospect of the whole line being completed under 8 weeks from now, which will be too late for many of the stations, as shearing will be in full swing about September or October, and several stations have not storage room for any great quantity of bales.

Hanging Rock (Mr. King), and Pullitop (E. & A. Westley).—I have just met Mr. King and Mr. A. Westley. Both speak of sending to Melbourne *via* Wodonga. They wish me to go to their stations next week, and will enter fully into matter of tariff.

Bullenbong (Davidson).—This clip came to Sydney last year, and was then forwarded to Melbourne. I understand it will be sent direct to Melbourne this season, but will see Mr. Davidson next week.

T. W. CONNEBEE,

13/8/80.

From all I can gather it would not be advisable to offer the contractors any considerable bonus for opening by the end of October; it will be too late in the season to secure this year's wool. Nearly all the squatters have decided as to where they will send their wool, and the opening of the railway at once would not cause them to alter their arrangements.—W.V.R., 16/8/80. The Commissioner.

The Traffic Manager,—

Sir,

Sydney, 16 August, 1880.

As I wish to receive your instructions with respect to my future route, I have come to Sydney this morning for that purpose.

While in the train last evening I met Mr. Wright, of Messrs. Wright, Heaton, & Co., who informed me that Marrar Station wool would be sent to Melbourne by teams from station to Wodonga, and thence by rail; also that several other stations were forwarding wool in like manner. Mr. Wright complains much of the delay occasioned last season in delivery by the Railway Department and delay in shipment by the wool brokers. He mentioned that in some instances weeks had elapsed in the delivery of several parcels of wool. He further stated that, owing to the lax management in Sydney that he had ceased to urge station owners to consign to Sydney (although he had previously fought hard for same), and now he endeavoured to secure the wool equally for Melbourne as for Sydney.

From my observation and from information gathered during my recent trip, I am of opinion that the wool brokers of Sydney do not urge their claims upon the wool trade of Riverina, and do not support the Railway Department in its endeavours to secure same.

I am also inclined to the belief that Messrs. Wright, Heaton, & Co. work as much for Melbourne market as this, especially as Mr. Wright informed me that Wm. M'Culloch & Co. were forwarding wool, &c., for which they had contracted at half commission.

The

The reduction of the rates for conveyance of wool from Riverina to Victoria is not so much the inducements held out by Victorian railways as the fact that the competition between forwarding agents, M'Culloch, Permewan, and others, is keen. Nearly all the station owners and managers admit that the rates by N. S. Wales railways are lower than sending to Victoria.

The facilities offered in Melbourne with regard to finance is also urged as an inducement to do business with Melbourne, and with respect to wool sales the prices obtained in Melbourne and for wool shipped from there to London have been much better than the Sydney market or wool shipped therefrom.

Lachlan District.—Every station of any importance in the vicinity of Hillston, Booligal, Mossiel, and thence south to Hay and Balranald has been secured to Victoria for the present season.

Darlington Point.—I enclose rough sketch showing the positions of the Red Bluff and Darlington Point referred to in my memo. of 13th instant.

Future Route.—With reference to this, I would respectfully suggest that I take about a week or eight days to visit the stations between Hanging Rock and Albury.

After doing so, I am of opinion that further travelling will be unnecessary for the present season.

T. W. CONNEBEE.

The Commissioner.—W. V. R., 16/8/80.

This has been approved. Mr. Connebee proceeds south again to-night.—W. V. R., 16/8/80.

The Traffic Manager, Sydney,—

Wagga Wagga, 25 August, 1880.

I now beg to report having visited the following stations, namely:—

Sandy Creek (F. Best).—Will shear 25,000 sheep in October. Had arranged to sell in the Melbourne market, but will now probably send to Sydney via Sandy Creek station, and if price not satisfactory ship to Melbourne.

Hanging Rock (John King).—This wool will go to Melbourne via Sydney. Will be sent to Hanging Rock station. Clip about 200 bales; shearing in October. The wool from Mr. King's station in the north will go to Murrumburrah.

Mangopla and Grubben (Cox Bros.).—The wool from these stations will all be shorn at Mangopla, and will be forwarded by Wright, Heaton, & Co. to Wodonga and thence to Melbourne at a through rate from station to Melbourne of £5 per ton. This had been arranged. If this wool were forwarded to Sydney it would cost, station to Sydney, £3 15s. per ton. The total clip of two stations will be 500 to 550 bales. Shearing in October.

Doodle Cooma (P. Keighran).—Clip 150 or 160 bales. Shearing in October. This wool has been engaged by Messrs. W. M'Culloch & Co. at a through rate, station to Melbourne, of £4 per ton. Mr. Keighran has never done any business with Sydney. He admits that wool and stock rates to Sydney are cheaper. This wool, if sent from Yerong to Sydney, would cost £2 17s. per ton.

Mundawaddera (Charles Edgehill).—This clip will be 250 bales or more. Shearing in October. Provided that provision is made at Yerong Creek station for the reception of the wool he will send it via that station to Sydney for shipment to London. The wool would be carted to railway by his own team. Kindly state whether it is the intention of Department to provide a platform for same.

Mittagong (R. Gillman).—This clip of (say) 250 bales will go to Melbourne this season via Wodonga at a cost of £5 5s. per ton through.

Teams have already been engaged to take the wool to Wodonga—price, £3 per ton. If this clip was sent via Hanging Rock to Sydney it would only cost £2 15s. per ton, and if then forwarded to Melbourne by steamer £2 additional.

Egan Creek (Wm. Love).—This clip will be scoured on station and sent to London. Mr. Love intended sending to Melbourne, but is now disposed to send to Sydney for shipment, provided platform is made at Yerong. Shearing commences in October. Clip about 150 bales.

Pullitop (E. & A. Westby).—Will shear 500 bales in October. Arrangements for this year have been concluded with Melbourne. It will cost £5 at least to land from station to Melbourne; whereas if sent to Wagga, and thence to Sydney, would cost only £4 per ton. Principally washed wool from this station. Messrs. Westby are quite satisfied that New South Wales railway rates are lower than Victoria, and will no doubt do their business with Sydney next season.

Several matters have been suggested to me by Messrs. Westby, King, and others, to bring under your notice, which I will do to-morrow as I have not time to do so by this post.

Since my arrival in Wagga, to-day, I met Mr. R. Cox (of Marrar). This wool will come to Sydney via Junee, if the line is not completed in time to take wool from Cowaby Station. Clip about 300 bales. Shearing commences 7th October.

Brookong.—120 bales of this wool was at Hanging Rock station yesterday afternoon, and other teams were close at hand. No provision had been made for taking delivery of same at Hanging Rock, but I have been informed that Wright, Heaton, & Co. have now sent men to attend to it.

Merchandise Rate Books.—Have you a supply of these, as I have promised to send copies to a number of stations. The squatters express a wish to be brought more in direct communication with the Department than hitherto, both with regard to wool and live stock traffic, instead of doing their business through agents. This and other items I will report further upon.

Finance.—From what I can judge, I am inclined to think that the Melbourne financial companies have been more liberal (or more speculative) with the graziers of Riverina than the Sydney companies, and there is but little doubt that the fact of the Melbourne market having been better up to the present time, and financial arrangements combined, now, cause so many station owners to do business with Melbourne, although their inclination is to do business with Sydney.

T. W. CONNEBEE, 25/8/80.

Wagga Wagga, 26 August, 1880.

To the Traffic Manager, Sydney,—

Referring to my report of yesterday's date, I now beg to submit for your attention the following suggestions, viz:—

Approaches to Culcairn.—It has been suggested to me to bring under your notice the desirability of advising the Public Works Department to improve the approaches to the Culcairn Railway Station, by making a bridge on the road from Germanton to the station, and also to make a siding on the road north side of the creek.

Trucking

Wool will be received at this siding.—W. V. R.

Obtain distance on line it is from Sydney, and estimated traffic.—W. V. R.

Arrangements will be made for receipt of wool at Yerong Creek siding.—W. V. R.

Supply Mr. Connebee with the number he requires.—W. V. R.

The Commissioner's attention is drawn to this.—W. V. R., 30/8/80.

Trucking of Stock.—Most of the station proprietors whom I have visited agree in the opinion that it is desirable for the Department to appoint a thoroughly competent man at each trucking station, to superintend the trucking of sheep and cattle. All would be willing to pay an increased rate to cover this extra cost, and it is also argued that the increased rate would more than pay for contingent losses, through death in stock while in transit. At present agents charge for trucking, and do not do it satisfactorily, because they employ men who do not thoroughly know their work, and the result is that the sheep and cattle do not arrive in the Sydney market in as good condition for sale as they would if more carefully trucked.

Agents.—A number of the station proprietors express a wish to do their business more directly with the Department instead of through agents, and I would respectfully suggest that this matter is worthy of consideration.

During my late travelling in the district between Wagga Wagga and Albury, and while I have endeavoured to rather assist the forwarding firm of Wright, Heaton, & Co. than otherwise, the fact is forced upon me that Messrs. Wright, Heaton, & Co. have not used their best efforts to bring trade to the New South Wales railways, and I have reason to believe that there exists a mutual understanding between the forwarding firms, Messrs. Wright, Heaton, & Co., of New South Wales, and Messrs. Wm. M'Culloch & Co., of Victoria, and that either firm shall not trespass beyond a certain fixed boundary upon the trade of the other firm.

Team Carriage.—The following are the rates of carriage being paid to teams for conveyance of wool from stations north of the Murrumbidgee to Hay, viz. :—

Per Wm. M'Culloch & Co.

	£	s.	d.	
Gunbar	2	7	6	per ton.
Merringle	3	0	0	"
Yandembah... ..	3	10	0	"
Lown's Lake	3	10	0	"
Trida	4	8	9	"
Hunthawong	3	10	0	"
Coombie	4	10	0	"
Coan Downs	5	10	0	"
Marooba	4	7	6	"
South Merrowie	3	0	0	"
Wholy	5	0	0	"

Per Permewan, Wright, & Co.

Mein Merrigal	4	10	0	per ton.
North Merrowie	3	7	6	"
Yathong	5	10	0	"
Wichelba	6	0	0	"
Cowl Cowl	3	0	0	"
Bedooba	6	0	0	"
Thrile	5	10	0	"
Wirlong	6	0	0	"
Willandra	3	17	6	"
South Thononga	2	5	0	"

T. W. CONNEBEE, 26/8/80.

Walsh & Co. represent to me that goods for Temora sent to Junee are charged North Wagga rate, less 20 per cent. for distance. I do not recollect that this was authorised. Is it done?—CH.A.G., B.C., 3/8/80. Mr. Read.

North Wagga rates are charged to Junee. All papers were returned to your office on 26th February last.—W. V. READ, 6/8/80. Commissioner. Must be discontinued directly the line to Narrandera is opened.—CH.A.G., 12/8/80. Manager.—D.V., 12/8/80. Mr. Harper to see and carry out.—W. V. READ, 12/8/80. Inspector Roberts to see.—J. HARPER, 13/8/80. Noted, and Junee and North Wagga informed accordingly.—G. T. ROBERTS, 14/8/80. Goods Superintendent. The Sydney staff and all others concerned have been advised.—J. HARPER, 16/8/80. Traffic Manager.

I presume we shall soon be carrying permanent-way material for the Narrandera and Hay extension, which, I suppose, will be charged at the ordinary Junee rates, otherwise we shall be charging one rate for it before we open to Narrandera and another (higher) rate afterwards. I presume we had better charge the actual mileage rate all through in that case, had we not?—W.V.R., 16/8/80. Commissioner.

It has since been decided that rate-sheet rates to Junee are to be enforced in all cases.—CH.A.G., 21/8/80. Mr. Read.

Charges to Junee.—The new system of charges for goods for Junee will not come into operation till to-day. All goods consigned before 4 o'clock to-day will be taken at old rates.—CH.A.G., 23/8/80. Traffic Manager. Mr. Harper to arrange accordingly.—W.V.R., 23/8/80. Adjust the charges by cash-book account sheets.—JOHN HARPER. Station-master, Junee. Noted.—CHAS. HORN, 26/8/80. Mr. Harper. I have informed all concerned.—G.T.E., 28/8/80. Traffic Manager. Commissioner.—W. V. READ, 30/8/80.

No. 10.

Minute by The Commissioner for Railways.

Extract from Newspaper dealing with the Victorian Policy of Differential Rates for New South Wales Traffic.

TRAFFIC Manager for report. It seems to me that we must follow the practice of Victoria and draw an imaginary line, beyond which only the discount will take effect. It is beyond measure objectionable to promote the interests of the traders at one place against the traders of another place. It is conceived to be contrary to public policy when private railway companies make differential rates with this object, and the law can be mocked to remedy the evil. How much more is it to be objected to when a state railway is so worked to have the effect pointed out in the paragraph? The result is incidental and not substantive; but immediate steps must be taken to prevent injustice.

CH.A.G., B.C., 17/8/80.

See my M.P. 80-15,289 of this date.—W.V.R., 23/12/80. Commissioner. On and after to-day actual Junee rates are to be charged on all goods traffic forwarded to that station instead of 20 per cent. off South Wagga rates as heretofore.—W. V. READ, 20/8/80. Mr. Harper. Station-master, Junee, to note.—J. HARPER, 21/8/80. Noted.—CLAS. HORN, 22/8/80. Mr. Harper. I have advised the staff at Sydney as also the staff at Junee.—J. HARPER, 23/8/80. Traffic Manager. Seen.—W. V. READ, 23/8/80. Commissioner.

No. 11.

J. & E. Barnes and others to The Secretary for Railways.

Sir,

Cootamundra, 19 August, 1880.

We, the undersigned, being in business in Cootamundra, respectfully request you to take into consideration the unfair difficulties under which we are at present labouring in consequence of the railway rates from Sydney to North Wagga Wagga, as compared to those from Sydney to Cootamundra. In the rate-sheet, published on the 1st January of this year, the following articles are altered:—Woolpacks, galvanized iron and wire, from one class to another, also a deduction of 20 per cent. from the class rates. We are in a position to state that some persons at Junee had their goods forwarded from Sydney to North Wagga Wagga and to Junee, saving some 7s. per ton thereby. Your Department, we suppose, to avoid the extra haulage, has since charged Junee, North Wagga Wagga rates. It did not matter much to Cootamundra till brought into competition for the Temora trade; but now that this competition exists, and that goods are sent out of their usual way to save railway carriage, we are placed at a great disadvantage, as you will see by the appended list of rates. We, therefore request that you will, in all fairness, give immediate orders either that persons at Junee pay the rates on the rate-sheet, or that we be allowed to pay North Wagga Wagga rates.

We have, &c.,

J. & E. BARNES.
MATTHEWS BROS.
EDWARD STRONGITHAM.
RICHARD JONES.
FRED. PINKSTONE.
T. C. BROWN.
JAMES SIMPSON.
A. N. TAYLOR & CO.

[Enclosure.]

TABLE of rates, showing the extra charges on goods from Sydney to Cootamundra, as compared to Sydney to North Wagga Wagga.

Specification.	Charge to Cootamundra.	Charge to North Wagga Wagga.	Extra charge, Cootamundra.
	Per ton. £ s. d.	Per ton. £ s. d.	Per ton. £ s. d.
Woolpacks.....	3 13 3	3 0 4	0 12 11
Galvanized iron, wire, and beer	4 11 1	3 6 10	1 14 3
Class No. 1	3 13 3	3 6 10	0 6 5
Class No. 2	4 11 1	4 3 1	0 8 0
Class No. 3	6 6 9	5 15 8	0 11 1
Class No. 4	8 3 4	7 9 1	0 14 3

Cootamundra, 19 August, 1880.

Junee rates, as per rate-sheet, are to be charged. No rebate to be allowed to goods consigned to Wagga and reconsigned to Junee. Give directions to station-masters at Wagga and Junee to keep a good look-out that this decision is not evaded. Inform storekeepers and consignees generally who trade with Temora, in order that they may not be taken by surprise.—CH.A.G., B.C., 20/8/80. Traffic Manager, Mr. Harper to note and inform all concerned.—W. V. READ, 21/8/80. Inspector Roberts for attention.—G.T.E., 24/8/80. Noted, and Junee and Wagga informed accordingly.—G. J. ROBERTS, 25/8/80. Goods Superintendent. It would be as well, I think, to advertise this in the Sydney papers.—J. HARPER, 28/8/80. Manager.

Memorandum

Memorandum to Station-master, Junee.

South Wagga Station, 25 August, 1880.

It has hitherto been the practice to consign Junee goods to North Wagga, and then reassign them back to Junee, as it has been found the cheaper way of transmitting goods from Sydney to the latter station; but, in consequence of complaints arising among the storekeepers at Cootamundra, the Commissioner has decided that the Junee rates must be charged in every instance, and no rebate allowed. You will therefore be on the *qui vive*, and any instances of reassignment of goods from North Wagga to Junee will be immediately reported to the Goods Superintendent.

G. J. ROBERTS.

Sir,

Railways, Junee, 7 September, 1880.

In accordance with attached instructions received from Inspector Roberts, I have to report for your information that Mr. George Dobbins, storekeeper at Junee, is now having his goods consigned from Sydney to North Wagga, then reassign from the latter station, in order to get the rebate allowed on goods carried the distance of 300 miles.

I am, &c.,

CHAS. HORN.

I see no necessity for advertising.—W. V. READ, 31/8/80. Commissioner.
Inform what has been done, and point out till the opening of the Temora Gold-fields the concession made to squatters, traders, and others in the Riverina country did not affect the trade of Cootamundra, and that so soon as it was found to be detrimental to the interests of the traders of Cootamundra, the rebate was discontinued.—CH. A. G., 2/9/80.

Gentlemen,

Department of Railways, Sydney, 4 September, 1880.

In acknowledging the receipt of the memorial signed by yourselves and others, resident in Cootamundra, representing the disadvantageous position business people are placed in as compared with other stations on the Southern line, in consequence of the unequal rate charges to Cootamundra and North Wagga, I have the honor to inform you that, with the view of allowing Junee no undue advantage over any other station on the line, directions have been given that Junee rates, as per Classification Sheet, are to be charged on all goods sent to that station, and that no rebate is to be allowed on any goods consigned to Wagga Wagga and reassign to Junee.

I may add, that until the opening up of the Gold-fields at Temora, the allowance made to squatters, traders, and others in the Riverina country, did not affect the trade of Cootamundra; but so soon as it was found that the concession was detrimental in its operation to the interests of the traders of Cootamundra, the rebate was discontinued.

I have, &c.,

CHAS. A. GOODCHAP,

Commissioner for Railways.

Messrs J. & E. Barnes, Matthews Bros., E. Strongitharm, Cootamundra.

For the Traffic Manager's information. Please advise.—G. T. EVANS, 10/9/80. If the goods were consigned to North Wagga in the first instance, who reassign them there to Junee? Is this practice carried on to any extent?—W. V. READ, 11/9/80. Goods Superintendent. Station-master, Wagga Wagga, for report.—G. T. EVANS, 13/9/80. Station-master, North Wagga, will please give the required information.—JOHN GRAY, 14/9/80.

Consignees instructed me by letter and wire to forward any goods that were at North Wagga for them to Junee. Mr. Dobbins is the person who principally takes advantage of the discount. We have had four reassignments, three of which have been for Mr. Dobbins, this month. Weight of reassign goods amounts to about 10 tons; value of freight, omitting extra trainage to Junee, £30.—S. W. ALLIBAND, 15/9/80. Goods Superintendent.

Traffic Manager.—G. T. EVANS, 16/9/80.

I should like to have a detailed statement of the goods reassign from North Wagga to Junee, showing the weight, rate, and trainage on the down journey, and also between the stations named. Against each entry I should like to know what the trainage would have been if the goods had been invoiced from Sydney to Junee direct.—W. V. READ, 16/9/80. Goods Superintendent. Urgent.

Mr. Alliband for attention. Let me have the statement on a separate paper.—G. T. EVANS, 17/9/80. I attach the return. We have lost about £6 in freight.—G. T. EVANS, 23/9/80. Traffic Manager.

When goods are first consigned to North Wagga, and then reassign to Junee, in order to benefit by the reduction of the rates which applies to North Wagga, the trainage between North Wagga and Junee should be charged at the difference between the North Wagga and Junee and Sydney rates. For instance, the rate from Sydney to Junee, third-class, is 138s. 7d. per ton, and to North Wagga 158s. 8d., leaving a difference of 22s. 11d. per ton; while the rate from North Wagga to Junee is only 10s. 2d. You will, therefore, issue instructions that all goods reassign in this way are to be charged at the higher rate.—W. V. R., 24/9/80. Goods Superintendent.

Inspector Roberts to see and inform all concerned.—G. T. EVANS, 23/9/80. Noted, and Junee and North Wagga informed.—G. J. ROBERTS, 30/9/80. Goods Superintendent.

Is the rate laid down in my minute of the 24th September still being adhered to, and are goods still being consigned to North Wagga, and from there to Junee to any extent?—W. V. READ, 3/11/80. Inspector Roberts for report.—G. T. EVANS, 4/11/80.

Mr. Dobbins is the only person who gets his goods consigned to North Wagga and then reassigns them to Junee. The rates laid down by the Traffic Manager in his minute of the 24th September is being adhered to. Mr. Dobbins calls at North Wagga, pays freight, and carts the goods outside of the yard and then returns with them and consigns to Junee. In these cases only ordinary rates can be charged.—G. J. ROBERTS, 10/11/80. Goods Superintendent.

Please see Inspector Roberts' report.—G. T. EVANS, 11/11/80. Traffic Manager. Does Mr. Dobbins get much goods consigned in this way?—W. V. R., 12/11/80. Inspector Roberts.

In October Dobbins received 4 tons 16 cwt. 1 qr.; Walsh, 6 tons 12 cwt. 2 qr.; and Meagher 5 tons 8 cwt.; and in November (up to 13th instant), Dobbins has received 3 tons 17 cwt.—G. J. ROBERTS, 20/11/80. Traffic Manager.

I think this is a matter upon which it would be well to have the Crown Solicitor's opinion. Mr. Dobbins takes delivery of his goods at North Wagga, takes them outside the station gates, and then brings them back and reconsigns them, and he therefore gets the advantage of the 20 per cent. discount for distances over 300 miles, and only the ordinary rates are charged from North Wagga to Junee. I am not certain whether by doing this a fresh consignment is constituted, because no doubt the goods he consigns to Junee are those he gets from Sydney, and the fact of his taking delivery at North Wagga is only that he may save a little money. I think that, notwithstanding his having taken delivery and then reconsigning the goods, we would be justified in charging the higher rate named in my minute of 24/9/80, were it not that Mr. Dobbins might add to the packages when he got them at North Wagga, in which case he might have an action against us if we refused to accept them as a new consignment.—W. V. READ, 22/11/80. Commissioner.

State a case for the Crown Solicitor.—CH.A.G., 25/11/80.

Minute by the Commissioner for Railways to the Crown Solicitor.

I HAVE to invite your attention to the matter hereunder, and to request that you will please furnish me with your opinion upon it.

As the Great Southern and South Western Railways are extended towards the Border, there is keen competition between the Railway Departments of the respective Colonies for the trade of the Border Districts. In order to secure the trade for this Colony, a reduction of 20 per cent. in the railway rates has been made on all goods of the 1st, 2nd, 3rd, and 4th classes, carried over 300 miles. Thus, for a ton of goods sent 290 and 301 miles the rates would be respectively:—

	290 miles.	301 miles.
	£ s. d.	£ s. d.
1st class	4 0 8	3 6 3
2nd „	5 0 4	4 2 6
3rd „	6 19 8	5 14 10
4th „	9 0 0	7 8 0

A person consigning goods to a station (say) 290 miles from Sydney would find it cheaper to send them the longer distance, and then have them reconsigned and pay the rate charged for the carriage of goods for 11 miles.

The station that is principally affected in this way is Junee, distant 287 miles from Sydney, the rates for goods being respectively:—

	£ s. d.	£ s. d.	
1st class	4 0 1	3rd class	6 18 7
2nd „	4 19 7	4th „	8 18 8

North Wagga Wagga is distant 304 miles from Sydney, and goods sent to this station, therefore, obtain the benefit of the discount of 20 per cent., the rates charged to North Wagga Wagga being as follows:—

	£ s. d.	£ s. d.	
1st class	3 6 10	3rd class	5 15 8
2nd „	4 3 1	4th „	7 9 1

From North Wagga Wagga to Junee is 17 miles, and the rates for the carriage of goods for this distance are respectively:—

	£ s. d.	£ s. d.	
1st class	0 6 8	3rd class	0 10 2
2nd „	0 7 10	4th „	0 13 6

Persons sending goods from Sydney to Junee find it cheaper to send them first to North Wagga Wagga and then have them reconsigned to Junee, the rates per ton, in comparison, showing as follows:—

	1st class.	2nd class.	3rd class.	4th class.
	£ s. d.	£ s. d.	£ s. d.	£ s. d.
From Sydney to Junee direct.....	4 0 1	4 19 7	6 18 7	8 18 8
From Sydney to Junee, via North Wagga	3 13 6	4 10 11	6 5 10	8 2 7
And saving.....	0 6 7	0 8 8	0 12 9	0 16 1

This course was adopted by some of our customers at Junee; but as it was found to act against the interests of the Department and injure storekeepers in their business at Cootamundra (in supplying goods to Temora), directions were given that on all goods reconsigned in this way, instead of charging the ordinary rate from North Wagga Wagga to Junee, the difference between by the direct rate from Sydney to Junee and that from Sydney to North Wagga Wagga was to be charged. This has been adopted, but some of our customers, to defeat the end we have in view, transact their business in the following manner:—The goods are received at North Wagga Wagga and paid for; they are then taken outside the station premises, brought back, and then sent to Junee as a fresh consignment. They are, however, practically the same goods; but we are doubtful, under the circumstances, whether we can enforce the direct and higher rate from Sydney to Junee, and I shall be glad if you will please advise me, in the matter.

CH.A.G.; B.C., 27/11/80.

Sir,

Crown Solicitor's Office, Sydney, 8 December, 1880.

I have the honor to return herewith your minute of date, 27th November last, respecting the carriage of goods between Sydney and North Wagga Wagga and North Wagga Wagga and Junee, and to state that I have submitted same to Mr. Attorney-General, a copy of whose advising thereon will be found attached.

have, &c.,

JOHN WILLIAMS,

Crown Solicitor.

[Enclosure.]

[Enclosure.]

OPINION.

I AM clearly of opinion that it is not in the power of the Commissioner for Railways to charge on goods forwarded from Sydney to Wagga and back to Junee, under the circumstances mentioned in Mr. Goodchap's minute, the higher rate chargeable on goods sent direct from Sydney to Junee.
8/12/80.

ROBERT WISDOM, A.G.

Traffic Manager will act accordingly.—CH. A. G., B. C., 9/12/80. Goods Superintendent.—W. V. READ, 10/12/80. Inspector Roberts to see Attorney-General's advice, and inform all concerned, for future guidance.—G. T. EVANS, 13/12/80. Noted. I have cancelled my previous instructions to Junee and North Wagga, and told them to resume charging the usual rates.—G. J. ROBERTS, 14/12/80. Goods Superintendent. Mr. Harper to see.—G. T. EVANS. Seen.—J. HARPER, 15/12/80.

No. 12.

Memo. from Mr. Traffic-Manager Read to The Commissioner for Railways.

Wool Rates.

As I personally informed the Commissioner, full replies to his minutes respecting the rates for wool were not sent for the reason that I was waiting for information as to what the competing rates from Hay to Melbourne by river, *via* Echuca, would be. Last year they were 75s. per ton, but this year I am afraid they will be less, and it was only on a request through the telephone that a rate for wool from Hay should be at once sent, that my minute of 16th April, 1882, was written.

The rate per bale from Hay to Sydney being fixed at 12s., I recommend the following rates from other stations on the South-western line:—

	Present rate.	Rate recommended.
Carrathool to Sydney	11s. per bale.	11s. 6d. per bale.
Darlington „	10s. 6d. „	11s. „
Hulong „	10s. 3d. „	10s. 9d. „
Narrandera „	10s. „	10s. 6d. „
Cowabbie „	9s. 6d. „	10s. „

I hardly think it probable that we shall be asked to carry wool for Melbourne, *via* Albury, from the South-western line, as the rates to Sydney and thence to Melbourne by sea will be considerably less than by Albury; but should the Commissioner decide on publishing a rate, I would recommend the following:—From Hay to Albury, 12s. per bale, and from the other stations, corresponding rates as to Sydney. The grounds for charging such rates would be the reconsigning of the wool at Junee, as at that place it would have to be detached from the train and forwarded in a different direction. Our ordinary rates for—

168 miles, Hay to Junee, would be	8s. 6d. per bale.
99 „ Junee to Albury	6s. 3d. „
	14s. 9d.;

but in this case we would not have to unload the wool at Junee. But I would not recommend the publishing of a rate for wool to Albury at all. We do not quote one from Wagga Wagga and other stations on the Southern line. If it is published, it will show a great disparity as compared with the rates for corresponding distances to Sydney. The public will not understand the grounds upon which the rates are based.

Although we carry at these reduced rates from Hay and other stations on the South-western line, on account of the competition there is for the wool traffic, I am not prepared to recommend a general reduction to make the rates uniform throughout the lines. It would be better to sacrifice the Hay traffic altogether than do that; but the latter procedure is not necessary, as, on the South-western traffic, we do obtain a profit, although much less than on the other lines.

W. V. R., 24/4/82.

Wool rate-sheet to be prepared as proposed for submission to His Excellency the Governor and Executive Council.—CH. A. G., 29/4/82.

I have to inform you that the Commissioner has approved of the wool rate from Capertee being fixed at 7s. 3d. per bale. Will you please issue the necessary instructions accordingly. It is not proposed to issue the amended wool sheet until the line to Hay is opened, because if it were issued now the rate from the stations on this side of Hay would all be increased, and it is presumed that you do not intend the increased rate from those stations to be charged until the line is opened for traffic to Hay.—G. B., B. C., 5/5/82. Traffic Manager.

Instruct Goods Superintendent to inform all concerned that the rate for wool from Capertee to Sydney will be 7s. 3d. per bale.—W. V. R., 8/5/82.

Chas. A. Goodchap, Esq., Commissioner for Railways, Sydney,—

Dear Sir,

Melbourne, 24 April, 1882.

In view of the approaching wool season, we have the honor to request you will inform us what the rates of carriage on wool between Hay, Carrathool, and Hulong, or any intermediate sidings between Hay and Hulong and Sydney, will be; also, what allowance will be made for dumped wool.

As we are now making our contracts, we will be glad to know what the rates will be at your earliest convenience, as we anticipate arranging for a large quantity of wool for Sydney.

We have, &c.,

WM. McCULLOCH & CO. (LTD.)

Gentlemen,

Gentlemen,

Department of Railways, Sydney, 1 May, 1882.

With reference to your letter of the 24th ultimo, asking the rates proposed to be charged for the carriage of wool between Hay and Hulong and intermediate places to Sydney, and the allowance on dumped wool, I have the honor to inform you that the following have been fixed as the charges to be made when the line is open to Hay.

From Hay ...	12s.	per bale.	From Hulong ...	10s. 9d.	per bale.
„ Carrathool	11s. 6d.	„	„ Narrandera ...	10s. 6d.	„
„ Darlington	11s.	„	„ Cowabbie ...	10s.	„

An allowance of 15 per cent. will be made on the above rates for all wool properly dumped and hooped with iron, and for all bales not exceeding 250 lb. in weight.

I have, &c.,

CH. A. GOODCHAP,
Commissioner for Railways.

Messrs. Wm. M'Culloch & Co., 123, Collins-street West, Melbourne.

The enclosed is a proof copy of the new wool rate to be issued on the opening of the extension of the railway to Hay. Will Traffic Manager please say whether it is correct, or whether there are any other stations which should be inserted? Please return early, as the papers are to be submitted at the next Executive Council meeting.—D.C.M'L., 2/5/82. Traffic Manager.

It is correct. I do not think it necessary to insert any more stations.—W.V.R., 3/5/82.

The Traffic Manager has omitted Capertee. This station will open this month, and a rate should be inserted. I have asked, by telephone, what rate the Traffic Manager proposes, and he names 7s. 3d. per bale. Does the Commissioner approve?—D.C.M'L., 4/5/82.

Yes.—CH.A.G., 5/5/82.

No. 13.

The Secretary, Victorian Railways, to The Commissioner for Railways, Sydney.

Sir,

Railway Department, Melbourne, 19 May, 1882.

Adverting to the very low rates charged for the conveyance of wool from Hay to Sydney, I have the honor to inquire whether you will be prepared to enter into some mutual arrangement with this Department respecting the Riverina traffic, with a view to prevent the charges for wool and merchandise being reduced to so low a pitch that they will pay neither Colony.

I have, &c.,

P. P. LABERTOUCHE.

Secretary.

Sir,

Department of Railways, Sydney, 30 May, 1882.

With reference to your letter of the 19th instant, respecting the rates charged for the conveyance of wool from Hay to Sydney, and asking whether I am prepared to enter into some mutual arrangement with your Department "respecting the Riverina traffic, with a view to prevent the charges for wool and merchandise being reduced to so low a pitch that they will pay neither Colony," I have the honor to inform you that you are wrong in the assumption that the rates fixed for the carriage of wool and merchandise between Hay and Sydney are unremunerative, as both rates return a good profit to the Department, and could, in fact, be further largely reduced without actual loss.

It is to be regretted that the tariff of your Department should be, with a view to secure the Riverina traffic, so fixed as to result in a loss in consequence of the charges being unremunerative; and this Department would be willing to entertain favourably any proposition which, while not disturbing the natural course of trade, would have the effect of increasing the rates of carriage in both Colonies. As, however, the rates of carriage in this Colony are not, as it seems they are in Victoria, below the earning-point as regards the Riverina traffic, an uniform rate of increase would clearly be unnecessary.

I may add that I regret to observe that, notwithstanding your admission that your rates of carriage for supplies required in New South Wales, and for the produce thereof, are unremunerative, your Department has, since the date of your letter under reply, further reduced the rate for the carriage of wool grown in this Colony.

I have, &c.,

The Secretary, Railway Department, Melbourne.

CH. A. GOODCHAP,

Commissioner for Railways.

Wool Rates from Hay.

I HAVE seen rates quoted for the carriage of wool from Hay to Melbourne which show clearly that privately, bonuses are being given by the Railway Department of Victoria to the railway carriers for bringing the wool to their metropolis.

The price quoted by M'Culloch & Co. in a private letter is £3 10s. per ton. Our rates, at 12s. per bale, will amount to £3 12s. a ton.

Twelve shillings was fixed in the first instance, so as to admit of our reducing the rate should the Railway Department of Victoria reduce their existing rate. It was considered better to have a margin than to go at once to the minimum charge. They have publicly made a reduction of 9d. per bale in their rate, and privately, by giving a bonus to the carriers, they are making a further reduction.

I would therefore recommend that our rate from Hay and Carrathool be reduced to 11s. per bale.

Enclosed is a letter from the Secretary of Railways of Victoria, with my reply thereto, on the subject of a mutual arrangement for a revision of the rates in both Colonies for the carriage of the Riverina traffic.

At the time the Railway Department of Victoria addressed their letter to me they had determined upon a further reduction in their rates, and so there is reason to doubt their sincerity in the matter.—CH.A.G., 31/5/82.

Approved.—

Approved.—J.L., 31/5/82.

Traffic Manager to see and to return at once. Wright, Heaton, & Co. have been informed of the reduction. Let other forwarding agents know, also Mr. Cottee and the other financial managers. The publication of the reduced rates may be postponed till the Railway Department of Victoria have had an opportunity of replying to my letter of 30th instant.—CH. A. G., 31/5/82.

Seen and attended to.—W.V.R., 5/6/82. Commissioner.

No. 14.

Report of Mr. Assistant Traffic-Manager Kirkcaldie to Mr. Traffic-Manager Read.

Merchandise Rates.

Traffic from Melbourne, via Wodonga.

WHILE in the southern district I have taken occasion to make some inquiries respecting the rates charged on the Victorian lines for traffic coming into New South Wales, and I find that for general goods coming from Melbourne to stations north of Gerogery, and including all the country north of an imaginary line drawn straight from Jingelle on the Murray; thence to the southern portion of the Urana Swamp; thence to the south-west boundary of Thurowa Station, to include in that line Cocketgedong, Colombo, and Thurowa Stations; thence in a northerly direction to the south-west boundary of Ugobit Block A, to include in that line Bundure, Yanko F east, and Ugobit Block A; thence in a westerly direction along the south boundary of the river back blocks to the intersection of the Murrumbidgee River at Balranald,—the rates to Wodonga have been reduced from 62s. 6d. per ton first class, and 65s. for second, third, and fourth classes, to 30s. per ton all round; and even upon Albury goods the same low rate is now charged for the following goods, carried in lots of not less than 5 tons, viz.:—Wire, woolpacks, salt, rocksalt, timber, sugar, cement, tea, kerosene, candles, oilmen's stores, spirits in cases or casks, bottled beer, bar iron, and tanks of malt. These greatly reduced rates, which came into operation on the 1st instant, have had the effect of driving the Wagga Wagga storekeepers and others to Melbourne for their supplies, particularly as, at the present time, the rate by team from Wodonga to Wagga Wagga for general goods is only 35s. per ton; and I even saw a letter, dated the 3rd instant, from Messrs. Wm. M'Culloch & Co., of Wodonga, to Messrs. Wright, Heaton, & Co., at Wagga Wagga, intimating they had had the offer of teams for 30s., and as low as 28s., per ton. This, I am informed, will continue until March next, during which time wool will be being conveyed to Wodonga by teams, and even after that time I am told the rate of carriage will not exceed 40s. per ton; and, if that be so, the maximum rate from Melbourne to Wagga Wagga will henceforth be, allowing 5s. for forwarding charges at Wodonga, equal to £3 15s. per ton. Last week five bullock teams left Wodonga for Wagga Wagga with 25 tons of general goods, viz., groceries, drapery, sugar, wines, spirits, ironmongery, &c., and two more teams were loading yesterday with 10 tons of sugar and groceries.

Our existing rates from Albury to Wagga Wagga are as follows:—40s. 1st, 49s. 3d. 2nd, 67s. 9d. 3rd and 4th class, and to each of these would require to be added at least 5s. for forwarding charges and cartage from Wodonga to Albury. These rates, it must be admitted, were fixed high for obvious reasons, and the result, until the present reduction on the Victorian lines, has fully justified the step that was taken; but some alteration will now be necessary to counteract the action taken by the Victorian Railway Department.

My opinion is that the rates between Albury and Wagga Wagga should be left as they are, and that whatever concession is made should take effect from the Sydney end, whence the maximum rate for any class of goods (except explosives) should be £3 10s. per ton to stations on the Southern and South-western lines distant over 305 miles from Sydney, and that a truck rate of £20 should be fixed for any or all kinds of 1st, 2nd, 3rd, and 4th class goods not exceeding 6 tons, and, if that be agreed to, the truck rate for sugar would of course have to be reduced from £24 to £20. Assuming that 5 tons can be put in a truck (and it is very rarely indeed that such a weight of 3rd or 4th class goods can be got into one—in fact, the average weight of trucks forwarded from Sydney to Wagga Wagga during September was 3 tons 16 cwt. 3 qr.), that would be equal to £4 per ton; and I am inclined to think we would get that rate; but as the rates from Melbourne are now so very low, I do not think we will get more. It would hardly be possible to estimate the loss to the revenue consequent upon such a reduction, because, notwithstanding the reduction of the rate per ton, we would secure full loading for the trucks. I am having a return prepared of the 1st, 2nd, 3rd, and 4th class goods received at Wagga Wagga from Sydney during the first nine months of this year, but it will not be finished for several days yet; and a statement is also in course of preparation of the traffic that has come from Victoria into New South Wales at Albury during the six months ended 30th September ultimo.

The only possible way that the Victorian reduction could be resented would be by placing several heavy tolls on this side of the Border; but I understand that the road between Albury and the Murray is within the municipality of Albury, and that after leaving that town, northwards, there are so many different roads which the teams could take, that such a plan would be impracticable, and, therefore, the only alternative is to lower our own rates.

When at Albury, I was informed that after the extension from Albury to Wodonga is opened early next year, the Victorian Railway Department will have a goods shed at Albury, and that they will receive and deliver all their New South Wales goods there. If that be so, it will be so much the more in favour of that Department.

I saw the first of the New South Wales wool (five teams) arrive at Wodonga from the Urana district, and I have ascertained that up to Saturday, the 7th instant, 426 bales of New South Wales wool have been taken to Wodonga by team and taken to Melbourne.

Traffic from Melbourne, via Echuca and River, to Hay.

THESE rates have also been reduced from 48s. to 30s. per ton for 1st, 2nd, 3rd, and 4th class goods; and when at Hay I was shown a letter from Messrs. Wm. M'Culloch & Co. to the principal storekeepers (Messrs. Meakes & Fay who informed me that during the past six weeks they had paid Messrs. M'Culloch and Co. nearly £1,200 in freight alone, and that, all things being equal, they would much prefer dealing in

I always thought it was a great mistake to allow Victoria to bring their gauge of line into Albury.—
CH. A. G.,
12/10/82.

in Sydney), quoting a through rate of 57s. 6d. per ton for general goods from Melbourne to Hay, and 52s. 6d. for such traffic as corrugated iron, wire, &c. The insurance charges have of course to be added to these rates, but they are now also very low—being 10s. per cent. for iron, wire, &c., 20s. per cent. for liquids, drapery, produce, &c., and 40s. per cent. for sugar, salt, cigars, &c. I make full allowance for all these charges when I recommend a maximum truck rate of £20.

See paper sent to Traffic Manager some days ago reducing silicate of soda to same rate as caustic soda.—CH. A. G., 10/11/82.

At Hay I was introduced to a Mr. Gordon, who has commenced the manufacture of soap in that district, and he called my attention to the high rate for silicate of soda as compared with soda crystals and soda caustic, and he informed me that of the former he uses about 30 tons per annum. I told him there were objections to the reduction of the rate for soda silicate, which he recognized; but he said he could not possibly pay 130s. per ton from Sydney when he can get it from Melbourne for about 60s. I have no doubt that the £20 truck rate would secure the traffic, and I merely mention the incident in support of my recommendation.

Complaints were also made to me at Hay about the rates for gunpowder and other explosives from Sydney, which are at present £22 14s. for quantities in excess of 10 cwt., and £35 1s. for smaller quantities. As the revenue will not be effected to any material extent, I think the maximum rates from Sydney might be fixed at £10 and £15 per ton respectively for any line.

In the course of a few days the Western line will be opened to Warren Road, and whether the maximum rate of £5 10s. per ton or £20 per truck should apply to that line is quite another matter. My opinion is that the reductions herein recommended should apply solely to the Southern and South-western lines, and only because of the special circumstances of the case. I hope that at no very distant date we shall be able to raise the rates again as far as the more distant stations on the South-western line are concerned, but that will only be possible after river dues have been imposed to such an extent as to raise the rates on the Victorian lines to the same amounts as are charged to those persons who live in that Colony (Echuca for instance) or to those who do not live within the favoured imaginary line.

The wool traffic from Hay up to Saturday the 7th instant amounted to 1,688 bales forwarded to Sydney, and 10,645 bales to Melbourne, and it is generally believed in the Riverina districts that next year we shall get a large number of the clips that this year are being forwarded to Melbourne.

I am strongly of opinion that if the reductions recommended are approved, they should be brought into operation at the earliest possible moment, because there can be little doubt, I think, that every day's loss of time since the reductions in Victoria will tend to alienate the trade from Sydney, particularly as far as Wagga Wagga is concerned. As regards the Hay trade, we have only been getting a very limited share of it yet; but I think the reduction proposed will tend more than anything else to induce the store-keepers to look to Sydney for their supplies.

The rates for live stock are, in my opinion, already low enough, and reductions are neither desirable nor necessary, even if it should be decided to abolish the stock tax in Victoria.

Our rates from Hay to Homebush are as follows:—

Cattle (say ten head), £10 5s. per truck	... ..	£1 0 6 per head.
Sheep (say one hundred head), £8 10s. 3d. per truck	... ..	0 1 9 "

While the rates to Melbourne are:—

Deniliquin to Melbourne—

Cattle (say ten head), £6 7s. 9d. per truck	... ..	0 12 5 per head.
Driving to Deniliquin and depreciation	... ..	0 5 0 "

0 17 5

Deniliquin to Echuca and Echuca to Melbourne—Sheep (say 100 head) £6 0s. 3d. per truck

... ..	0 1 2 per head	
Driving to Deniliquin and depreciation	0 0 7 "

0 1 9

The rates to Melbourne are of course exclusive of the Victorian stock tax, and the impression among the squatters is that our live stock rates are very reasonable.

DAVID KIRKCALDIE, 10/10/82.

Report to Commissioner that Mr. Kirkcaldie visited Hay, Wagga, and Albury, with a view of reporting on the effect of recent reductions in Victorian railway rates, &c., on our traffic, and that his report shows that to retain the Riverina, Wagga, and Albury traffic it will be necessary to fix the maximum rates for all goods, except explosives, on the Southern and South-western lines at £5 10s. per ton, and £20 per truck, for distances over 305 miles.—W. V. READ, 11/10/82. Commissioner.

I must recommend this for the present. The rates proposed will pay us, and we must sacrifice some of the profit we are making to retain the trade and get more of it. I shall be glad if the Secretary will obtain the Minister's approval, if possible, to-morrow, for I should like to advertise at once at Wagga and Hay what the new truck rates will be £20 instead of £24. They should come into operation at once, before the reduced rates of Victoria get too great a hold of the trade.—CH. A. G., 12/10/82.

Approved.—J. L., 13/10/82. Traffic Manager. Please submit draft advertisement early to-morrow.—J. P. I., 13/10/82. Draft advertisement enclosed. I am issuing general order to-day and will watch the effect.—W. V. READ, 14/10/82. Commissioner.

EXTRACT from newspaper on the subject of the Riverina traffic was submitted to the Commissioner, who wrote:—

"A good horse team—eight horses—will carry 6 tons (that is £12) between Wagga and Albury. There would be no return traffic, or (say) at the outside 2 tons—in all £16 for the double trip. The double journey would take ten days. If in constant work, thirty trips in the year could be made. The gross earnings being—thirty trips at £16 = £480, what would the expenses be? The teamster would have to be paid £110 a year; the wear and tear of plant and renewals would be £60 a year; the horse feed would be 10s. a week for each horse, or £4 a week, equal to, (say) £200 a year; leaving a margin of £110 a year to meet interest upon capital and profit. It does not seem good enough."

It

It may be, however, that the traffic or trade is going to Melbourne from Wagga. Of course it is expected that the Traffic Manager will watch the course of traffic, and give me timely notice. I should like to see Mr. Roberts, the local Inspector's report, on the representation made.

CH. A. G., B. C., 7/10/82.

Traffic Manager.

I beg to refer the Commissioner to my report of this date respecting the rates between Melbourne and Wodonga and Echuca.—W. V. READ, 11/10/82. Commissioner.

No. 15.

Report of Mr. Assistant Traffic-Manager Kirkcaldie to Mr. Traffic-Manager Read.

Passenger Fares to and from the Riverina District.

THE reduction of the passenger fares, which came into operation on the 4th instant, is being favourably commented upon in Riverina.

The new fares from Hay to Sydney are—1st class, 72/6; 2nd class, 48/9; 1st excursion, 96/9; 2nd excursion, 65/-; while Melbourne they are as follows:—

	1st class.	2nd class.	1st excursion.	2nd excursion.
Hay to Albury	49/3	33/-	65/9	44/-
Coach to Wodonga	1/6	1/6	3/-	3/-
Wodonga to Melbourne	31/-	20/6	46/6	31/-
	<u>81/9</u>	<u>55/-</u>	<u>115/3</u>	<u>78/-</u>
			A	A
Hay to Deniliquin by coach	30/-	30/-	50/-	50/-
Deniliquin to Echuca	12/-	9/-	24/-	18/-
Echuca to Melbourne	26/-	17/-	39/-	25/6
	<u>68/-</u>	<u>56/-</u>	<u>113/-</u>	<u>93/6</u>

A—Available for one month.

Excursion tickets on the Victorian lines are only issued on Fridays and Saturdays.

I do not think there is any necessity at present, at any rate, for issuing excursion tickets every day from Hay to Albury, as is done to Sydney, because, although I ascertained that the coaches are being tolerably well patronised from Hay to Deniliquin, it is principally by shearers returning to the Deniliquin and Echuca districts after finishing the shearing in the district of Hay. The journey is about 80 miles, and occupies about fourteen hours, including the whole of the night, so that it is difficult to conceive that first-class Melbourne passengers would undergo such fatigue for the difference of a few shillings going round by Albury; and it will be seen that the second class fares are about the same, and indeed excursion tickets are considerably cheaper by Albury. Of course persons going by way of Albury have to stay a night *en route* both going and returning, but even that is not much consequence compared with the discomfort of travelling by coach. For the present, therefore, I would not recommend any alteration of existing arrangements. I think, however, that excursion tickets to the South-western line should be issued at main line stations by the Thursday evenings' mail trains, and at the South-western stations by the Friday's day trains, seeing that there are no night trains on that line.

I requested the station-master at Hay to keep himself conversant, as far as he possibly can, with the course of the traffic, and to advise you regularly what is going on.

Parcels Rates.

These are greatly complained about at Hay, and have been the subject of considerable comment in the public Press there, and I strongly recommend an immediate and substantial reduction.

The present rates from Sydney are:—

3 lb.	3 lb. to 7 lb.	7 lb. to 14 lb.	14 lb. to 28 lb.	28 lb. to 56 lb.	56 lb. to 84 lb.	84 lb. to 112 lb.	Every 28 lb. or part thereof.
2s. 4d.	4s. 8d.	5s. 8d.	8s.	10s. 4d.	12s. 8d.	14s. 3d.	3s. 3d.

while the rates from Melbourne and coach from Deniliquin are, except for light parcels, considerably lower.

I recommend, therefore, that the maximum rates to and from Sydney be fixed at the 315 miles rates as follows:—

3 lb.	3 lb. to 7 lb.	7 lb. to 14 lb.	14 lb. to 28 lb.	28 lb. to 56 lb.	56 lb. to 84 lb.	84 lb. to 112 lb.	Every 28 lb. or part thereof.
1s. 6d.	3s.	4s.	5s. 6d.	7s.	8s. 6d.	10s. 1d.	2s. 5d.

W. V. Read, Esq., Traffic Manager.

DAVID KIRKCALDIE, 10/10/82.

Seen. Recommend for Commissioner's approval that the maximum rate for parcels be the rate for 315 miles.—W. V. R., 11/10/82. Commissioner.

I recommend this strongly. A parcels trade leads to a general goods trade, and as our passenger trains must run to Hay I do not see why we should not carry parcels, even at a lower rate if necessary; but the rates proposed will catch the traffic.—CH. A. G., 12/10/82.

Approved.—J. L., 13/10/82. I have included the reduction in the draft advertisement respecting the goods rates.—W. V. R., 14/10/82. Commissioner.

[Draft

[Draft Advertisement.]

REDUCTION OF MERCHANDISE AND PARCELS RATES.

Merchandise Rates.

On and after Monday, the 16th October, a truck rate of £20 will be charged for 1st, 2nd, 3rd, and 4th class goods conveyed from Sydney to stations on the Southern and South-western lines, for distances 305 miles therefrom, and load not to exceed 6 tons. Wire will, however, remain at £18 per truck as at present. For smaller consignments under the classes named the maximum rate to the stations indicated will be £5 10s. per ton.

For gunpowder and other explosives, the rate for quantities in excess of 10 cwt. will be £10 per ton, and for smaller quantities £15 per ton.

Parcels Rates.

The maximum rates for parcels between Sydney and any station on the South and South-western lines will be reduced as follows:—

3 lb.	3 lb.	7 lb.	14 lb.	28 lb.	56 lb.	84 lb.
	to	to	to	to	to	to
	7 lb.	14 lb.	28 lb.	56 lb.	84 lb.	112 lb.
1s. 6d.	3s.	4s.	5s. 6d.	7s.	8s. 6d.	10s. 1d.

and for every additional 28 lb. or part thereof, 2s. 5d.

For further particulars apply to the Traffic Manager or the Station-masters.

Commissioner for Railways.

Department of Public Works, Railway Branch, Sydney, 14th October, 1882.

No. 16.

Alleged diversion of New South Wales Traffic to Melbourne.

Newspaper article containing statement that New South Wales traffic was being served from Melbourne, submitted to Commissioner, who wrote:—

THE new railway rates will come into operation on the 4th October next. The Traffic Manager should keep himself informed of the course of traffic at Wagga.

I discredit the statement that recourse is being had to the Melbourne markets. As to carriage by road competing with the rates between Albury and Wagga, it is not possible I think.

CH.A.G., 28/9/82.

I regret to find that the paragraph is quite correct. The Victorian Railway Department reduced their rates on the 1st instant from Melbourne to Wodonga to 30s. per ton for 1st, 2nd, 3rd, and 4th class goods, whereas they were previously 62s. 6d. per ton first class, and 65s. for 2nd, 3rd, and 4th classes. See my report of yesterday, please.—W. V. READ, 12/10/82. Commissioner.

No. 17.

Mr. J. Caro to Sir Patrick Jennings.

Dear Sir,

Dubbo, 28 October, 1882.

Referring you to our conversation, *re* the railway charges, I take the liberty to send you enclosed a table showing the differences so much in favour of Warren.

If you will, as you kindly promised, interest yourself in this matter, and get the authorities, in justice to Dubbo business men, to equalise the charges, you will confer a great favour on them and be of great benefit to the town generally.

Regretting that I am compelled to trouble you.

I am, &c.,

JULIUS CARO.

Traffic Manager for report.—CH.A.G., 27/11/82. If these figures are correct, the discounts make the charge Sydney to Nevertire less than the charge Sydney to Dubbo in most cases.—CH.A.G.

[Enclosure.]

	Sydney to Dubbo.	Dubbo to Nevertire.	Total cost to Nevertire.	Sydney to Nevertire Direct.	Difference in favour of getting goods from Sydney to Nevertire.
	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.
Bran, pollard, grain, flour, potatoes, and all other goods in Class A.	1 0 9	0 6 6	1 7 3	1 3 11 Less 20% 0 4 9½	0 8 2
Class B (including salt).....	1 19 2	0 11 0	2 10 2	2 5 6 Less 20% 0 9 1	0 13 9
1st.....	3 18 3	1 2 0	5 0 3	4 10 10	0 9 5
2nd.....	4 17 4	1 7 0	6 4 4	5 13 1	0 11 3
3rd.....	6 15 6	1 17 0	8 12 6	Maximum 6 10 0	2 2 6
4th.....	8 14 7	2 8 0	11 2 7	7 10 0	3 12 7
	Per truck			Per truck	
Sugar.....	23 3 8	8 2 0	31 5 8	24 0 0	7 5 8
Wire.....	18 0 0	6 12 0	24 12 0	18 0 0	6 12 0
Galvanized iron.....	18 0 0	6 12 0	24 12 0	18 0 0	6 12 0

Minute by Mr. Traffic-Manager Read.

Mr. CARO is mistaken in deducting 20 per cent. from the A and B rates between Sydney and Nevertire, therefore the difference between the through and the two terminal rates are 3s. 4d. and 4s. 8d. per ton respectively, not 8s. 2d. and 13s. 9d. as stated by that gentleman. On the other hand he ought to have deducted 20 per cent. from the 1st and 2nd class rates between these stations, because the distance is 341 miles, and according to the rate-book such a discount is allowed on all 1st and 2nd class rates for distances over 340 miles. When such a discount was first made, it was, as the Commissioner is aware, to enable us to compete with the Victorian lines in the southern and South-western districts. When the present goods rate-book was being prepared the opening to Nevertire was not taken into consideration, otherwise the clause respecting the 20 per cent. discount, and the arbitrary rates of £6 10s. and £7 10s. for the 3rd and 4th classes would have been altered so as to apply to the Southern and South-western lines only, because there is really no necessity for our making it on the West. If the Commissioner approves, a new rate-book could be brought out on the 1st January, or perhaps as we have begun giving the discount any charge had better be deferred until we open to Nyngan two or three months hence, and then the alteration will have less chance of being noticed, because the traffic to Nevertire will then be almost nil. To revert to Mr. Caro's letter, I may state that the differences on the through rates between Sydney and Nevertire, and the rates to Dubbo and then to Nevertire, are 27s. 7d. 1st class, and 33s. 11d. 2nd class; they would have been 9s. 5d. and 11s. 3d. respectively but for the discount alluded to. Mr. Caro has correctly stated the truck rates for sugar, wire, and galvanized iron. For the former the rate per truck to Nevertire is 16s. 4d. more than to Dubbo, and for wire and galvanized iron the rates are the same to both stations. Mr. Caro is one of those gentlemen who think that two terminal rates should be the same (or only a trifle more) than the through rate. I would refer the Commissioner to the evidence he gave before the Rates Commission twelve months ago.—W.V.R., 5/12/82. Commissioner.

At the time the reduced rates were made to apply to the Western line over a certain distance, storekeepers and others were obtaining their goods in Melbourne and sending them to Narrandera and thence by teams to Cobar, it was deemed, owing to the road being better and the rates lower the more desirable route, I do not know whether the circumstances have altered. Traffic Manager should look into this.—C.R.A.G., 12/12/82.

No traffic is now being taken from Narrandera or Hay to Cobar now, the distance from Hay being 280 miles, and from Narrandera even more, while from Nevertire it is only about 86, and when the line is opened to Nyngan the distance to Cobar will only be 55 miles. The only thing we have to fear will be the competition by the Darling, but the distance from the river at Louth (the nearest point) to Cobar is about the same as from Nyngan, and the uncertainty of the navigation of the river will tell most materially in favour of the regularity and despatch by railway. For a considerable time we have been carrying 1st, 2nd, and 3rd class traffic from Sydney to the Western terminus for the Great Cobar Company at 2nd class rates, but when the line is opened to Nyngan there will be no necessity even for that. As the extension will, I presume, be opened within the next few weeks, I shall be obliged if the Commissioner will be good enough to give the matter his early consideration.—D.K., 23/1/83. Commissioner.

No. 18.

Elwin & Co. and C. J. Graham to The Commissioner for Railways.

Memorandum of rates charged for the carriage of ale on the Southern and Western Railways and remarks thereon.

Orange, 22 December, 1882.

COUNTRY brewers suffer seriously from the great advantages given to competitors in Sydney by the excessive reduction in rates for long distances.

Reductions in which they do not share, whilst they have to pay the high rates attaching to shorter distances on the merchandise they get from Sydney and use in their business.

Taking the case of Orange, where we carry on our business, and Nevertire, the present terminus of the railway, as an instance, the injustice of which we complain becomes very apparent.

We in Orange pay the comparatively high rates attaching to a distance of 192 miles on hops, malt, sugar, casks, and other material, averaging between us about £200 per month. If we sell ale to any customer at or beyond Nevertire station, the charge for carriage from Orange (149 miles) is £4 4s. 4d. per ton. At the same time the brewer in Sydney can sell his ale to a customer in the same locality, and though he has paid no carriage on the material used and never does pay any trainage for any purpose whatever; in fact is not a contributor to the railway revenue, the Department carries his produce to Nevertire, a distance of 341 miles, for £4 4s. 10d. per ton.

Thus the charges are as follows:—

Sydney to Nevertire, 341 miles	£4 4 10
Orange to Nevertire, 149 miles	4 4 4

So that we are very large contributors to the railway revenues, and should contribute much more largely; but for these anomalous rates, find ourselves shut out by men who, through no merit of their own, but simply because they reside in Sydney, carry on business there, and contribute nothing to the railway revenue, have their manufacture carried by the Railway Department, a distance of 341 miles, for the same sum (less 6d.) that is charged for carrying and manufacture 149 miles. In other words, the Department carries the Sydney man's manufacture a distance of 192 miles for nothing. If our material was brought here for nothing we should have less ground of complaint, but the Department charges us high rates. The general allowance for long distances is also very excessive and unfair. We could not complain of a reasonable allowance of a small percentage for every 100 miles, representing labour of unloading and loading, &c., but the reduction made is not reasonable.

	£	s.	d.
Thus, if we send our ale from—			
Orange to Dubbo (86 miles) we pay	2	10	5
Sydney to Orange (192 miles) is charged	5	4	5
		—	
Sydney to Dubbo, in the two journeys	7	14	10
Actual charge is, for 278 miles	6	15	6
Again—Sydney to Dubbo	6	15	6
" Orange	5	4	5
		—	
Orange to Dubbo, paid by Sydney	1	11	1
Orange to Dubbo, paid by us	2	10	5
		—	
Balance in favour of Sydney... ..	0	19	4

So that our goods, travelling over a certain piece of line 82 miles long, are charged 19s. 4d. more than are the Sydney goods, travelling over the same piece of line, after their journey to Orange.

It must be borne in mind that, besides being ourselves large contributors to the Railway Department in the shape of carriage on material, we have frequently to visit Sydney on business, and so contribute to the passenger revenue. We also employ a number of men, whose tea, sugar, wearing apparel, and all other imported necessaries have to come up by rail. We therefore contribute largely in an indirect way to the railway revenue. The larger our establishment the more men we employ, and the greater the revenue; yet in spite of this the whole system of railway rates is made favourable to the non-contributing Sydney manufacturer, and not only unfavourable, but in many cases prohibitive to us.

We feel our grievance is a real one, and that we have a fair claim to redress.

W. H. ELWIN & CO.,
C. J. GRAHAM,
Brewers, Orange.

These figures must, I think, be wrong. A ton of beer, Sydney to Nevertire, would be charged, would it not, £6 10s., not £4 4s. 10d., as stated, unless there be (which I am not certain of) an arrangement by which a truck to hold 6 tons is given for the payment of a sum equal to 4 tons.—CH.A.G., B.C., 16/1/83. Traffic Manager.

The figures given by Messrs. Elwin & Co. and Mr. Graham are correct with the exception that the present rate from Sydney to Nevertire for ale is £4 10s. 5d., not £4 4s. 10d., as stated, and the reason of its being so low is that when the present rate-book was published the opening to Nevertire was not taken into consideration, otherwise I would have recommended that the 20 per cent. discount allowed upon 1st and 2nd class traffic for distances over 340 miles on the Southern line should not be allowed on the West, because there is not the same necessity for it. Nevertire is just 341 miles from Sydney, is entitled under the present rate-book to the discount alluded to, but I recommended that advantage might be taken on the opening of the line to Nyngan to abolish the discount on the Western line. It so happens, too, that while ale is charged 3rd class rate for distances not exceeding 340 miles, greater distances are charged 2nd class rates, so that with a further allowance of 20 per cent. the difference in the rates for long and short distances is very great. When the next rate-book is published (and I think this should be done on the opening of the line to Nyngan), I would recommend that the 20 per cent. discount on 1st and 2nd class traffic be abolished, and that as the truck rate to stations distant over 305 miles from Sydney on the Southern and South-western lines does away with any necessity for transferring goods from the 3rd to the 2nd class, the present practice of charging the lower class for distances over 340 miles is no longer necessary and may fairly be discontinued. If that be done the rates for ale would be as follows:—

	s.	d.
Sydney to Orange	104	5
Orange to Nevertire	84	4
	—	
	188	9
Sydney to Nevertire direct	157	6
	—	
Difference	31	3

The difference, doubtless, seems a large one, but it can only be altered by modifying the discounts allowed for long distances. Messrs. Elwin & Co. and Mr. Graham should not forget, however, the rate for malt in bags from Sydney to Orange is only 60s. 7d. per ton; sugar, 75s. 2d. per ton in small quantities, or in truck loads, 59s. 7d. per ton, and new casks, 30s. 3d. per ton, so that although they pay a proportionately higher rate for the ale in consequence of the shorter distance carried they get the raw material carried much more cheaply.—D.K., 23/1/83. Commissioner.

I forgot that for distances over 340 miles 3rd-class goods were carried at 2nd-class rates. This must be, with discount added, remedied at once,—at all events as regards articles like beer, which can be made locally, and is made at many places along the line. The chief reason that the discount rate was made to apply to long distances on the Western line was the practice that was growing up, for consignees living at Cobar obtaining their goods from Melbourne, and sending them *via* Narrandera to Cobar. This made Melbourne and not Sydney the cheaper source of supply, and to remedy the effect of this the policy of giving exceptionally high discounts for distance was adopted. However, the extension of the Western line from Dubbo has again made Sydney, owing to the reduced rate of road carriage as between Nevertire and Cobar and Narrandera and Cobar, the cheaper source of supply, and advantage should be taken of this to abolish the high rate of discounts for long distances.—CH.A.G., 24/1/83.

Messrs. Elwin & Co. and Mr. Graham complain that in consequence of high rates of discounts for railway freight carried long distances, the manufacturer of beer in Sydney is placed in a superior position to the brewers of Orange. See papers herewith. Traffic Manager will lose no time in modifying rate-sheet in the way suggested in accompanying minutes.—CH.A.G., 26/1/83.

Gentlemen,—

Gentlemen, Department of Public Works, Railway Branch, Sydney, 30 January, 1883.

In reply to your letter of the 22nd ultimo, with reference to a disadvantage under which brewers on the Western line labour in consequence of the reduction in rates allowed to Sydney brewers for long distances, I have the honor to inform you that the large discounts referred to by you were allowed in order to divert the traffic of the far western districts from Melbourne and Adelaide to Sydney. It is admitted that, with regard to goods which can be manufactured, like beer for instance, at intermediate places between Sydney and Nevertire, these large discounts place the country brewers at some disadvantage, and immediate steps will be taken to modify the rates of discount to meet such cases.

I have, &c.,

Messrs. W. H. Elwin & Co., brewers, Orange.

CHAS. A. GOODCHAP,
Commissioner for Railways.

Minute by Mr. Wm. Clarke, M.P.

This paper has reference to the other paper I left with you signed by W. H. Elwin and C. J. Graham, about which you expressed an opinion that the rates had not been correctly stated. Please inquire.—WILLIAM CLARKE, 29/1/83.

Memorandum, *re* calculation of railway rates charged for the carriage of ale from Sydney to Nevertire, and from Orange to Nevertire.

Sydney to Nevertire	... ..	341 miles.
Orange to Nevertire	... ..	149 miles.

Taking the pamphlet of rates dated 4th October, 1882, which I believe is the latest, refer to page 8, and under the head of "ale in bulk" we find for distance "under 340 miles, class 3," "over 340 miles, class 2." Now refer to pages 13 and 15, and we find on page 13 that the charge for ale in bulk, 149 miles, Orange to Nevertire, is £4 4s. 4d., being rate charged for class 3. On page 15 we find the charge for ale in bulk, 341 miles, Sydney to Nevertire, is £5 13s. 1d.

Thus up to this point we have as follows:—

	£	s.	d.
Sydney to Nevertire, 341 miles	5 13 1
Orange to Nevertire, 149 miles	4 4 4

Turn now to page 21, and as a foot-note to the general table of rates we find as follows:—

"N.B.—A reduction of 20 per cent. on the above rates will be allowed on 1st and 2nd class traffic carried between Sydney and stations distant over 340 miles."

We must, therefore, discover what is 20 per cent. on £5 13s. 1d.; this proves to be £1 2s. 7d., leaving £4 10s. 6d. as my calculation, though £4 4s. 10d. was given as the rate at the station.

NOTE.—On examining the figures it appears evident that the clerk who made the calculation at the station allowed 25 per cent. instead of 20, and hence the mistake. The rates therefore are:—

	£	s.	d.
Sydney to Nevertire, 341 miles	4 10 6
Orange to Nevertire, 149 miles	4 4 4
Subtracting	0 6 2

We get 6s. 2d. as the price paid by a Sydney brewer for the carriage of his ale over 149 miles of railway, whilst the Orange brewer pays for the same service £4 4s. 4d., after having already paid heavily for the carriage of the material with which the ale is made.

Orange, 22nd January, 1883.

C. J. GRAHAM.

The Honorable the Minister for Works,—

Sir,

Newcastle, 29 January, 1883.

I have the honor to draw your attention to the following injustice in the railway rates, to which I am sure it is only necessary to call your attention to have them altered, viz., the rates charged on Colonial ale in comparison with Colonial wine.

From Newcastle to Uralla, a distance of 245 miles, Colonial wine is charged under table B, £1 15s. 10d. per ton, whilst Colonial ale is charged for the same distance, under table 3, £6 3s. 11d. per ton. Now Colonial wine pays almost nothing to the revenue; the grower, manufacturer, or seller pay nothing until it comes to the retailer, who pays a wine license of £2 per annum. Whilst with Colonial ale the brewer pays a license of £30 per annum in Sydney, £20 in the country, and the material beer is made from—hops, malt, and sugar—pays a duty to the revenue, and the retailer pays a duty of £30 per annum. Is this just?

It may be argued that to reduce the rate would be detrimental to the interest of up-country brewers; but that would be protection. The material they make their beer from, viz., hops, malt, and sugar, does not come to more than one-third (I am advised) of the weight of beer, that is, the material is only one-third of the weight of the manufactured article; so in sending beer up the country, it is necessary to pay freight on two-thirds water.

The railway would be no loser by the reductions prayed for, as the increased quantity would more than compensate for the difference.

It is argued, I know, that if the rate on Colonial ale was reduced, it would be necessary to do so on the imported article, but this would apply equally to wine.

Praying your favourable consideration of the above,

I have, &c.,

SAMUEL BELL

(Representing Wood Bros. & Co., and Prendergast, Wood, & Co., Newcastle.)

What is being done *re* the rebate made to brewers for carrying beer long distances? See Mr. Dalton's remarks in House on debating Financial Statement. In fixing the rates for long distances, so as to compete with Victoria for the traffic, attention should have been given to the fact that too high rebates would affect country brewers. The question, however, was gone into before Mr. Dalton alluded to it, and I made arrangements for rectifying the oversight. Let me have papers.—CH. A. G., B. C., 19/2/83.

Minute

Minute by Mr. Traffic-Manager Read.

Alteration of Goods Rates.

As stated in my minute of the 23rd ultimo, when the railway is open to Nyngan, we shall be even in a better position as regards retaining the Bourke, Cobar, &c., trade than we are at present, because, as far as Cobar is concerned, it will be about equi-distant between the railway and the Darling, and as the latter is navigable up as far as Louth only a few months in as many years, as a rule there is no reason, in my opinion, to make a special bid for the traffic of the district.

When the river is not navigable, there are no other means of getting goods to Cobar and Bourke than by rail (as has been the case for some time), and when it is navigable, even the reduced rates which apply on the South and South-west will not secure the traffic.

I recommend, therefore, that the reduction of 20 per cent. on the 1st and 2nd class rates between Sydney and stations distant over 340 miles, and the 3rd and 4th class maximum rates of £6 10s. and £7 10s. per ton, respectively, be confined to the Southern and South-western lines, and that the rates as they appear in the rate-book be charged to stations on the Western and Northern lines.

This will not get rid of the difference between one and two or more terminal rates, nor is it possible to do so without reducing the rates for the shorter distances (which would mean throwing away a large amount of revenue) or increasing them for long distances, which I do not think it is desirable to do, as they are quite high enough already. These differences are caused by the large discounts given upon long distances, and there is no other method of reducing them, except by altering these discounts and making them lower than they are (which, as I have said, would increase the rates for long distances) or lowering the rate per ton for the shorter distances.

The truck rates for corrugated iron and fencing-wire should also be confined to the Southern and South-western lines, and the ordinary tonnage rates charged on the West and North; and the maximum rate of £24 per truck for sugar should also apply to the South and South-western only.

Galvanized screws and washers and nails are carried at second class rates up to 380 miles, and first class rates for greater distances; the latter should only apply to the South and South-western, and so also should the rate for ale and porter in-bulk for distances over 340 miles.

The special rate of £20 per truck for 1st, 2nd, 3rd, and 4th class goods from Sydney to stations on the Southern and South-western lines, distant over 305 miles from Sydney, should be published. Truck rates for hay, straw, and chaff. There is a foot-note to these rates that "the charge for distances not shown will be one-fifth of the difference in rate between every 5 miles." The distances shown are 16, 26, 35, 41, 46, 54, &c., so that the remark referred to does not apply, and some doubt has been expressed as to how 18 miles, for instance, should be charged for. I propose that the first distance be made 15 miles, then 26, and so on, and the apparent anomaly will thus be got rid of.

Cattle and sheep, page 37.—The minimum rate of 15s. has been, by some overlook, left out of the present book; it should be reinstated in the next, and so also should the remark be added to the sheep rates "for single-decked trucks only two-thirds of these rates will be charged."

Powder or other explosives, page 36.—A regulation should be inserted to the effect that "Powder or other explosives will not be left at any place where there is not an officer in charge unless there is someone present to take delivery, but will be taken on to the next station and left there."

W.V.R., 21/2/83.

Prepare rate-sheet on this basis for approval.—Ch.A.G., 2/3/83. Traffic Manager, B.C. The Commissioner requested, per telephone, that these papers should be returned. Please return as early as possible.—W.V.R., 22/5/83.

Sir,

Department of Railways, Sydney, 1st March, 1883.

Referring to your letter of the 29th January last, respecting the alleged anomaly in the rates charged for the carriage of Colonial ale and Colonial wine, I have the honor to inform you that several considerations determined the Government in making the difference between the rates charged for the articles mentioned. Colonial wine is generally carried in bottle, while Colonial beer is invariably carried in bulk. The weight of the bottles is equal to 70 or 80 gallons to the ton which beer gains, and the wine loses. Then again, Colonial wine is not sent to districts where it will compete with wine locally grown; not so with Colonial beer. Country brewers have a good deal to contend with in competing with the beer made in Newcastle and Sydney. Some of the brewers located a few miles only from the places named have been, even with the present freight charges, obliged to close, and if Colonial beer were carried as cheaply as Colonial wine, country breweries, with immaterial exception, would all have to close, unless indeed the charges for the carriage of sugar, glucose, and malt were also greatly reduced. Those considerations, while showing that the charge for Colonial ale should be maintained, it is admitted, do not wholly account for the great difference that is made in the rates for the two articles. Judged from a railway economic standard the rate charged for the carriage of Colonial wine is too low; the concession was made, however, by the Government principally on social grounds, to give encouragement to the consumption of Colonial wine in preference to the deleterious alcoholics, which it was represented the non-wine growing districts of the Colony were being supplied with.

I have, &c.,

CHAS. A. GOODCHAP,

Commissioner for Railways.

Samuel Bell, Esq., Newcastle.

[This letter was not sent. Mr. Bell called on Commissioner, and on the next page the purport of what transpired is stated by Commissioner.]

I have seen Mr. Bell, and argued the matter out with him. He does not seem able to take up readily new impressions. After admitting one by one the principles I laid down, the result of which went to prove that the charge for beer trainage could not be reduced to the metropolitan brewers without doing injustice to the local brewer, he was unable to grasp the conclusion his admissions confined him to, and he came back with illogical but renewed vigour to his first demand that there should be a reduction.

His

Exclude ale and
porter from the
concession
altogether on
any line.—
Ch.A.G.

His trump card argument seemed to him to be unanswerable, viz., large quantities of water were used for beer, and consequently, in our charges for carrying beer, we were charging a high rate for the carriage of the water it contained. He could not understand the obvious reply that the vendor did not charge for the beer as he would if it were water, and that it must be carried at the value the brewer set upon it. If it were lost or destroyed by the Department, the basis of the claim for compensation would be on the value of the beer, not on the value of its component parts. I think the paper may be put by.—
CH.A.G., 6/3/83.

The Hon. the Minister for Works,—
Sir,

15 March, 1883.

I have the honor to remind you of a petition I forwarded you, praying for the reduction of the railway rates on Colonial ale, it being charged under table or class 3, whilst Colonial wine is under table B.

The manufacture of Colonial ale is a large industry, and the materials, malt, hops, and sugar, from which it is made, pay a duty to the revenue. The brewer in Sydney pays £30, the country brewer, £20, per annum, and the retail seller, £30 per annum, against Colonial wine, which pays nothing to the revenue, except the retail seller, who pays £2 per annum. The distance from Newcastle to Uralla is 245 miles. For this distance Colonial ale pays £6 3s. 11d., whilst Colonial wine only pays £1 15s. 10d. per ton, and not even 4 hhd. carried to the ton.

The materials from which beer is manufactured, hops, malt, and sugar, are only one-third of the weight of the manufactured article. The persons in the country who get it, having thus to pay on two-thirds rates, whilst the up-country brewers get more than one-third advance in price.

I may instance Armidale, from which place I write, where the brewers get £5 per hhd. against our £3 12s., which is more than one-third advance, and they have only to pay on material.

English ale can afford to pay this rate, as it commands double the price.

But it is subjected to a duty which Colonial beer is free from. I think it would be unreasonable to carry Colonial beer at a cheaper rate than English beer.—CH.A.G.

I had the honor of seeing Mr. Goodchap on the subject. He, very courteously, showed me the Commissioner's report on this subject, but it appears to me that he was the only person examined on the matter, and as he appears to be prejudiced against a reduction of these rates, from the fact of his stating to me, "He would not allow one penny to be taken off if he could help it," can hardly be taken for an impartial witness.

This is not the case. Several gave evidence on the subject.—CH.A.G.

From the fact of this high rate goods are sent to Glen Innes and Vegetable Creek* by way of Grafton which ought to come this way, thereby driving freight from the Government railway, carriage being cheaper that way, bad as the roads are.

Why not? If I am satisfied that the charge is not too high, and that to lower it would be to prefer the metropolitan to the country brewer, a strong expression of my intention to resist a reduction does not show that I am partial.—CH.A.G.

The railway would be no loser by this reduction, as the amount carried would be so much increased as to make up for any deficiency.

The relative value of the two articles being—Colonial ale, 1s. 4d. per gallon; Colonial wine, at a low average, from 6s. to 7s. per gallon.

Praying for a redress of this grievance.

I have, &c.,

SAMUEL BELL

(Representing Wood Brothers & Co. and Pendergast, Wood, & Co., Newcastle).

* Beer is not sent this way.

A letter was prepared to be sent to Mr. Bell on the 1st March, but he called to see me before it was sent, and I have, on the back of that letter, stated what transpired at the interview. That letter, the endorsement thereon, and my comments on Mr. Bell's present letter will show how the matter stands.—
CH.A.G., 24/3/83. Under Secretary, Public Works.

Mr. Bell admitted to me that his object in seeking a reduction in the rate was to supply the navvies engaged on the railway, who were now being supplied by the local brewers of Tamworth and Armidale at a cheaper rate than he could supply them, but I fail to see that the rate-sheet should be so framed as to admit of the metropolitan brewers competing successfully with local brewers. If, as Mr. Bell states, beer contains so much water (the valueless, or nearly valueless nature of which should induce, he says, cheap carriage), it seems to me that this very quality of cheap material should enable him to lower his price for the beer he sells.—CH.A.G., 24/3/83.

I consider this quite untenable. It would be introducing a most novel phase of protection, that goods made in the Colony should be carried at lower rates than goods introduced into the country of same character.—A.S., 26/5/83.

Railways.—J.R., B.C., 5/6/83. Inform.

Telegram from Mr. H. A. Elworthy to The Commissioner for Railways.

Orange Station, 21 May, 1883.

A DEPUTATION of country brewers desire to wait on you on Wednesday morning, 12 o'clock, re your letter, 31st January.

H. A. ELWORTHY.

I asked Mr. Berner to get me all the information to reply to deputation. There was a return showing quantity of beer sent by Sydney brewers. What is being charged now? Where is rate-sheet? It is of little use returning me the papers in this shape.—CH.A.G., 22/5/83.

I saw the deputation and promised that the alteration should be made on the opening to Nyngan. Malt in tanks to be lowered. They say the difference between malt in bags and malt in tanks is too great.—CH.A.G., 23/5/83.

Altered in new rate-book.—W.V.R., 26/5/83. Commissioner.

No. 19.

Dalton Bros. to The Commissioner for Railways.

Sir, Sydney, 6 June, 1883.
 Will you be good enough to inform us if the same regulations for truck loads obtain, on the Western, as on the Southern line of Railway.
 The rate per truck for special trucks from Redfern to Nyngan (for mixed goods) ?
 The distance from Redfern to Nyngan ?
 Your early reply will oblige.

Yours, &c.,
 DALTON BROS.

The truck rates for general goods do not apply to the Western line. Actual mileage rates are charged on actual weight.—W.V.R., 18/6/83. Commissioner.

Gentlemen, Department of Public Works, Railway Branch, Sydney, 7 July, 1883.
 With reference to your letter of the 6th ultimo, respecting the regulations and rates for the conveyance of goods at truck rates on the Great Western line, I have the honor to inform you that truck rates for general goods do not apply to this line, actual mileage rates being charged on actual weight.
 The distance from Sydney to Nyngan is 377 miles.

Messrs. Dalton Bros., Pitt-street, Sydney.

I have, &c.,
 D. VERNON,
 Secretary of Railways.

No. 20.

Minutes relating to issue of new goods rates pamphlet.

I HAVE to enclose herein the Executive minute, approving of the amended goods pamphlet, together with the latest proof of the same; and shall be glad if you will have the final amendments made, in order that the copies can be printed and the amended rates brought into operation.

G.B., B.C., 10/7/83.

I enclose a proof which I only got from the Government Printer yesterday afternoon. I have inserted the Camden Tramway rates on page 40, but as there are no C and D classes in the railway classification now, they should be altered in accordance with my minute, which also embodied live stock rates. I should greatly like to see the Camden rates in the new book, but if there is not time to decide upon them, they had better be expunged for the present. I have, however, shown the rates as I think they should be, and shall be glad if the Commissioner will approve of their being inserted.—W. V. READ, 20/7/83. Commissioner.

I have not time to revise the rate-book, but the Secretary should see that it is correct in accordance with decisions. Please look at Mis. rates for Camden Tramway, page 40, *re* 5 tons, with the exception of firewood and mining props, the minimum which is 5 tons. What does it mean?—CH.A.G., 23/7/83.

I have looked into above. It was a clerical error to quote the minimum for firewood and mining props as 5 tons. It should be 4 tons. The book has been corrected.—D.C. M'L., 24/7/83. Traffic Manager.—G.B., B.C., 16/7/83.

The new rate-book, which is now in the printer's hands, provides for bulk ale and porter being charged at second-class rates for all distances, instead of, as at present, third-class for distances not exceeding 340 miles, and second-class for greater distances, so that the great differences to which Mr. Graham refers will be done away with. I need hardly remind the Commissioner that the second-class rate for distances over 340 miles was made some time after the South-western line was opened beyond Ale sent from Sydney to distant stations and—*, as almost nil. The paper is not among these that are in my hands respecting the alteration of the rates, but I presume it is in the Commissioner's office, and if it could be found, it would show very clearly that what I say is correct. Moreover, if the country brewer has had to pay a high rate for the manufactured article, he has always had the raw material carried at a cheap rate. In the new rate-book it has been provided that malt in tanks shall be reduced from 2nd to 1st class.—W.V.R., 16/7/83. Commissioner.

The Commissioner will not accept this without previous papers.—G.B., 17/7/83. Traffic Manager.

The papers are now herewith, with a complete proof of the new rate-book which I got from the Government Printer yesterday afternoon. I should like to see it printed and distributed at once.—W.V.R., 20/7/83. Commissioner.

Is book to be printed and issued?—D.C. M'L. Yes.—CH.A.G., 23/7/83.

No. 21.

Memo. by Mr. Traffic-Manager Read.

I TOLD Mr. M'Kee some time ago to keep a sharp look out upon the traffic between Hay and Melbourne, and keep me advised of what was going on.

For some months the river has not been navigable, and almost all the traffic has consequently gone from Sydney, but the river is now navigable, and I should like Mr. M'Kee to inform me, if he possibly can, what the prospects are of wool coming to Sydney this season, and also whether, from all he sees and hears, the trade of the district is being diverted to Sydney, or if it still comes from Melbourne when the river is up.

W.V.R., 6/8/83.

I have been keeping a sharp look out for the trade between Melbourne and Hay, and feel convinced, from what I can hear and see, that the trade is gradually finding its way to Sydney. The chances of an increased quantity of wool for Sydney this season are extremely probable. I base my opinion upon the experience of last year, the influencing causes then existing being present to a much greater extent this year.

year. Last season forwarding agents and carriers had entered into contracts to lift the clip early in the season. There was a plentiful supply of feed, and consequently carriage low; the river was also navigable much earlier. Notwithstanding, a large quantity of wool brought in and stored for transit by river, had to be carted to the station and despatched by rail to Sydney, entailing extra charges and knocking about of wool. I find arrangements have not been entered into so early or extensively this year, and shearing later; consequently wool will be later reaching Hay, when, guided by the past, there will be no river expedition, and safety ensured by rail must eventually count, and I think lead the trade to Sydney. Those who have capital sunk in boats will, of course, do all they can to work the trade by river. I do not think freights are likely to be lowered, and I am still assured that insurance rates will be higher. I hope to forward you statement of river-borne goods for July in a few days.—W.M. M'KEE, 10/8/83. Traffic Manager.

I sincerely hope Mr. M'Kee's expectations will be realized, but I must admit that I have doubts about it. The proprietors of river boats and the Victorian Railway Department will offer all the inducements they possibly can to secure the traffic. Our rates are now so low that I do not think they should be made lower. We give a far better service than can be obtained under the best conditions with Melbourne; and if that, combined with our low rates, does not secure the traffic, there seems to me to be nothing for it but to adopt the measures I have previously recommended.—W.V.R., 13/8/83. Commissioner.

No. 22.

Mr. G. E. Cass, M.P., to The Secretary for Public Works.

Sir,

122, George-street West, Sydney, 13 August, 1883.

Referring to my interview with you on the 3rd instant, in accordance with the wishes of the residents of Nyngan, bringing under your notice the existing high rates of carriage charged for merchandise, &c., on the Western line, I do myself the honor to forward you a telegram received by me from W. N. Willis, Esq., chairman of a meeting held to protest against the same, and to request that you will, without delay, cause the necessary inquiries to be made with a view to granting what the residents of Nyngan require.

Respectfully requesting your prompt attention.

I have, &c.,

GEO. E. CASS.

[Enclosure.]

Telegram from Nyngan Station to G. E. Cass, Esq., M.P.

MONSTER meeting of indignation held here Tuesday night to protest against the existing high rates of carriage charged for merchandise on Western line. It was resolved to wire Mr. Cass, the senior member for the district, asking him to interview the Hon. Minister for Works and request abolishment of truck system. Meeting well attended. Stormy feeling expressed on the matter. Do all you can. Wire me.

W. N. WILLIS,

Chairman of meeting, Nyngan.

No. 23.

Memo. by The Secretary for Public Works.

Reductions in Wool Rates on Victorian Lines.

WILL Commissioner for Railways please note and report?—F.A.W., 14/8/83.

Traffic Manager, B.C., 15/8/83.

There is not the slightest necessity for granting the same low rates on the Western line that are in force between Sydney and stations on the Southern and South-western lines; because, were it not for the competition on the latter lines, the rates would be as high as they are on the West. They would at least be assimilated. When the line was only open to Dubbo the people of the district of Nyngan had heavy cartage to pay from there, whereas the following are the differences in our rates between Sydney and Dubbo and Sydney and Nyngan:—

A.	B.	Mis.	1st.	2nd.	3rd.	4th.
4s. 11d.	9s. 11d.	4s. 2d.	19s. 10d.	24s. 9d.	34s. 7d.	54s. 7d.

and the distance is 99 miles. No reason has been given by the public why the rates to Nyngan should be reduced, except that they are higher than those to stations on the Southern and South-western lines, a similar distance from Sydney, and I presume they will not contend that they are paying as high rates now as they were formerly by team, and the service is not to be compared. As the Commissioner very fairly puts it, if the rates on the Southern and South-western lines had not been reduced as they were we would most certainly never have got the traffic either from Wagga Wagga or Hay, and the loss to the revenue would therefore have been greater than it is while the expenditure would have been very little less than it is at present. As I have stated before, I am not in any way wedded to the present rates. If they were prohibitive I would at once say reduce them, but nothing has been advanced to show that they are so, and I am therefore of opinion that they should not be reduced at present, for the simple reason that we cannot afford to forego the revenue. If we were to reduce the rates to Nyngan it would be strengthening, in a very great degree, the arguments of such gentlemen as Mr. Mugridge and many others, who were examined before the Rates Commission, and who stated that the rates were to favour Sydney at the expense of certain districts.—W.V.R., 17/8/83.

No. 24.

Memorials from Residents of Mount Hope and Nymagee.

Petition presented by R. BARTON, Esq., M.P., 19 September, 1883.

To the Honorable the Minister for Public Works, Sydney,—

Honorable Sir,

The humble petition of the undersigned inhabitants of Mount Hope,—

RESPECTFULLY SHOWETH:—

That at a public meeting, convened by the said inhabitants, to consider the present high rates of carriage charged on goods between Sydney and Nyngan, it was decided to ask,—

That you would be graciously pleased to cause the present rates to be lowered to the same as the rates charged on the other railway lines of this Colony, which would give a great impetus to traffic on the line of road between Mount Hope and Nyngan.

And your petitioners, as in duty bound, will ever pray.

We have, &c.

[Here follow signatures.]

Petition presented by R. BARTON, Esq., M.P.

To the Honorable the Minister for Public Works, Sydney,—

The humble petition of the undersigned residents of Nymagee and district,—

SHOWETH:—

That your petitioners would most respectfully protest against the increase in the railway rates on goods from Sydney to Nyngan, as such increase if persisted in must materially injure the prospects of this rapidly rising town and district. Your petitioners beg to draw your attention to the fact that this district is mostly supported by the working classes; that their wages are not equal to those ruling in Sydney; and that the additional rate of trainage will materially increase the cost of living, which is already too high, and must in the end seriously injure this great mining and squatting district.

Your petitioners would further add that this increase of rates will divert the trade from Sydney to South Australia, as goods can be delivered in Nymagee at a far less figure from South Australia as soon as the Darling River is navigable.

Your petitioners sincerely trust you will give this matter your careful consideration, and cause a reduction to be made in the said rates.

And your petitioners, as in duty bound, will ever pray.

[Here follow signatures.]

No. 25.

Minute by Mr. Traffic-Manager Read.

Re a paragraph in *Sydney Morning Herald*, of 14th August, 1883, on Extension of Victorian wool rates concessions to certain districts of New South Wales.

SUBMITTED to the Commissioner, who wrote in reference to statement that Victorian rates were being lowered to catch wool from New South Wales:—"Traffic Manager to say how this will affect our wool traffic in and about Narrandera; wool previously brought to that station may by this extension of the 'imaginary line' be diverted."—CH. A. G., 16/8/83.

The clause formerly read:—

"Wool.—The clip of stations north of an imaginary line drawn from the southern portion of Urana Swamp, on the west to Gerogery Station on the North-west line on the east, and east of an imaginary line drawn from Gerogery Station to Jingelee on the Murray."

I suppose the above may be accepted as the decision of the Victorian Railway authorities, as to the greater facilities that are to be given to draw the wool away from New South Wales, although I cannot think that they can ever hope to draw to Wedonga the clips of such stations as Yanko, Goolgumbla, Singorambah, or even Coree, and it seems more strange still that the line should be drawn westward to the intersection of the Murrumbidgee at Balranald. No doubt the concession is made so that they can retain their hold of the wool from the Urana and Jerilderie districts; but, to my mind, it goes further than that, and almost appears to anticipate the imposition of river dues on the Murrumbidgee, although why they should do so in the absence of some tangible demonstration from this side I cannot imagine. I am trying to find out what wool clips we may expect from the Murrumbidgee this year, but have not yet been able to ascertain. In view, however, of the low rates to Melbourne, I am very doubtful of getting much, if any, from the south side of the river to the west of Buckinbong, even if we get that station's clip. There is very little doubt in my mind that all the wool on the south side, and within an easy distance of the river, will go by river to Echuca as formerly. I hear that Burrabogie wool will go to Melbourne this year. Jerilderie and Urana wool will doubtless be taken to Wahgunyah by team, from which station the rate to Melbourne is the same as from Wedonga, and that is 4s. 6d. per bale, and 5s. to Williamstown or Sandridge, so that even when we open to Jerilderie our hold upon the traffic there or of the Urana, will be very insecure, unless special rates are quoted. Urana, even then, will still be 15 or 16 miles from the railway, and the railway journey to Sydney will be about 380 or 390 miles, against which there are 55 miles of road to Wahgundah, and 173½ miles of railway from there to Melbourne. Still, if we could secure the traffic on the south bank of the river by imposing river dues, we ought to be able to secure pretty well all the wool between Jerilderie and the Murrumbidgee, when the Jerilderie line is opened. I could not fairly recommend a further reduction of our rates, but am of opinion that whatever action is taken should be in the shape of an impost upon boats and traffic taken along our rivers, which are kept open at our expense.

W. V. READ, 28/8/83.

Commissioner.

Minute by Mr. Traffic-Manager Read.

It is indeed surprising after all the Department has done towards securing the Riverina trade to Sydney as against Melbourne, that a Sydney newspaper should be found to misrepresent the facts to the extent the *Echo* does on 8th instant. The reduction of rates was first made on the Victorian side, and New South Wales was thus compelled to follow suit, or be content to see the whole of the Riverina district supplies drawn to Melbourne, moreover the rate from Sydney was not reduced to £3 per ton, but to £20 per truck of 6 tons, and as trucks generally contain from $4\frac{1}{2}$ to 6 tons, and smaller consignments are chargeable at £5 10s. per ton, the average is considerably over £3, and never in any case below £3 6s. 8d. per ton.

Albury has a great advantage over Wagga with regard to Melbourne traffic, while so far as Sydney is concerned, it has the benefit of the same rates as Wagga, although 77 miles further away. It is not true that the rates from Albury to Wagga are equal to or more than those charged from Sydney to Albury, but even if they were, it appears to me that the advantage is all the more on the side of Albury, because it would furnish a good argument for advancing the latter. As the rates stand, Albury merchants may draw supplies from Melbourne and send them on to Wagga at the same cost as the Wagga merchant can supply himself direct, which is an advantage on the side of Albury not obtainable at any other station midway between the points of import and consumption. If Sydney is to supply the Riverina district, the Wagga merchant must have an advantage in his own neighbourhood over Albury, as it would be absurd to suppose that the Department would carry first from Sydney to Albury and then from Albury to Wagga at a less cost than from Sydney to Wagga direct. If, on the other hand, the question is left open, I think it will be generally admitted that the Sydney importer should have the advantage rather than the Melbourne one.

W.V.R.,
2/11/83.

Précis.

Hay requirements—Mr. C. A. Simson's letters.

MR. SIMSON wrote a note expressing his regret that when he called to ask to have a decent 1st class carriage put on between Junee and Hay, he found Commissioner out. 3 Aug., 1883

Commissioner asked Traffic Manager if it was proposed to give the Hay passengers any advantage in connection with the Express, remarked that he had himself noticed the inferiority of the first class carriages on that line, and directed that a really good first-class carriage should be put on that line.

Traffic Manager reported, that for reasons stated, they could not do better in respect of train accommodation than they were now doing until the traffic would warrant their putting on a separate train for passengers between Junee and Hay. As regarded carriages, one 1st class (doubtless the one referred to by Commissioner) had recently been withdrawn, and all the carriages on that line were now in fair condition.

On the 9th June, 1884, Mr. Simson wrote again, stating that there was a strong feeling in the Hay district in favour of railway communication with Deniliquin, but that he had refused to sign the petition for it, believing it to be unnecessary, that the coach carries double as many passengers as the railway does, that if the trains were run to meet the express or other passenger trains to Melbourne, the passenger traffic would be quadrupled, it would be a great boon to the public and profitable to the Department; complained again of the uncomfortable carriage arrangements, and stated that if some consideration were shown to passengers from Hay, it would do much to allay the desire for a railway to Deniliquin.

Commissioner minuted that he had paid attention to the improvements of carriage accommodation on the Hay line, and that he thought it would be desirable to run a train to meet the express train to and from Melbourne, there being no steep grades, and therefore the additional carriage would not impede speed between Junee and Albury. June, 1884.

Traffic Manager reported that it would be better for through passengers if the S.-W. trains ran in connection with main line express, but the difficulty was that the latter did not carry 2nd class passengers, and only ran five days a week. The first named difficulty might easily be got over, but the last not so easily, unless on the other two days the S.-W. train were run in connection with the mail. The great object of the Department was to induce people to come to Sydney instead of going to Melbourne, but he did not see how the proposed change would affect this, for although Victoria refused to carry 2nd class passengers between Sydney and Melbourne, they would not object in the case of passengers from the Hay district, which was the competition ground between the two colonies, and therefore Hay people would still go to Melbourne, although some might go by way of Albury. Aug., 1884.

Coach proprietors would not let passenger traffic go without a struggle.

Cobb & Co. now issue excursion tickets, Hay to Melbourne, *via* Deniliquin, 1st class, £5; 2nd, £4 5s. Ours, to Sydney, are £4 16s. 9d. and £4 5s. respectively; while to Melbourne, *via* Wodonga, £6 9s. 3d. and £4 6s. Thus excursion tickets to Sydney are, 1st, 3s. 9d., 2nd, 20s. less than to Melbourne, proving, Traffic Manager maintains, that it is no question of cost or convenience which takes passengers to Melbourne instead of Sydney, but business. Had always maintained that if we could secure the goods traffic the passenger traffic would follow. Unfortunately the opposition rates are more favourable when the river is navigable, which it always is during wool season. Could not, however, recommend reduction of rates, while large sums are being spent in snagging river, and so providing a highway for traffic to other colonies. Reverting to the question of passenger traffic from Hay, pointed that, although there is no difficulty between Albury and Junee, there are steep grades on this side of Junee that we could not limit number of passengers from South-western line, and that in holiday time express might require two engines, in which case it could not keep time.

On the 12th instant Mr. Simson again wrote charging Commissioner with discourtesy in not replying to his two previous communications, and enclosing a sheet of Victorian wool-rates, showing that that Colony is making large reductions on carriage of wool from Riverina. Recommended Commissioner to "do likewise."

As regards the imputation of discourtesy, it is true that Mr. Simson's first note was not answered, but his complaint was remedied, and I doubt if it was essential that a note of so informal a character should be answered.

Mr. Simson's second communication has not been answered, because Traffic Manager's report, upon which the reply would necessarily be based (and of which an abstract is given on the other side), has only just come to hand.

C.A.B., 22/8/84.

Victorian Competitive Rates.

A PERUSAL of attached paragraphs by the general public not directly interested in the rates would lead to the supposition that the Victorian authorities had taken the first step towards the abolition of a regrettable competition between the two Railway Departments for the Riverina traffic. It is a step in the right direction no doubt, but the rates they charge from Melbourne to Albury are still very much lower than from Melbourne to Wodonga, while from Melbourne to Albury, if the goods be consigned to Gerogery or any point north of Gerogery, the net cost to the consumer is very much lower still.

The figures are:—

	Misc.	1st.	2nd.	3rd.	4th.
Melbourne to Wodonga, 187 miles ...	48/-	62/6	78/6	94/-	109/6
Melbourne to Albury, 191 miles ...	42/6	53/6	53/6	63/6	63/6

If goods are consigned to Gerogery or any point north thereof the net rates, after allowing rebate, are as follows:—

	Misc.	1st.	2nd.	3rd.	4th.
Melbourne to Albury, 191 miles ...	32/6	33/6	33/6	33/6	33/6

Prior to the opening of New South Wales railways to Albury, the Victorian Department charged one rate for Wodonga traffic, a lower one for Albury, and a lower still for Riverina traffic. At the time our lines opened to Albury they revised their rates and put Albury traffic on the same footing as other places in the Riverina. I never could see any reason for so sweeping a reduction, and I think if any reports are turned up it will be found that I expressed myself at the time to that effect. Finding their mistake the Victorian authorities have again advanced the rates as far as Albury is concerned, but not to the figures they formerly charged to Wodonga, while to other places in Riverina, Wagga for instance, no charge has been made at all. It is sheer nonsense therefore to talk of the new rates being "expected to remove all legitimate grounds on the score of unfair competition between the Victorian and N. S. Wales Railways."

While increasing the rates to Albury, it would appear they have actually reduced those for wool from the Murrumbidgee and Darling Rivers.

The reason given for the further reduction, is that the railway station "at Hay has been found to have attracted a considerable portion of the Victorian (?) trade during the past few years." The fact is, the Victorian Department have deliberately resolved to continue the struggle for New South Wales traffic, and instead of endeavouring to remove grounds of complaint on the score of unfair competition they are actually making the difference greater.

I am not prepared to recommend any reduction upon our rates, but I do wish something could be done to check these persistent reductions made upon wool conveyed to Melbourne, and that could be done as far as river-borne wool is concerned.

Commissioner.

W. V. READ,
23/8/84.

Dear Sir,

Mungadal, Hay, N.S.W., 12 August, 1884.

Although you have not had the courtesy to reply to my two previous communications, I still venture to forward you a third from which you will see Victoria is making a large reduction in the carriage of wool from Riverina. New South Wales will require to do likewise or take a back seat.

Yours truly,

C. A. Goodchap, Esq., Commissioner for Railways, Sydney.

C. H. SIMSON.

Minute by Mr. Traffic-Manager Read to The Commissioner for Railways.

I REPORTED fully on the rate question, to which I have nothing to add.

If the Victorian Railway Commissioners are willing to carry Murrumbidgee wool from Echuca, Wodonga, or Wahgimyah to Melbourne for such a low rate as 3s. per bale, while for wool grown at Wodonga they would charge 7s. 6d., it shows how much they value the trade of the district, and how little importance is to be attached to their statement about removing the cause of the competition between the Victorian and N.S.W. Railways.

I am not disposed to recommend any further reduction in our rates. The fact that the Victorian Railway Department considers it necessary to further reduce theirs is almost the best assurance we can get that they feel the result of the competition in N. S. Wales, and if we did make a reduction it is just as likely that they would follow it with another, and the result would be a ruinous competition.

Even if we did reduce our rates I do not believe that all the extra traffic we would get would make up more than what we would lose on that traffic which we are sure of.

I do not think the present competition will ever cease until something is done by this Colony to check it.—W. V. READ, 2/9/84.

Mr. W. H. Matthews to The Commissioner for Railways.

Sir,

Cootamundra, 1 September, 1884.

I send you herewith particulars *re* differential rates between the towns between Harden and Wagga, and hope that you will see your way clear to make such concessions as may so equalize the tariff, that no one town will be in a better position, as far as competition is concerned over railway rates than another:—

	£	s.	d.	£	s.	d.	£	s.	d.
Wagga	20	0	0	.....	.....	.....	.....	.....	.....
Junee	41	11	6	3	18	6	23	18	6
Cootamundra	38	0	6	9	17	6	29	17	6
Harden	35	12	0	14	5	0	34	5	0

I have, &c.,

W. H. MATTHEWS,

Hon. Secretary, Deputation *re* Railway Rates.

Traffic Manager for report. There is a district which is so situated that with some small difference it can be equally well supplied by Wagga or by Murrumburrah storekeepers. The low rates to Wagga seriously handicap the Murrumburrah storekeeper. The proposal made if accepted would not, as regards Murrumburrah, affect the revenue to any material extent, but with Cootamundra the difference is greater, and with Junee it is of course nearly double. If, however, a storekeeper at Wagga wished to compete with a storekeeper at Junee, the latter would be placed at a great disadvantage. The Wagga storekeeper could deliver at Junee, after paying freight from Sydney to Wagga, for £3 18s. 6d. per truck, the whole cost being £23 18s. 6d., while the Junee storekeeper has to pay £41 17s. 6d. per truck. These figures, I am sure, are incorrect, because the compiler of them has gone on a wrong basis; he has assumed the truck to contain more than in practice it really does contain.—CH.A.G., 4/9/84. Urgent.

I shall be glad if the Goods Superintendent will let me know without delay whether full loads of 6 tons of third-class goods, are, as a rule, put in trucks for Wagga Wagga, or, indeed, whether 6 tons of any kind of general goods are ever put in one waggon for that station. In the figures given by the Messrs. Matthews, it is assumed that the trucks contain 6 tons of third-class goods in each case. As a rule, what is the gross weight put into a waggon (charged at the £20 rate) for Wagga Wagga, and what are the weights of the respective classes?—D.K., 8/9/84. Goods Superintendent.

It will be advisable to show a fortnight's traffic to Wagga.—G.T.E., 9/9/84. Mr. Harper.

Nearly the whole of the goods consigned to Wagga Station are carried in truck loads; and in most instances the load reaches or exceeds 6 tons. We cannot give the weights of the respective classes as the consignments are not separated for classification purposes, but a large proportion of the goods are of the third-class.—JNO. HARPER, 10/9/84.

There can be no doubt the £20 rate for 6 ton lots has had the effect of improving our average loads to Wagga, and it would be found that the same argument applies to stations on the South-western line. Mr. Matthews bases his argument on the 6-ton lots, but would he be able to guarantee full loads for the three other stations enumerated. I have no doubt Junee could hold its own, in fact it is the rule for one firm to send their goods to Wagga, and return them to Junee, that course being cheaper than through rate from Sydney.—G.T.E., 10/9/84. Traffic Manager.

*If the trucks were always fully loaded with 6 tons of third-class goods, Mr. Matthews' figures, with one exception, which I have corrected, would be correct, but it is very rarely indeed that 6 tons of third-class goods can be put in an ordinary D truck, and the load is therefore generally made up of heavy goods of the first or second class, but unfortunately we cannot give the weights of the different classes, because, not being charged at a tonnage-rate, we have no occasion to keep them separately. Inform that I find upon inquiry that his figures are wrong, inasmuch as they are based upon the assumption that the truck carries 6 tons of third-class goods to Wagga. In practice it is found that the truck load consists of a large proportion of articles, subject to lower than third-class rates, and consequently the difference is not so great; there can be no doubt that the storekeeper of Wagga gets an advantage by the truck system, but if it were taken away, and he was charged at a mileage basis, it would not serve the interests of the traders of Cootamundra or Murrumburrah, as he would simply obtain his goods from Melbourne, and would be able to undersell other traders competing for the trade of the district referred to. With the present low rates the Department has all it can do to compete with Victorian railways for the carriage of the merchandise taken at Wagga, and some storekeepers continue to have their commercial relations with Melbourne. Point out to Mr. Matthews that if we lost this trade, the inevitable result would be that we would have to increase the charges made to other stations, so as to earn the money required to pay interest upon the capital expended, an increase in the rate to Wagga would therefore have no beneficial effect in diverting the trade of Temora and other places to their more legitimate, because nearer market, as Wagga merchants would still hold the trade with goods obtained from Melbourne, &c.—CH.A.G., 26/9/84.

* The remainder of this minute has unfortunately been lost.—J.E.P.

* Take Cootamundra, and assume that of the 6 tons, 3 tons only were 3rd-class goods:—1 ton, 2nd class; 2 tons, 1st class—the charge instead of being £38 0s. 6d., would be £30 17s. 10d. Point this out.—CH.A.G., 26/9/84.

Sir,

Department of Railways, Sydney, 2 October, 1884.

I have the honor to acknowledge the receipt of your letter of the 1st ultimo, with particulars respecting the goods rates from Sydney to Wagga Wagga, Cootamundra, and Harden, and requesting that such concessions may be made to Harden and Cootamundra, as will place them in equally as good a position as Wagga Wagga, to compete for the trade of the district.

In reply I have to inform you that the matter has been carefully considered, and I may point out, in the first instance, that the figures quoted by you are not altogether correct, inasmuch as they are based upon the assumption that the trucks carry 6 tons of 3rd class goods to Wagga Wagga. In practice it is found

found that the truck load consists of a large proportion of articles which are subject to lower than 3rd-class rates, and consequently the difference is not so great. For instance, the truck might, as an average load, be assumed to contain 3 tons of 3rd class, 1 ton of 2nd class, and 2 tons of 1st-class goods, and at the ordinary rate the freight to Cootamundra would amount to £30 17s. 10s., instead of £38 0s. 6d. per truck, quoted in your letter. There can be no doubt that the storekeeper of Wagga reaps an advantage by the truck system, but if it were taken away, and he were charged upon a mileage basis, it would not serve the interests of the trader of Cootamundra or Murrumburrah, as he would simply obtain his goods from Melbourne, and would be able to undersell the other traders competing for the trade of the district referred to. With the present low rate the Department has all it can do to compete with Victorian railways for the carriage of merchandise taken at Wagga Wagga, and some storekeepers continue to have their commercial relations with Melbourne. I might point out that if we lost this trade, the inevitable result would be to increase the charges made to other stations, so as to earn the money required, to pay interest on the capital expended. An increase in the rate to Wagga Wagga would therefore have no beneficial effect in diverting the trade of Temora and other places, to their more legitimate, because nearer, market, as Wagga Wagga merchants would still hold the trade with goods obtained from Melbourne.

I have, &c.,

CH. A. GOODCHAP,
Commissioner for Railways.

No. 29.

Mr. F. S. Falkiner to The Commissioner for Railways.

Sir,

Moonipia Spring Plains, 4 September, 1884.

This property is midway between Jerilderie and Deniliquin. If you take my wool to Sydney at the same rate the Victorian Railway are taking Sir Samuel Wilson's Yanko wool, viz., 5s. 10d. per bale, to Melbourne from Deniliquin, I will send my wool to Sydney *via* Jerilderie. If not, it goes to Melbourne. As I am the owner of two stations I have more bales than Yanko, which joins this property.

I have, &c.,

F. S. FALKINER.

Traffic Manager.—R.J.S., 10/9/84. Urgent.

If we can only get 5s. 10d. per bale, I should say by all means let the wool go to Melbourne. It would be absurd to think of carrying it 406 miles to Sydney for 5s. 10d. a bale.—W. V. READ, 11/9/84. Commissioner.

Twenty-eight bales can be carried in a truck, and at 5s. 10d. will realize £7 3s. 4d. The working expenses are about equal to 3d. per truck per mile; empty and full, the running would be equal to 600 miles, which represents a cost of £7 10s. I therefore cannot recommend that any effort should be made to obtain this wool at the price named.—CH.A.G., 16/9/84.

I concur. Let the wool go to Melbourne.—F.A.W., 18/9/84.

Sir,

Department of Railways, 24 September, 1884.

With reference to your letter of the 4th instant, stating that you are prepared to send your wool to Sydney from Jerilderie if it be carried at 5s. 10d. per bale, the same rate as the Melbourne Railway Department charge for conveying it from Deniliquin, I have the honor to inform you that I am unable to approve of your clip being carried at the price named as it would not be remunerative to the Department.

I have, &c.,

CH. A. GOODCHAP,

Commissioner for Railways.

F. S. Falkiner, Esq., Moonipia Spring Plains, *via* Jerilderie.

Respecting differential charges for competitive purposes, Victoria *v.* New South Wales.—I do not see that any action is required upon these papers. Commissioner has marked "Seen" upon the only papers which have come in since *précis* was submitted.—C.A.B., 1/10/84. Acting Secretary.

Does Commissioner require these papers again?—G.B., 1/10/84.

See minute paper sent to Traffic Manager the other day. Statistics required showing effect of abolition of competitive rates in both Colonies.—CH.A.G., 3/10/84.

No. 30.

Minute by Mr. Traffic-Manager Read.

If differential rates were abolished in both Colonies, the rates for goods traffic between Sydney and stations on the Southern and South-western lines, and between Melbourne and the same stations will be found in the following figures, and, for the purpose of comparison, I shall also give the present rates. I do not consider it necessary to quote the special or miscellaneous rates, because there is really no competition to speak of in such traffic:—

	1st.	2nd.	3rd.	4th.
Sydney to Wagga (non-competitive) ...	84/6	105/1	146/4	188/7
Melbourne to Albury do ...	60/-	81/6	97/-	112/6
Albury to Wagga do ...	26/8	32/10	45/2	58/6
	92/8	114/4	142/2	171/-
Sydney to Wagga, present (competitive)	84/6	105/1	110/-	110/-
Melbourne to Albury do ...	33/6	33/6	33/6	33/6
Albury to Wagga do ...	40/-	49/3	67/9	87/9
	73/6	82/9	101/3	121/3

It

It will be seen, therefore, that our first and second class non-competitive rates from Sydney are lower than the non-competitive rates from Melbourne, but the third and fourth class rates on the Victorian lines are each 1d. per ton per mile lower than ours, so that those rates would be 4s. 2d. and 17s. 7d. per ton respectively lower from Melbourne than from Sydney. These differences would not prejudicially affect the Sydney market if there were nothing else to consider; but the Commissioner will remember two years ago, when the general goods rate from Melbourne to Wodonga was reduced to 30s. per ton all round, teams were found to convey the goods from Wodonga to Wagga Wagga for 30s. more (60s. in all), and it was at that time that we were obliged to quote a special rate from Sydney of £20 per truck not exceeding 6 tons, and as most of the traffic to Wagga Wagga is conveyed in 6-ton loads the rate is virtually 66s. 8d. per ton instead of 84s. 6d., 105s. 1d., 110s., and for 1st, 2nd, 3rd, and 4th class respectively.

I merely mention this lest in the event of competitive rates being abolished it were possible to convey goods from Wodonga to Wagga Wagga by team again for 30s. per ton, because in that case the rates would be:—

	1st.	2nd.	3rd.	4th.
Melbourne to Wodonga	62/6	78/-	93/6	109/-
Wodonga to Wagga	30/-	30/-	30/-	30/-
Inclusive of delivery at Wagga ...	92/6	108/-	123/6	139/-
While from Sydney to Wagga they would be, exclusive of delivery ...	84/6	105/1	146/4	188/7

I may say, however, that teams could not afford to convey goods from Wodonga to Wagga Wagga for 30s. per ton unless they were to get loading both ways, which would be most improbable, except during the wool season, and not even then if the competitive wool-rates were abolished on the Victorian lines. (I shall deal with the wool-rates further on).

It is hardly necessary to deal separately with all the stations south of Wagga Wagga, because the further we go south the more favourable do the rates become towards Melbourne. I shall, therefore, content myself by showing the respective rates to Culcairn (as being the most central station between Wagga Wagga and Albury) and Albury:—

	1st.	2nd.	3rd.	4th.
Sydney to Culcairn (non-competitive)	93/10	116/10	162/9	206/-
Melbourne to Albury do ...	66/-	81/6	97/-	112/6
Albury to Culcairn do ...	11/-	13/3	17/9	23/3
	77/-	94/9	114/9	135/9
Sydney to Culcairn present (competitive)	75/1	93/6	110/-	110/-
Melbourne to Albury do ...	33/6	33/6	33/6	33/6
Albury to Culcairn do ...	16/6	19/10	26/7	34/10
	50/-	53/4	60/1	68/4
Sydney to Albury (non-competitive)	99/10	124/4	173/4	223/2
Melbourne to do do	66/-	81/6	97/-	112/6
Sydney to Albury present (competitive)	79/10	99/6	110/-	110/-
Melbourne to Albury present (competitive)	53/6	53/6	63/6	63/6

Of course the £20 truck rate from Sydney applies to Culcairn and Albury also.

In respect of wool grown in Victoria, the rate for a 4 cwt. bale from Wodonga to Melbourne is 7s. 6d., while, if grown in the competitive district of this Colony, the rate is only 4s. 6d. Our wool-rates can hardly be said to be competitive; certainly they would perhaps be a little higher from the most distant stations on the Southern and South-western lines were it not for the competition with Victoria, but the difference would not amount to much.

The rates to stations on the South-western line are rather more difficult to deal with, because, in addition to the trainage from Melbourne to Echuca, we have the more difficult problem of river freight to consider.

The competitive rates for general goods from Melbourne to Echuca, for places on the Murrumbidgee which can be served by our South-western line, have for a long time been 30s. per ton all round, and the freight from Echuca to Hay has, since the South-western line was opened to that town, been as low as from 22s. 6d. per ton for rough traffic to 27s. 6d. and 30s. per ton for general goods, in each case exclusive of insurance.

If the competitive rates were abolished in both Colonies the rates from Melbourne and Sydney to Hay would be:—

	1st.	2nd.	3rd.	4th.
Sydney to Hay	113/6	141/4	197/1	253/10
Melbourne to Echuca	52/-	65/-	78/-	91/-

and from Echuca to Hay the present river freight would doubtless be considerably increased; but they would still be kept very much below the rates from Sydney, so that, unless we could control the river freight by a tremendously high impost, the abolition of the competitive rates would, as far as we are concerned, be simply playing into the hands of Victoria.

The

The only feasible arrangement I can see is that both Departments should endeavour to come to some understanding whereby the present great and necessary reductions should, to a great extent, be done away with. I do not suppose the Victorian Commissioners would agree to abolish entirely their competitive rates if we agreed to increase ours by amounts equal to the differences between their competitive and non-competitive rates, because that would be asking them to do a thing which we are not prepared to do ourselves.

Perhaps a discussion of the matter might lead to good results, but I cannot see how we can possibly dispense with our competitive rates, and the only effective way I can see of getting a fair and reasonable return for the conveyance of traffic on the South-western line is by the imposition of river dues on a pretty extensive scale, on all traffic that can be readily accommodated by the railways. Five years ago, before any of the South-western line was laid, the rates for general goods and wool between Melbourne and Hay, varied from 80s. to 90s. per ton, exclusive of insurance, and of that amount the Victorian Department got 48s. per ton, but that was reduced about two years ago to 30s.

To the north of Hay there has been very little traffic from Melbourne by the river, since the South-western line was opened, but I have no hesitation in saying that if the competitive rates were abolished without our exercising any control over the river freight, a very large proportion of the Riverina supplies would again be obtained from Melbourne.

In the case of Narrandera, for instance, our non-competitive rates would be 94s. 10d., 118s. 1d., 164s. 6d., and 211s. 11d. for 1st, 2nd, 3rd, and 4th classes respectively, and goods could be landed much more cheaply from Melbourne than that.

The effect, therefore, of abolishing the competitive rates would be that Melbourne would be the best market for all supplies for places south of Wagga Wagga (and even Wagga Wagga itself we could not be too sure of) and Narrandera and stations on the South-western line to Hay; indeed it has only been the £20 truck rate that has enabled us to retain a considerable portion of the traffic for these places hitherto.

Commissioner.

W.V.R.,
22/10/84.

*Vide No. 42.

Differential rate.—I can add nothing to the reasons given in enclosed letter. The paper* which I submit herewith shows clearly that two Committees of the House of Commons, appointed to inquire into the alleged injustice of differential rates on railways have pronounced directly in their favour, as being framed in the interests of the general public.—CH.A.G., 9/5/85.

No. 31.

Memo. by Mr. Traffic-Manager Read.

I BEG to recommend that the rates for wool per bale, not exceeding 4 cwt., from Bungendore and Young to Sydney be fixed as under:—

Bungendore	8s.
Young	9s.

And in view of the opening of the line to Bourke, I would recommend that the rate from that station to Sydney be 15s. per bale not over 4 cwt. The rates from Jerilderie and Hay are 11s. 6d. and 11s. respectively; but the reasons for these low rates are obvious: On the Northern line we charged 12s. per bale from Glen Innes to Newcastle, a distance of 324 miles, so that my recommendation to charge 15s. from Bourke to Sydney (504 miles) is not out of the way.

To bring the rates more equable from other stations on the Western line, I propose that the rates from Byrock, Girilambone, Nyngan, and Nevertire be increased as under:—

Byrock from	12/6 to 13/6
Girilambone „	11/6 to 12/6
Nyngan „	11/- to 12/-
Nevertire „	11/- to 11/6

I shall be glad if the Commissioner will consider these recommendations as soon as possible, so that if approved they may be included in the rates-pamphlet now under revision.

W.V.R.,
18/5/85.

There has been a revision of the wool-rates recently on the Victorian line. I should like to know the direction it has taken before making any alteration in our rates.—CH.A.G., 21/5/85.

I attach copy of present Victorian wool-rates. A new one will appear in about a fortnight.—H.M'L., 27/5/85. Forward to Traffic Manager. I should like to see Victorian rates which are to come into force for next wool season.—CH.A.G., 28/5/85.

A copy of the new Victorian wool-rate sheet is attached. The only alterations to speak of are that the wool will be conveyed from Kerang and Numurkah at the same rates as from Wodonga, Wahgunyah, and Echuca, and the additional 6d. per bale that used to be charged from Melbourne to Port Melbourne and Williamstown has been struck off all wool arriving at any of their border stations by road or rail. There is nothing in these alterations to induce me to recommend a reduction of any of our rates, and I therefore ask the Commissioner's approval to those named in my minute of 18/5/85.—W.V.R., 11/6/85. Commissioner.

The Traffic Manager recommends the following rates from new stations:—

177 miles—Bungendore	8/- per bale
249 miles—Young	9/- „
504 miles—Bourke	15/- „

For existing Southern stations no alteration, but the following changes on West so as to make the rates throughout more equitable:—

455 miles—Byrock	12/6 to 13/6 per bale
405 miles—Giralambone	11/6 to 12/6 „
377 miles—Nyngan	11/- to 12/- „
341 miles—Nevertire	11/- to 11/6 „

H.M'L., 16/6/85.

I do not think we should increase rates *now*—it is too late. Contracts for the carriage of wool have been made on the faith of present rates. For Minister's approval.—CH.A.G., 18/6/85. I concur.—F.A.W., 22/6/85. Traffic Manager.—G.B., B.C., 22/6/85.

Seen. But I may point out that 15s. from Bourke will seem a high rate as compared with 12s. 6d. from Byrock, the difference in the distance being only about 48 or 50 miles.—W.V.R., 30/6/85. Commissioner.

Get approval of Governor and Executive Council to the rate from Bourke. It must be explained that immediately this season is over the rates from Byrock will be increased.—CH.A.G., 4/7/85.

Sir,

We shall be glad to know, at your earliest convenience, the rate fixed for carriage of wool from Bourke to Sydney.
The Commissioner for Railways, Sydney.

Sydney, 27 May, 1885.

We have, &c.,

GARRICK & CO.

Traffic Manager.—D.C.M'L., 28/5/85. Some days ago I recommended a rate of 15s. per bale.—D.K.; 23/5/85. Commissioner. Question of Bourke rates now submitted.—H.M'L., 16/6/85.

Gentlemen,

Department of Railways, Sydney, 6 July, 1885.

In reply to your letter of the 27th May last, asking the rate for carriage of wool from Bourke to Sydney, I have the honor to inform you that the rate will be 15s. per bale. The line will probably be ready for opening early in September.

I have, &c.,

CH. A. GOODCHAP,

Commissioner for Railways.

Messrs. Garrick & Co., 95, Pitt-street, Sydney.

Wool-rates from various Stations to Sydney.

I HAVE the honor to subjoin a list of rates which it is proposed to charge for the carriage of wool from certain stations to Sydney, and to request that you will be good enough to obtain the approval of the Governor and the Executive Council to the same as soon as possible:—

From Bungendore to Sydney	...	...	...	...	...	...	8/- per bale
From Young to Sydney	...	...	...	...	...	...	9/- "
From Bourke to Sydney	...	...	...	...	...	...	15/- "

Although the rate from Byrock (12s. 6d.), the present terminus, is low compared with that proposed for Bourke, it is not intended to increase it until immediately after the next wool season, because contracts for the carriage of wool have been made on the strength of the present tariff.

Under Secretary, Public Works.

G.B. (*pro* Commissioner), 8/7/85.

Write minute for Executive Council.—J.R., 10/7/85.

Department of Public Works, Sydney, 10 July, 1885.

I HAVE the honor to submit for the approval of His Excellency the Governor and the Executive Council the following amended rates for the carriage of wool on the Great Southern and Western lines of railway, viz.:—

From Bungendore to Sydney	...	...	...	...	...	...	8/- per bale
From Young to Sydney	...	...	...	...	...	...	9/- "
From Bourke to Sydney	...	...	...	...	...	...	15/- "

F. A. WRIGHT.

The Executive Council advise that the amended wool-rates, herein recommended, be approved.—ALEX. C. BUDGE, Clerk of the Council. Approved.—A.L., 13/7/85. Railways.—J.R., B.C., 22/7/85. Write memo. to those concerned, and see that the new rates are included in the new rate-book, &c.—D.C.M'L., 23/7/85.

Referring to the Commissioner's minute of 18/6/85, I beg to inform him that I have received a letter from Messrs. Goldsbrough & Co., respecting the rates proposed for the conveyance of wool from Bourke to Sydney, copy of which I enclose. I have replied that the matter has already been fully considered, and that it is not proposed to make any alteration this year.—W. V. READ, 7/8/85.

Seen.—CH.A.G., 11/8/85.

Sir,

We have the honor to call your attention to the apparent excessive rate proposed to be charged by the Railway Department, for the carriage of wool from Bourke to Sydney, and would beg to bring under your notice the following:—

1. When the head of the railway extension was at Nyngan the charge per bale was 11s.
2. When at Byrock (78 miles further) the charge was 12s. 6d.
3. The distance from Byrock to Bourke being 48½ miles, an increase of 2s. 6d. for this distance in comparison with 1s. 6d. for 78 miles seems disproportionate.
4. A *pro rata* charge would be from 13s. 10d. to 14s., and we beg to commend the matter of a reduction to your consideration.

We have, &c.,

R. GOLDSBROUGH & CO.

W. V. Read, Esq., Traffic Manager, Redfern Railway Station.

No. 32.

Correspondence relative to the opening of Railway to Bourke and the diversion of the Darling River Trade to Sydney.

[Extract from the *Sydney Morning Herald*, Tuesday, 15 September, 1885.]

THE DARLING RIVER TRADE.

THE opening of the railway line to Bourke is an achievement long talked of. Parliamentary discussions on the question have been innumerable—on the time when it would be accomplished, on the traffic it would divert to Sydney, on its effects in the opening up of the country, and on other points. Experience will show how far it attains these various objects.

The history of the Darling River does not go back much beyond a generation—settlement before that was very inconsiderable; but the immense area of the country watered by the river, its natural richness in pastoral resources, the possibility of irrigation, and the consequent improvement of parts of it for agriculture, and the valuable discovery of copper, silver, and lead within its boundaries, open out a future to which the leading Colonies of the group are fully alive. The competition for the trade of the Darling and its tributaries has for many years been very active. Although for the principal part of its course the great Australian river traverses the territory of New South Wales, this Colony had for a long time but a very small portion of the trade, and indeed at present it has but a very little. Whatever the railways have done in securing for Sydney the commerce of the Murrumbidgee and the Lachlan, they have yet made no very great diversion of the trade of the Darling. Before the railway was finished much of the trade of Walgett and Bourke found its way to Sydney. It can hardly be doubted that nearly all the traffic of the river from Bourke upwards will henceforth be by our railway, whatever may be the course of that of the lower part of the river.

South Australia was the first Colony to take energetic measures to open up commercial relations with the Darling. On the authority of the special correspondent of the *South Australian Register* we learn that, through the encouragement of a bonus of £4,000 from the Government of that Colony for the first two iron steamers that should successfully navigate the Lower Murray from Goolwa to Wentworth, the Murray Steam Navigation Company was formed, and a steamer named the "Lady Augusta" started on her trial trip on the 27th August, 1853. She navigated the Lower Murray as far as Swan Hill, and thence carried a cargo of wool for Adelaide, establishing commercial relations which, in 1879, had swelled to such dimensions as to require the service of ninety steamers and eighty barges, with an aggregate of about 17,000 tons. These vessels navigate the Darling as far as Bourke, and occasionally a good deal further.

Victoria also has striven vigorously to secure a share of the Darling trade, and a very considerable part of it has been directed by way of Wentworth and up the Murray to Echuca; thence by railway to Melbourne. No effort has been spared to accomplish this object. Railway rates have been reduced to a non-paying point; and, for the loss on which, compensation was supposed to be found in direct benefits, present and prospective. Even differential rates were made in favour of the wool-growers of the Darling, so that they should find it worth their while to use the Victorian railway. Such was the value set on the commercial connections that it was suggested in some quarters that Wentworth should be connected by railway with the nearest point on the Victorian line, so that the productions of the district should be taken direct to Melbourne, but that suggestion was never carried out; and, from tables published below, it will be seen that the course of trade from Wentworth has tended down the Murray to South Australia rather than up that stream to Echuca and thence by rail to Melbourne.

What the amount of the Darling River trade is will appear by the following tables, taken from the last volume of the Customs statistics. They also show the tonnage of the vessels passing Wentworth both ways during the past decade:—

INWARD.					OUTWARD.				
Year	South Australia.		Victoria.		Year	South Australia.		Victoria.	
	Value.	Tonnage.	Value.	Tonnage.		Value.	Tonnage.	Value.	Tonnage.
1875	£ 265,622	11,732	£ 73,555	7,302	1875	£ 564,213	12,598	£ 280,666	5,626
1876	417,421	15,349	72,560	6,763	1876	552,812	14,415	163,846	5,602
1877	253,838	16,549	40,860	8,013	1877	209,914	17,540	50,953	5,879
1878	387,180	26,973	102,771	15,367	1878	954,754	26,510	201,155	14,664
1879	289,306	26,200	83,378	15,390	1879	629,465	27,006	247,031	17,037
1880	238,157	26,930	92,482	12,577	1880	637,152	26,986	214,093	12,238
1881	234,897	17,188	90,459	10,630	1881	298,004	16,133	111,453	10,155
1882	410,127	28,035	89,085	11,297	1882	921,427	27,947	150,021	10,003
1883	404,322	32,005	54,241	13,093	1883	771,010	30,417	71,122	12,309
1884	218,937	17,781	39,732	8,389	1884	1,029,134	21,665	330,652	12,969

From these returns we gather that on the whole there has been a considerable increase in the volume of the Darling River trade during the past decade. The figures do not represent the full measure of the increase, because wool and other produce that formerly went by the course of the river has for two or three years past been coming in increasing proportions to Sydney. For instance, copper from the Cobar Mines, which a few years back went *via* Louth and Wentworth for shipment, is now sent by rail to Port Jackson. What is the total value of the trade thus diverted to the Pacific Coast cannot be told; but the figures indicate that, after all has been withdrawn on that account, there still remains a growing volume of river trade, which last year assumed dimensions reckoned at over £1,600,000 in value, of which about £1,250,000 was with South Australia, and £350,000 with Victoria. It will be seen that the tendency of the increase in the trade has been towards South Australia rather than towards Victoria. We imagine that the increase in the volume has been greater than the increase in the value of the trade,

no doubt attributed to the reduced prices of both our exports and imports, of which it is to be assumed our Customs authorities take cognizance in their valuations. And this view is borne out by the fact that the tonnage arriving and departing from Wentworth, on the whole, shows a much greater increase than the value, whilst the numbers of the vessels increased from 93 in 1875 to 199 in 1883. A striking feature of the river trade is shown in the yearly fluctuations of both volume and values, due not so much to the falling off in the production, or the requirements of the district to which the Darling serves as a highway, though bad seasons must exercise some influence, but to the state of the river itself. In some years the stream is scarcely navigable, and in consequence the wool and other produce has to be got to market in other ways, or to be kept on the stations until the river rises. This feature is shown in a still more marked manner by the following table, which we also quote from the Customs statistics. The table shows the number of bales of wool exported *via* Wentworth to South Australia and Victoria, with remarks from the Collector of Customs on the state of the river:—

Year.	S. Australia.	Victoria.	Remarks.
	Bales.	Bales.	
1874	13,273	11,089	Navigable.
1875	15,379	9,993	do
1876	24,770	8,812	do
1877	5,706	2,744	Very low.
1878	39,282	11,924	Navigable.
1879	24,936	13,553	do for short period.
1880	25,432	13,238	do do
1881	14,193	6,011	do very short time.
1882	50,798	7,828	Rose twice during the season.
1883	38,075	2,992	Unnavigable nearly the whole season.
1884	45,937	13,478	Navigable twice for short time.

This table confirms the view of a very considerable increase in the volume of the Darling River trade.

Wool constitutes probably more than nine-tenths of the river-borne traffic downwards. As the wool has increased, so probably has all other produce, whilst the return trade in the shape of station supplies no doubt increased in something in nearly the same ratio. Teams usually look for traffic both ways, and steamers likewise find it profitable to carry cargo up as well as down the Darling River.

The river-borne traffic of the Darling district being determined at about one million and a half sterling; the next question is as to where it is gathered. The country watered by the Darling is of immense area—estimated at about 200,000 square miles. The length of the river itself is reckoned at about 1,160 miles from its source to its junction with the Murray at Wentworth. It is navigable about 530 miles, from Wentworth to Bourke, and sometimes to Walgett. After leaving Wentworth, which is 620 miles from the mouth of the Murray, a steamer proceeding up the river would reach the first considerable place, Pooncarie, in 130 miles, where there is a growing trade. A further distance of 90 miles would bring her to Menindie, which it was reckoned a few years back had a trade of £250,000. 100 miles further on she would reach Wilcannia, which is regarded as having a business larger than that of Bourke, and estimated in some quarters as approaching a million sterling. 130 miles still higher up the river is situated Louth, where the Cobar Copper Company at one time shipped their produce, and 78 miles still higher the voyage might end at Bourke, 528 miles from Wentworth. The commerce of Bourke has been reckoned at £750,000; but we have no very satisfactory data on which to base calculations as to the proportion of the trade gathered at each particular place. Some estimates published have exceeded the figures shown in the Customs statistics, but these must be regarded as the most trustworthy. The South Australian writer to whom reference has already been made admitted that, five years ago, a very great deal of the Bourke and Walgett trade went to Sydney. Every year since, as the railway approached it, a still larger proportion has come this way, and it may be doubted therefore whether any very considerable part of the business of those districts is included in the figures representing the aggregate traffic at Wentworth.

The question as to the proportion of the Darling River trade that will be secured by the Bourke railway has yet to be determined. Some suppose that all the trade from Wilcannia will go down the river; whilst others think that probably some portion of the wool and other produce from that port, and most of that from stations above, will be conveyed by steamer to Bourke—that, in fact, Bourke will be a great central dépôt for the gathering of the productions of the country north and west, as well as of all the country watered by the northerly branches of the Darling. It is believed that, by the use of small steamships of light draught, flat-bottomed barges can be advantageously utilized in bringing produce down the river from Walgett, and up the river from Wilcannia, when it would be found impossible to take the larger steamers and barges now employed from Bourke to Wentworth. These vessels gathering produce would return station supplies. If this view be realized the future of Bourke can hardly fail to be one of great importance. It will be the great central city of Australia, and the railway traffic to and from Sydney will eventually assume vast dimensions. Even should no considerable portion of the lower river traffic trend to Bourke, as some have supposed, there is still an immense country of which it will be the commercial dépôt, furnishing an ever-increasing traffic for the New South Wales railway system—a traffic that, without the railway, would in a large measure go to swell the volume of the river trade going by Wentworth to the sea. If it is found that Bourke secures the commerce of Wilcannia, the necessity for the line sanctioned from Orange *via* Forbes to that place will not be very apparent; and it may be found desirable rather to construct the second line across the plains to Menindie or Pooncarie, lower down the river, and thus divert all the New South Wales traffic of the Darling River to Port Jackson. If two lines across the great western plains will suffice, there is no reason why a third should be constructed.

DARLING RIVER TRADE.

THERE is a very exhaustive and suggestive article in the *Herald* of to-day with reference to this trade of the Darling, and a suggestion is made that probably private enterprise may direct the river traffic to Bourke from Wilcannia on the one side and Walgett on the other, by means of barges of very light draught which would be able to travel nearly all the year round.

I should feel greatly disposed to give every official encouragement to such a scheme. It is true that as regards Walgett we have already obtained the traffic, either by the way suggested or else by cross-country to Narrabri, where it is taken up by the North-western railway; but a river service between Wilcannia and Bourke, 208 miles, would be the means of diverting an immense trade to Sydney, and, as I said before, I would be prepared to give encouragement to the enterprise.

I wish the Traffic Manager to institute inquiries, and to see on what terms a through rate could be established, and the probable time goods could be delivered at Wilcannia by this route, as compared with the river route from either Echuca as the river port, which is the entrepot for goods to and from Adelaide.

Mr. Kirkcaldie might journey to Wilcannia perhaps *via* Bourke, and from thence per river or road, and ventilate the proposal there with the steamboat proprietors. Much will of course depend upon the facilities of river navigation between Wilcannia and Bourke.

CHAS. A. GOODCHAP, 15/9/85.

If the merchants of Sydney will assist in the scheme, I think that goods could be delivered at Wilcannia cheaper and quicker than by any other route.

As the Commissioner has asked for the return of these papers this afternoon, I need hardly say, in sending them, that I have not had the time to give the subject that consideration which its great importance demands; but I have long foreseen that the opening of the Western line to Bourke would raise the question of the importance of the trade of the Darling to this Colony. I think a report similar to that written about five years ago on the Murrumbidgee trade would be of very considerable advantage to the Department, and I am inclined to think that we would not have the same difficulty in securing the trade of the Darling as we have had with that of the Murrumbidgee; but in order to arrive at a fair idea of the extent of the trade at the various points, and the practicability or impracticability of the navigation, the best plan will be to do as the Commissioner says and make inquiries on the spot. It may be advisable to expend a sum of money in improving the navigation between Bourke and Wilcannia, and probably as far as Menindie.—W.V.R., 17/9/85.

I understand that Mr. Kirkcaldie will be able to start this week. It is a report similar to that which he made at my request on the Murrumbidgee traffic which I require of the Darling River traffic.—CHAS. A. GOODCHAP, 17/9/85.

Write to the leading firms of Sydney and state what is proposed to be done, and ask them to cooperate by endeavouring to establish commercial relations with the storekeepers and others at Wilcannia.—CHAS. A. GOODCHAP, 17/9/85.

Firms written accordingly.—18/9/85.

Permewan, Wright, & Co. to The Commissioner for Railways.

Dear Sir,

Sydney, 10 October, 1885.

There are several clips of wool ready for transit in the Wilcannia district. I think a good few of those could be brought to Sydney by a reduction of freight from Bourke to Sydney. Land carriage is comparatively low at present, and there is a good opportunity, although the owners are holding back for river traffic.

If you think this matter of sufficient importance, I could see you on Monday evening, and discuss it with you. I shall be running Sydney on Monday night, and shall be away on next week.

I may mention that we are now bringing the following clips from that district to Bourke, viz., Tonga, Nelyambo, Winbar, and we are now in treaty for Cultowa.

Yours truly,
JAS. STEERS,
Manager.

Traffic Manager.—CH.A.G., B.C., 13/10/85.

Please see my report of this date in which I stated that I had offered to convey from Bourke to Sydney any wool clips from and near Wilcannia at the 250-lb. rate (12s. 9d.) on all bales weighing not more than 280 lb. That is equivalent to a reduction of 18s. per ton on bales weighing over 250 lb. and not exceeding 280 lb., which will embrace nearly all the scoured wool. There is not any appearance of a rise in the river, and I do not think it is necessary to make a further concession this season, except perhaps on scoured wool properly dumped. The space that would be saved by such a process, and the consequent saving in working expenses to the Department, would fully justify the Commissioner in allowing a further rebate of 10 per cent., which would reduce the rate for dumped scoured wool in bales not exceeding 280 lb. in weight to 11s. 3d. In view of the river being navigable next wool season, further reductions are recommended for adoption before that time. If the Commissioner agrees to the reductions recommended for this season's wool they should be well advertised in the Wilcannia newspapers, so that the squatters may be conversant with them; and, if the other reductions recommended in my report are approved of, it might be added that further reductions are in contemplation before next wool season.—D.K., 30/10/85. Traffic Manager.

I have recommended the adoption of these proposals on Mr. Kirkcaldie's report on the trade of the Darling which accompanies this.—W.V.R., 31/10/85. Commissioner.

Mr. Assistant Traffic-Manager Kirkcaldie to Mr. Traffic-Manager Read.

Sir,

I have the honor to report that, in accordance with the Commissioner's instructions, I have visited Bourke and Wilcannia, (and, while doing so, took the opportunity of calling at the stations between those towns), for the purpose of making inquiries as to the most effective means of diverting to Sydney the trade of that immense district drained by the Darling River, which, until within the last year or two—when our Western line has been rapidly approaching towards Bourke, and has now been extended to that town—was nearly entirely monopolized by Adelaide and Melbourne. If

If the river were as navigable as the Murrumbidgee, there can be no doubt that we would have to make considerable concessions to secure the trade; but the great uncertainty of the navigation impresses me with the belief that, with the exception perhaps of two or three leading lines of heavy goods upon which it may be advisable to make a reduction, the trade of Bourke and for a large district round about, will now naturally trend to Sydney, in consequence of the certainty of conveyance and the quick dispatch afforded by the railway. The country in question being, as is well known, an exclusively pastoral one, it will perhaps be as well that I should deal with the wool rates before touching upon those applicable to general goods; and I may here mention that my attention was called to the inequality of the wool rates from Bourke, Byrock, Girilambone, and Nyngan. No one contended that the Bourke rates are too high; but they are generally regarded as excessive as compared with those from the other stations named. I assured those who mentioned the subject to me, that it would be fairly considered, and the rates equalized before next wool season.

The navigation of the river is so very uncertain, and so much depends upon the availability or otherwise of barges when a rise (not unfrequently only lasting a few days) does occur, that the rates of freight vary to a great extent; and so many boats have sunk in the river during the last few years, that about two years ago the rate of insurance upon wool was doubled, and is now as high as 47s. 6d. per cent. from Bourke, and 45s. per cent. from Wilcannia to Adelaide or Echuca.

The following are, however, regarded as fair average rates from Bourke to Adelaide or Melbourne, viz. :—

<i>Greasy.</i>		<i>Scoured.</i>	
Freight, 100s. per ton, =	20s. per bale.	120s. per ton, =	15s. per bale.
Insurance, 47s. 6d. %, estimated value £50 per ton...	4s. 9d. ,,	47s. 6d. %, estimated value £150 per ton	8s. 11d. ,,
	<u>24s. 9d.</u>		<u>23s. 11d.</u>

The rates to Sydney, including delivery, are 15s. per bale not exceeding 4 cwt., and 12s. 9d. per bale not exceeding 250 lb. in weight, so that I am decidedly of opinion we have nothing to fear from river competition, even under favourable circumstances, in respect of wool coming from the districts north of Bourke, or as far to the south-west as Curranyalpa or Kallara, or from the country to the east of the Paroo River, but the wool from stations at a distance from the railway or river is burdened with such a high rate of team carriage that, where water is available for the purpose, it is nearly all scoured before being dispatched; and that suggests a question which it may be well not to pass unnoticed. Bales of scoured wool vary in weight from 2 cwt. 1 qr. (252 lb.) to 2 cwt. 2 qr. (280 lb.), and as we charge the full 4 cwt. rate on all bales in excess of 250 lb. it follows that the squatters (very few of whom are conversant with our rates, and who generally enter into a contract for the wool to be lifted from the station and delivered in Sydney at a rate agreed upon), must either limit the quantity of wool that can be put into a pack or forego the rebate of 15 per cent. allowed upon the bales weighing not more than 250 lb.

If the rebate of 15 per cent. were given on all bales weighing not more than 280 lb., instead of 250 lb., nearly all bales of scoured wool would come within the scope of the concession; and, considering the extent of the difference between the present 250 and 280 lb. rates, I recommend that the alteration be brought into operation *generally* before next wool season. The woolpacks being of the same size, it follows that the 280-lb. bale is not more bulky than the one weighing 250 lb. (the only difference being the one is better pressed than the other), so that an equal number of bales can be got into a truck, and in that way the direct loss to the Department would not be great, while the advantage to the squatter would be considerable.

I recommend this for adoption.—W.V.R.

The effect on a clip of 250,000 lb. (exclusive of the weight of the woolpacks) would be as follows :—

Present rate 250,000 lb. ÷ 250 = 1,000 bales at 12s. 9d. =	£637 10 0
Proposed „ 250,000 lb. ÷ 280 = 893 „ „ =	569 5 9
Difference	£68 4 3

but the number of trucks used in the conveyance of the wool would be reduced by three; and as it is well known that we have to send numbers of empty trucks both west and south-west in the season to bring wool to Sydney, it is apparent that the direct loss to revenue would be largely compensated for by the saving in working expenses.

And as an inducement to squatters and others to dump *scoured wool*, whereby from 20 to 25 per cent. more bales can be loaded in a truck than those undumped, without exceeding the weight the truck is authorized to carry, I strongly recommend a *further* rebate of 10 per cent. upon all scoured wool properly dumped. I consider this of even greater importance than the extension of the limit of light bales from 250 lb. to 280 lb., inasmuch as the saving in working expenses would largely exceed the amount of the concession.

Recommended.—W.V.R.

The river has been entirely unnavigable for the last six months, and, to a great extent, during the last two and a half years; but it is generally stated that during the last three years it has been unusually impracticable, and that for four or five previous successive seasons it was always navigable within two or three months after shearing to such an extent as to permit of the wool being taken away; in fixing our rates, therefore, we must anticipate such seasons again.

From Buckambie Station, which is nearly equi-distant between Bourke and Wilcannia, wool can be sent to Melbourne or Adelaide when the river is navigable at the following rates, viz. :—

<i>Greasy.</i>		<i>Scoured.</i>	
Freight, 80s. per ton, =	16s. per bale.	100s. per ton, =	12s. 6d. per bale.
Insurance, 45s. %, estimated value, £50 per ton	4s. 6d. ,,	Estimated value, £150 per ton	8s. 5d. ,,
	<u>20s. 6d.</u>		<u>20s. 11d.</u>

while

while the rates by river to Bourke and the trainage to Sydney would be :—

River freight (say) 25s. per ton, = 5s. per bale;	30s. per ton, = 3s. 9d. per bale.
Insurance (say) 15s. per cent., = 1s. 6d. „	Estimated value, £150
Trainage to Sydney 15s. „	per ton... .. 2s. 10d.. „
	Trainage to Sydney 15s. „
—————	—————
21s. 6d.	21s. 7d.

but if my proposal to allow 15 per cent. on all bales not exceeding 280 lb. in weight is adopted, the through rate on scoured wool will be reduced from 21s. 7d. to 19s. 4d. per bale.

It will be observed that I have based my estimate of the value of the wool upon the present very low ruling prices, but I have done this purposely, because, although the price of wool will doubtless increase, it is not at all improbable that the rates of insurance will be considerably reduced when the river becomes once more fairly navigable, which would still leave the gross rates about the figures quoted; and in addition to that we must, in such a case, anticipate considerable reductions in the river freights as well.

I am therefore of opinion that the only effective method of diverting the trade, short of constructing a railway to the district, will be to make considerable concessions upon all wool, put on the rail at Bourke from Buckambie and stations below having a frontage to the Darling on the eastern side, and on the western side from Marra and all stations south and south-west thereof, and lying wholly to the west of the Paroo River.

This concession should, I think, be about 25 per cent. on the present rates for greasy wool, and the same on the rates herein recommended for scoured wool, dumped or undumped, which would make the rate from Wilcannia to Sydney as follows :—

<i>Greasy.</i>	<i>Scoured.</i>
Freight to Bourke (say) 35s. per ton, = 7s. per bale;	(say) 40s. per ton, = 5s. per bale.
Insurance (say) 20s. per cent., = 2s. „	= 3s. 9d. „
Trainage to Sydney = 11s. 3d. „	= 9s. 7d. „
—————	—————
Through rate for undumped wool, = 20s. 3d.	= 18s. 4d.
Rebate for dumped wool 1s. 8d.	10 per cent. on 9s. 7d., 11d.
—————	—————
Through rate for dumped wool ... 18s. 7d. „	17s. 5d.

While the rates by river to Adelaide or Melbourne are :—

<i>Greasy.</i>	<i>Scoured.</i>
Freight, 60s. per ton, = 12s. per bale;	80s. per ton, = 10s. per bale.
Insurance = 4s. 6d. „	= 8s. 5d. „
—————	—————
16s. 6d. „	18s. 5d. „

the latter being capable of considerable reductions while the river is navigable.

I have a strong impression that the reduction I have mentioned would cause a large quantity of wool to be sent to Sydney, even by teams to Bourke when the river is unnavigable, which is now held back for a rise in the river, or is sent to Adelaide, *via* Terowie.

The utter impracticability of the river has secured us all the wool this season as far down as Nelyambo (about 180 miles from Bourke) on the eastern side, and from Marra on the western side; but from all I could gather we would not have got any from Buckambie or stations lower down, possibly not even from one or two of those higher up, if the river had been navigable.

All clips below those stations are being held for a rise in the river, partly, very probably, because of the very low price of wool at the present time, and in the hope that the market will improve, and partly because of the high rates to Sydney, the team carriage from Wilcannia to Bourke being as high as £8 per ton = 20s. per bale on scoured wool.

While in the district I offered to convey all bales weighing not more than 280 lb. of Cultowa and Momba wools (the former clip is about 1,500 and the latter 4,000 bales) from Bourke to Sydney at the 250 lb. rate; and I also let it be known that any other clips coming from stations further down the river would receive the same concession. I am inclined to think that the owners of the clips in question will send to Sydney at the rates offered, and should they do so I shall be glad to have approval of the concession.

While in Wilcannia I was interviewed by a number of business gentlemen of that town and district, who impressed upon me that the trade of the district would never be effectively secured to Sydney until the line is constructed to that town. I pointed out to them that the question of the railway did not come within the scope of my commission, but that if they could furnish me with any statistics showing to what extent such a railway would still further tend to divert the trade to Sydney, I would be glad to lay them before the Commissioner; and in response to this I have received two communications from Mr. Haydon, the Manager of the Commercial Bank in Wilcannia, which I attach. I need hardly say that I am not in a position to check Mr. Haydon's figures, but a glance at the map will suffice to show that on the completion of the South Australian Railway to the border of that Colony with New South Wales, the clips of very nearly all the stations named in his statement will be sent overland to Adelaide when the river is impracticable; because the railway named will then be within about 150 or 160 miles of Wilcannia, and the distance by rail to Adelaide will only be 330 or 340 miles, while the distance from Wilcannia to Bourke is about 230 miles, and the railway to Darling Harbour 504 miles.

Before quitting this part of my report, I think it advisable to recommend that the restriction as regards bales of dumped wool being hooped with iron be rescinded. It appears that some stations are now provided with improved dumping presses, which render the hooping of the bales unnecessary; and so long as the latter do not exceed twenty (20) feet cubic measurement the regulation as to hooping might be readily dispensed with.

Recommended
—W.V.R.

Recommended.
—W.V.R.

As regards merchandise from Sydney, I am of opinion that, with the exception of two or three heavy leading lines, there is no necessity to make any reductions in the present rates upon traffic for stations north of Buckambie or Marra, or east of the Paroo River,—the lines referred to being sugar, galvanized iron, and fencing wire. Traffic of this kind is generally ordered in large lots, and when there is a good river it can be conveyed from Adelaide to Bourke for £4 10s. to £5 per ton, including insurance; and in such a case there would always be an inducement to order supplies of general stores which, when forming the same cargo, would be conveyed at the same low rate of freight, although, according to value, the insurance would be higher. Recommended
—W.V.R.

Our rate for sugar in truck-loads, from Sydney to Burke, is £36 13s. 8d. = 122s. 3d. per ton; while for galvanized iron and fencing wire it is 123s. 3d. per ton, in lots of not less than one ton; and I am of opinion that if a maximum truck rate of £30 per truck on each or all these lines of goods were fixed for the Western line, all the other rates might be left as they are. Recommended.
—W.V.R.

The only other station of any importance that would be affected by making the rate in question the maximum for the Western line would be Byrock, to which place all traffic for the Brewarrina district is consigned; and the reasons which induce me to recommend the reductions in the case of Bourke apply with much the same force to Brewarrina.

For traffic consigned from Sydney to the district from which I have recommended a reduction of 25 per cent. on the wool rates, I suggest a truck rate of £24 for sugar, galvanized iron, and fencing wire, and £30 per truck (=100s. per ton on third class goods) on all other general goods except explosives. Recommended.
—W.V.R.

The reduced rates, except those respecting the wool, should, in my opinion, be brought into operation as soon as possible (the sooner the better), so that we may get a good hold upon the trade before the river rises again; but it would be better, I think, not to publish the reduced wool rates for some months yet, particularly as I understand that the Queensland Government purpose making considerable reductions on the railway rates in that Colony, and it is not desirable that, before doing so, they should be aware of any action that may be taken in this Colony in that respect.

I mention these rates after careful consideration both of the navigation of the river and in view of the completion of the South Australian Railway to the border of that Colony (within about 15 or 16 miles of Silvertown), which will be a formidable competitor for the trade of a very large district northwards, and eastwards towards Wilcannia. This line is expected to be completed in December, 1886, and extensions will be opened before that time. I have had considerable difficulty, in consequence of the impracticability of the river during the last two or three seasons, in defining the district, which will, with a navigable river be competitive, or in suggesting the extent of the reductions which should in such a case be made, but the proposals I have made appear to me to be the most fair and equitable.

It will, however, be to the advantage of the Department if an officer is sent throughout the district about the same time next year, when the river may be navigable, and when it is expected that a considerable portion of the Terowie-Silvertown Railway will be opened for traffic; he will then be better able to form an opinion whether the competitive district has been sufficiently well defined, or whether it will be necessary to make even greater reductions than those now recommended.

I may mention that I saw a number of teams conveying goods from Bourke to Wilcannia; but as the through rate from Sydney by train and team is about £20 per ton on third-class goods, storekeepers naturally keep their orders as low as possible, in expectation of the river rising.

While in Wilcannia I was fortunate enough to meet Mr. Byrnes, who is in charge of the snagging of the river, and with whom I had a conversation respecting the practicability of improving the navigation between Bourke and Wilcannia, so as to permit of the passage of boats drawing not more than 3 feet of water. It appears that the river has been thoroughly cleared of snags between Wilcannia and Wentworth, but as yet nothing has been done to that portion of it between Wilcannia and Bourke, where snags abound to a great extent, and where the rocks in the bed of the river are much more extensive than they are below Wilcannia.

A better time for improving the navigation, now that the river is so low, could not possibly be had, and I strongly recommend that the work be commenced at once. The snags could at least be all removed, and the Engineer for Harbours and Rivers might perhaps consider whether it is not also practicable to further improve the navigation, when the river is low, by cutting a channel off the tops of the rocks, the worst of which are at Jandra, Toorale, Curranyalpa and Kennedy. I do not mean to say that that would give a continual navigation, but Mr. Byrnes and Captain Pickhills (who has been on the river for twenty-seven years) are of opinion that if it were done we would in most seasons have river navigation five or six months out of the twelve, in which case, with the reductions recommended in the rates, I feel strongly of opinion that the great bulk of the trade as far down as Wilcannia would be conducted with Sydney.

The work, I am informed, will not be a very expensive one; and Mr. Byrnes was to write to Mr. Moriarty on the subject after I saw him.

In connection with this, I have to refer to the report I sent you from Bourke regarding the position of the wharf which is to be erected there. If the wharf is to be of any practical value it should be on or near the Gaol reserve, and not in the centre of the town as was intended. This is a matter
which is deserv-
ing of the most
careful con-
sideration.—
W.V.R.

The latter would necessitate cartage of all traffic between the river and the railway station, at a cost of about 3s. 6d. per ton, while by placing it on the Gaol reserve and extending the railway to it (a distance of between 950 and 1,000 yards) that expense and the double handling of the traffic would be saved.

The wharf is not required for the town of Bourke, because there can be no doubt that the whole of the trade of that town will be done through the railway, but for traffic going down or coming up the river it will be a great advantage if placed on the site I have named. This, too, is a work which should be taken in hand and completed as soon as possible, so as to be of advantage when the river is navigable.

Some modification of the parcels rates is also desirable, and would very probably lead to an increase of traffic in that direction.

The present rates are—

Distance.	3 lb.	3 to 7 lb.	7 to 14 lb.	14 to 28 lb.	28 to 56 lb.	56 to 84 lb.	84 to 112 lb.	Every additional 28 lb. or part thereof.
315 miles	s. d. 1 6	s. d. 3 0	s. d. 4 0	s. d. 5 6	s. d. 7 0	s. d. 8 6	s. d. 10 1	s. d. 2 5
And for every additional or part of additional 15 miles	0 1	0 2	0 2	0 3	0 4	0 5	0 5	0 1

which makes the rates from Sydney to Bourke—

	s. d. 2 7	s. d. 5 2	s. d. 6 2	s. d. 8 9	s. d. 11 4	s. d. 13 11	s. d. 15 6	s. d. 3 6
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Considering that we generally refuse to carry single articles under 56 lb. by goods train, it follows that the rate from Sydney to Bourke for a parcel weighing upwards of 28 and not exceeding 56 lb. by passenger train would be 11s. 4d., while a 56 lb. parcel by goods train would only be 5s. 6d.

I recommend the adoption of the following scale in lieu of the present:—

Recommended.
—W. V. R.

Distance.	3 lb.	3 to 7 lb.	7 to 14 lb.	14 to 28 lb.	28 to 56 lb.	56 to 84 lb.	84 to 112 lb.	Every additional 28 lb. or part thereof.
315 miles	s. d. 1 6	s. d. 3 0	s. d. 4 0	s. d. 5 6	s. d. 7 0	s. d. 8 6	s. d. 10 1	s. d. 2 5
And for every additional or part of additional 50 miles	0 1	0 2	0 2	0 3	0 4	0 5	0 5	0 1

which would make the rates between the stations named—

	s. d. 1 10	s. d. 3 8	s. d. 4 8	s. d. 6 6	s. d. 8 4	s. d. 10 2	s. d. 11 9	s. d. 2 9
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W. V. Read, Esq.,
Traffic Manager.

I have, &c.,
DAVID KIRKCALDIE,
30/10/85.

The Commissioner.—W. V. R., 30/10/85.

At your verbal request I have seen Mr. Barling, of the Harbours and Rivers Department, respecting my report on the Darling River trade, and he tells me it will take some time to report on the improvement of the navigation. I knew that that could hardly fail to be so, but that part of the question need not delay the settlement of the rates by railway. They should be decided at once, so that store-keepers and others may probably be induced to come from Wilcannia to Sydney to get their supplies. If the river gets in flood again before anything is done it will militate very much, and perhaps for a considerable time, against our getting a hold upon the trade. The river question can be settled afterwards, although, in that respect too, if anything is to be done no avoidable delay should take place in doing it.—D. K., 29/12/85. Commissioner.

I recommend the adoption of the proposed rates, and that the railway be extended to the river,—CH. A. G., 31/12/85.

I have carefully read these papers, and with especial satisfaction the admirable report of Mr. Kirkcaldie. I am favourably disposed towards the proposed alteration in traffic rates; but as I understand the wool contracts will not be taken for some time, and the success of the scheme largely depends upon the free navigation of the Darling between Bourke and Wilcannia, I think the further consideration of the question might be deferred until we are in receipt of the Harbours and Rivers report, which I have this day requested Mr. Moriarty to expedite.—J. G., 5/1/86.

I approve of the rates herein referred to.—J. G., 1/2/86.

Report on the best means of securing Darling River trade.—The Commissioner has desired me to ask when Mr. Kirkcaldie's report on the above matter will be furnished, and also to say that, as the construction of the Government wharf at Bourke has been suspended until the receipt and consideration of such report, and as it is desired to minimise the amount to be paid to the contractor for the stoppage of the work, it is hoped that no time will be lost in supplying what is required.—D. C. M. L., B. C., 26/10/85. Traffic Manager.

Herewith. The report would have been sent forward some days ago but that Mr. Kirkcaldie has been waiting for some information from Darling Harbour respecting the wool traffic.—W. V. R., 30/10/85. Commissioner.

Before any action is taken I should like the Engineer-in-Chief for Harbours and Rivers to read Mr. Kirkcaldie's report, with special reference to the site for the wharf at Bourke and the improvement of the navigation of the river between Bourke and Wilcannia. I shall be obliged to Mr. Moriarty if he will return me the papers as early as he possibly can, in order that I may submit them to the Minister.—CH. A. G., 2/11/85.

Extract taken and paper returned to Commissioner, with thanks. I will now deal with the matter.—E. O. M., 6/11/85.

I recommend that the measures to secure the diversion of the Darling River traffic from South Australia, Victoria, and Queensland to our lines, proposed in the accompanying report from the Assistant Traffic Manager, be adopted. The mercantile community of Sydney have been communicated with, and have promised their co-operation in a well-designed attempt to secure the trade. It must be remembered that it is the trade of our own territory, and that until the extension of the railway to Bourke we have not been in a position to compete for it.—CH. A. G., 10/11/85. Besides

Besides the alterations of rates, the following measures will be required to be carried out:—

1. Improvement of the navigation of the river between Wilcannia and Bourke.
2. The construction of the proposed wharf for Bourke at a site which will contribute to the completion of the scheme for diverting the traffic.
3. The extension of the railway line from its present terminus at Bourke to the river, in the immediate vicinity of the proposed wharf.

CH.A.G., 10/11/85.

Will Mr. Moriarty report upon the navigation of the Darling River, herein referred to.—W.J.L., 11/12/85. Under Secretary for Works, B.C., 11/12/85. Mr. Moriarty, B.C., 17/12/85.

Darling River traffic.—Will the Commissioner please inform me whether any decision has yet been come to respecting the rates for the Darling River trade. In the present state of the river, a suitable reduction of rates would almost to a certainty induce storekeepers and others in the Wilcannia district to send to Sydney for their supplies, but the opportunity will in all probability be lost if the river should again become navigable before the diversion is effected. My opinion is that, if any reduction is to be made, it should be done as soon as possible.—W.V.R., 17/12/85. Commissioner.

Obtain papers at once. Mr. Secretary Lyne was favourable to the rates proposed, but was doubtful about the scheme for making the river navigable.—CH.A.G., 29/12/85.

No. 33.

Messrs. Headley and Laughamer to G. Day, Esq., M.P.

Sir,

Albury, 1 December, 1885.

We wish to bring under your notice the hardship that Albury manufactures are subject to by the excessive railway charges on goods from Albury instituted to handicap Victorian productions, and although Mr. Goodchap states a mileage rate is charged on Albury goods this is not done or only in exceptional cases; but should the Hon. Minister for Works write a minute at the Albury station that all *bona fide* Albury productions be charged at mileage rates, the vexatious question would be satisfactorily settled. As we know this subject has been previously ventilated, we will not further trespass on your valuable time.

And remain, &c.,

HEADLEY & LAUGHAMER.

I am told that the goods manufactured at Albury are being sent along the road. Brewers, iron-workers, furniture makers, and farmers send their wares in that way, but they would not do so if the usual rates were charged. We are already bringing the special class goods from Albury at the ordinary rates, and it is a question whether goods manufactured in Albury should not also be taken at ordinary rates. The objection would be, in the case of a competitive manufacturer (say) at some place between Albury and Wagga. If he obtained his raw material from Melbourne he would be charged the excess rate on that material, while the manufactured article might be carried for an Albury manufacturer at as cheap a rate or cheaper. Let me know how the matter really stands. For some years probably there will be no manufactory established between Wagga and Albury.—CH.A.G., 4/12/85.

Are not all articles manufactured in Albury (or rather north of the Murray) charged the ordinary mileage rates when sent along the line? Reply fully and quickly, please. What are the principal manufactures?—D.K., 5/12/85. Goods Superintendent.

Station-master, Albury, for early report.—J.D., 7/12/85. Please report on this at once, referring to the particular instances in which mileage rates have been charged by authority.—A. WILLIS, 9/12/85. Mr. Cullen.

Mr. Headley was under the impression that he was charged at the rates for Victorian importations, and on referring to his consignments of Colonial ale in bulk, I convinced him this was not the case. He had been charged only mileage rates. Mileage rates have been charged on goods manufactured in Albury in all instances, namely, in the case of goods from breweries, farms, soap manufactories, iron-workers, and furniture makers.—T.W.C., 10/12/85.

To see A. Willis.—SUPT. EVANS, 11/12/85. I note the Commissioner speaks of local manufacturers obtaining the raw material from Melbourne. This I know to be the case in one instance, if not more.—A. WILLIS, 11/12/85.

I should like to have Mr. Headley's assurance in writing that he is satisfied mileage rates only are charged. I presume the firm obtain their raw material from Sydney.—J.D., 12/12/85. Station-master, Albury.

Please obtain this. You had better go yourself to the brewery.—A. WILLIS, 14/12/85. Mr. Cullen. I attach a memo. from Mr. Headley giving the desired information, and as he was out of town for a few days I was unable to get it earlier.—T.W.C., 19/12/85. Goods Supt. Traffic Manager.—G. EVANS, 22/12/85.

Sir,

Albury, 18 December, 1885.

Since my previous communication we have ascertained that our goods are sent at mileage rates, which are satisfactory, and as we make all our own malt from the local barley, we consider we are fairly entitled to the concession we asked.

Yours, &c.,

HEADLEY & LAUGHAMER.

Messrs. Headley and Laughamer are now satisfied that mileage rates are charged on goods manufactured in Albury sent north by rail. They were under a misapprehension when they wrote to Mr. Day, M.P.—W. V. READ, 24/12/85. Commissioner. Inform Mr. Day.—CH.A.G., 29/12/85.

Sir,

Sir,

Department of Railways, 31 December, 1885.

With reference to the letter of Messrs. Headley and Laughamer, brewers, of Albury, forwarded by you to this office, complaining of excessive railway charges on goods from Albury, I have the honor to inform you that from verbal inquiries it seems the firm were under the impression that they were charged at the rates for Victorian importation, but are now convinced they have been charged only the mileage rate, with which they are perfectly satisfied. I may add that I am in receipt of a letter from Messrs. Headley and Laughamer to this effect.

I have, &c.,

C. A. GOODCHAP,

Commissioner for Railways.

George Day, Esq., M.P., Arleston House, Petersham.

No. 34.

A. J. Bolton, Esq., M.P., to The Secretary for Public Works.

Sir,

Sydney, 24 November, 1885.

In compliance with the request of the inhabitants of Junee Junction, I do myself the honor to draw your attention to the inequitable rates charged upon goods carried by rail to that place.

As I am informed, the rate charged for 3rd class goods to Junee Junction, which is 287 miles from Sydney, is £6 18s. 7d., and no reduction is made where a full truck is taken. The same class of goods are carried distances over 305 miles at £20 per truck, equal to £3 6s. 8d. per ton. Galvanized iron and wire is carried to Junee Junction at the rate of £24 per truck, and to distances over 305 miles at £18 per truck.

The inhabitants claim that they are entitled to the same consideration as the inhabitants of other places, and therefore request that if the truck system is to be continued, it may be adopted with regard to their town, and if that be not conceded, that their goods may be booked direct to Junee Junction at a rate equal to the truck rate with the return charges added thereto, and thus avert the necessity of further continuing the farce of having goods consigned to a greater distance than is required, to be then re-consigned back to place of destination.

It appears to me that the demand is so in accordance with just rights that I feel you will see your way to at once comply with it. To carry goods past their destination in the first place, and then consign them back appears to me so absurd that I feel your sense of justice will at once prevent the farce being perpetrated any longer.

I have, &c.,

A. J. BOLTON.

I should like this question reported upon by Mr. Goodchap, and a clear statement prepared why the present system should be continued or why the request made should not be granted.—G.R.D., 24/11/85.

The Commissioner for Railways for report.—J.H.L., 24/11/85. J.R., B.C., 25/11/85. Traffic Manager.—G.B., B.C., 27/11/85. Urgent.

This matter has already been pretty fully reported on on several occasions, and nothing has since transpired to induce me to alter my opinions or to make any alteration on the present arrangement.

As the Commissioner is aware, the truck rate of £20 from Sydney to stations on the Southern and South-western lines, distant over 305 miles from the metropolis, was established because of the great reductions that had been made on the Victorian lines upon goods coming into this Colony; but it has never been considered necessary to reduce the rates to Junee Junction or stations further north. It is quite true that goods sent from Sydney in truck loads are conveyed to Wagga Wagga, and can be returned from there to Junee at tonnage rates at a large saving to the storekeeper, the saving on 1st, 2nd, 3rd, and 4th class goods being 5s. 1d., 23s. 58s. 10d., and 94s. 9d. per ton respectively. It is also a fact that the great bulk of the Junee traffic is first sent to Wagga Wagga in this way and returned from there, the tonnage during the months of August, September, and October being:—

1st class.			2nd class.			3rd class.			4th class.		
t.	c.	q.	t.	c.	q.	t.	c.	q.	t.	c.	q.
6	9	2	36	14	0	94	5	2	1	1	1

while that sent direct to Junee was—

1st class.			2nd class.			3rd class.			4th class.		
t.	c.	q.	t.	c.	q.	t.	c.	q.	t.	c.	q.
9	12	2	19	2	0	30	11	1	1	3	3

upon which, of course, ordinary mileage rates were charged. If the traffic which was sent to Wagga Wagga had been left at Junee on the down journey and the Wagga truck rate, plus the tonnage rates, from there to Junee had been charged as is suggested, it would of course have saved the haulage of 138 tons 10 cwt. 1 qr. (= twenty-three trucks) a distance of 44 miles; but, on the other hand, we would have lost the difference between the foregoing rate and the actual mileage rates on the traffic that was sent direct from Sydney to Junee, and that difference amounts to £117 19s. 3d. Nor is that all. If the concession were made as regards Junee it could hardly be denied to stations further north similarly affected. The rates from Sydney to Cootamundra, for example, are:—

1st class.	2nd class.	3rd class.	4th class.
73/3	91/1	126/9	163/4

while to Wagga Wagga, at the truck rate, and back to Cootamundra, at the tonnage rate, they would be:—

1st class.	2nd class.	3rd class.	4th class.
66/8	66/8	66/8	66/8
19/8	24/1	32/11	42/9
<u>86/4</u>	<u>90/9</u>	<u>99/7</u>	<u>109/5</u>

thus making a difference of 27s. 2d. per ton on 3rd and 53s. 11d. per ton on 4th class goods in favour of the journey to Wagga Wagga and back. During the months of August, September, and October 36 tons 5 cwt. 1 qr. of third and tons cwt. qr. of 4th class traffic for Cootamundra was first sent to Wagga Wagga

The cost of this running to the Department might fairly be estimated at £14.—Ch.A.G. £14 as against £117 19s. 3d.

Wagga at the truck rate and returned from there at tonnage rates. It would doubtless have been better if we had not hauled these goods 112 miles for nothing; but, during the same months, 490 tons 17 cwt. of 3rd class and 13 tons 16 cwt. 2 qr. were consigned direct from Sydney to Cootamundra; upon these ordinary mileage rates were charged, and if these had been carried at Wagga Wagga truck rates, plus tonnage rates from there to Cootamundra, the Department would have sacrificed revenue to the extent of £724 14s. 4d. If all Cootamundra and Junee goods were first consigned to Wagga Wagga and returned from there, it would be unquestionably to the interests of the Department to comply with the request that has been made; but, so long as such a large proportion of them are sent direct, it would, in my opinion, be very inadvisable to alter our present arrangements. If the request of the inhabitants of Junee were conceded it would save those even of Harden 3s. 10d. per ton on 3rd and 23s. 11d. per ton on 4th class goods if the concession were extended to that station; and if granted in one case it could hardly be refused in another.—W.V.R., 9/12/85.

Twelve trucks at outside. The cost to Department might fairly be taken at £23.—Ch. A. G. £23 as against £724 14s. 4d.

The Department would lose a large amount of money by adopting the course suggested. I cannot, therefore, recommend it.—Ch. A. G., 12/12/85. For consideration of my successor.—W.J.L., 17/12/85.

I have not had time during my tenure of office to go thoroughly into this question as it needs; but that it needs revision, if not an entire revolution, I am fully persuaded.—J.G., 18/2/86.

No. 35.

Minute by Mr. Traffic-Manager Read.

I now enclose a draft advertisement, which should be pretty freely inserted in the newspapers at Sydney, Bourke, and Wilcannia.

Since Mr. Kirkcaldie's visit to the Darling district, followed the appearance of some well-written articles, which appeared in the *Sydney Morning Herald*, in September last, it would be to our advantage if that and other papers were to comment at some length at the action that has been taken, so as to give as much prominence as possible to the reductions that have been made.

If that were done it might safely be assumed that if any exception is to be taken to the proposals that have been made and adopted (and it is not to be expected that they will please everyone) someone would point out any weak points either to the Commissioner or through the columns of the press, and such criticism would be useful for future guidance.

I think, too, that it would be well to have hand-bills printed and freely circulated, and I enclose a draft of that as well.

The question of improving the navigation of the river should not be lost sight of. If that can be accomplished, the reductions that have been made in the railway rates should go a long way towards securing the trade of the Wilcannia district.

As the Commissioner has approved of an officer being sent through the district, I think the journey should be undertaken some time in May.

W.V.R., 8/2/86.

Department of Public Works, Sydney, 6 February, 1886. New South Wales Government Railways—Reduction of Merchandise Rates between Sydney and the Darling River district.

On and after Wednesday, the 10th instant, the maximum rate for sugar, galvanized iron, and fencing wire from Sydney to any station on the Western line will be £30 per truck load not exceeding 6 tons; smaller quantities will continue to be charged at the ordinary tonnage rates.

From the same date the maximum rate for any class of merchandise (except gunpowder and other explosives, and sugar, galvanized iron, and fencing wire) from Sydney to Bourke for the district from Buckambie station, and all stations below having a frontage to the Darling River on the eastern side and on the western side, including Marra and the whole district south and south-west thereof, and stations lying wholly to the west of the Paroo River, will be £30 per truck not exceeding 6 tons, but the ordinary tonnage rates will be charged in the first instance and the rebate allowed on production of a certificate on a form, which will be provided by the Department, to the effect that the goods have been delivered in the districts named.

Sugar, galvanized iron, and fencing wire for these districts will be charged £24 per truck.

Wool Rates.

The rebate hitherto allowed on bales weighing not more than 250 lb. each will be extended to bales weighing not more than 280 lb., and will be applicable to all lines.

A further discount of 10 per cent. will be given upon all scoured wool properly dumped.

The necessity of hooping dumped wool of any kind with iron bands will not be insisted upon, but the rebate will be allowed, provided the bales do not exceed 20 cubic feet measurement each.

Wool put on the rail at Bourke from the districts specified in clause 2 will be allowed a rebate of 25 per cent. upon the ordinary rates.

CH. A. GOODCHAP,
Commissioner for Railways.

Re New Rail Rates for Lower Darling and west of Paroo.

Sir,

Bourke, New South Wales, 16 March, 1886.

Would you kindly advise us whether the truck rates for mixed goods will be allowed Nocoléché station, which has leasehold lands on both sides of Paroo, and Wanarring station, which has leasehold lands only on the west side of Paroo, but are in present occupation of resumed lands on east side. In the event of your deciding in favour of truck loads for Nocoléché, the stations further up the Paroo will, of course, also participate in same advantages. We would point out that until lately these stations were supplied with goods and sent their wool to Wilcannia.

We also read that our customers are entitled, under the new rates, to put (say) 2 tons each of wire, galvanized iron, and sugar, making 6 tons in all, and paying £30 or £24 per truck, according as to whether they are in or out of bounds named. Would you kindly put us right upon this subject?

Another matter we are interested in, and that is, that the truck rates, &c., may be extended to goods going into Queensland. A great number of our customers live west of the Paroo, in Queensland. Do we understand they are entitled to truck rates and advantages named in your late memo? At present we do a fair share (or rather not we, but New South Wales) of business with the Warrego and South Gregory districts of Queensland. The first-named district will—or at least part of it will—for some time deal through this Colony, but the South Australian Railway to Milparinka (perhaps to Innaninka) must draw the trade of the South Gregory district at an early date if your office do not extend some such facilities of transport as are now offered to the Albert district of this Colony. Our questions are many and our letter long, but we hope the importance of the questions will atone for same, and asking your kindest and most convenient reply.

Yours, &c.,

WILLIAMS & CO.

P.S.—We have already received orders from two stations in the Albert district, who never dealt in Sydney before. Thus the change in rates has already had a small but successful influence. The Commissioner for Railways, Sydney.

I could not well answer this at the time, but I have since seen Mr. Williams, of Williams & Co., and informed him that, for the present at all events, no further concession will be made than has been already advertised.—W. V. READ, 9/4/86. Commissioner.

Dear Sir,

27 March, 1886.

We are sending a representative of this Company to the Queensland border district, and should like to know if we may anticipate any reduction in the rates for wool, &c. from the district named *via* Bourke.

You will no doubt have noticed the reductions made by the Queensland railways.

The favour of an early reply will oblige.

Yours, &c.,

PERMEWAN, WRIGHT, & CO.

The Commissioner for Railways.

Traffic Manager.—C.A.G., 2/4/86. Urgent.

If I mistake not, Wright, Heaton, & Co.'s representative has already gone to Southern Queensland, and I need hardly point out that it would not be right to give Permewan, Wright, & Co. information which the former firm has not got. In any case, I am not aware whether it is necessary to give any facilities beyond the ordinary rates for any of the traffic of that district. I have heard, however, that some concession will have to be made if we are to bring the trade to Sydney, and when an officer goes through the Wilcannia district about the month of June, it would doubtless be well if he, or some other, should visit the country about the Queensland border, and elicit all the information possible about the trade and the rates.—W.V.R., 6/4/86. Commissioner.

Approved.—C.A.G., 12/4/86.

Gentlemen,

Department of Railways, 14 April, 1886.

Referring to your letter of the 27th ultimo, intimating your intention to send a representative to the Queensland border district, and asking whether it is probable any reduction will be made for wool forwarded from that district to Sydney, *via* Bourke, I have the honor to inform you that the matter has had attention, but so far, nothing has been decided in favour of giving any concession in the direction mentioned, but an officer from this Department will probably be sent to Queensland border about the month of June, to elicit all the information possible about the trade and rates.

I have, &c.,

C. A. GOODCHAP,

Commissioner for Railways.

Messrs. Permewan, Wright, & Co., Sydney.

Darling River Trade.

In accordance with instructions, I enquired at the Harbours and Rivers Department as to the matters referred to by Mr. Kirkcaldie in his minute of 12/3/86. I was informed that the officer who was detached to report on the question of improving the navigation of the Darling River has not done so; that a sum of £5,000, which was placed on the Estimates dated 4th February, 1886, for snagging that river, had been reduced by Mr. Secretary Lyne to £2,500; and further, that the site proposed by this Department for the wharf at Bourke had been adopted.—J.E.P., 13/4/86. Mr. D. M'Lachlan.

Traffic Manager to see.—D.C.M'L., 13/4/86. Seen.—D.K., 27/4/86.

Dear Sir,

16 April, 1886.

We are in receipt of yours of 14th inst., and regret you cannot give us a more definite reply. Our traveller will be at Hungerford next Sunday week, and we should like to place him in possession of full information.

The arrangement for wool will be complete by the middle of May, and if nothing is decided before that date, it will be too late to influence the wool to our border.

We must respectfully ask you to reconsider this matter, as we have several old constituents in the Queensland border district, whom we should not like to see sending their traffic to the Queensland ports. We have to submit our rates at once, and if the Queensland traffic is less than ours, we cannot expect to retain the business.

If you think it advisable we will see the Minister on the matter.

Your early consideration will oblige.

We have, &c.,

PERMEWAN, WRIGHT, & CO.

The Commissioner for Railways.

If contracts are to be made in May the Traffic Manager will see that a decision as to the rates should be arrived at before. To postpone the question till June seems to be postponing it beyond available opportunity of benefiting in the decision.—C.A.G., 20/4/86.

Until

Until some one has been over the ground it is simply impossible to say what concessions will be made to divert Queensland traffic to Bourke or where the imaginary line will be drawn, beyond which the concession will be given. As far, however, as I can see at present it will not be necessary to make any reduction upon traffic to and from the Hungerford district, and Permewan, Wright, & Co. had better act upon our existing rates. If I am not mistaken Messrs. Wright, Heaton, & Co., and Lee, and M'Alister have already been over the ground and they have no more information than Permewan, Wright, & Co.—W.V.R., 26/4/86. Commissioner.

Inform that it is not likely that any reduction will be made as regards the Hungerford district.—C.A.G., 30/4/86.

Gentlemen,

Department of Railways, Sydney, 3 May, 1886.

With reference to your letter of the 16th ultimo, further respecting the proposed reduction in the rates for wool from the Queensland border district *via* Bourke, I have the honor to inform you that it is not likely that any reduction will be made as regards the Hungerford district.

I have, &c.,

C. A. GOODCHAP,

Commissioner for Railways.

Messrs. Permewan, Wright, & Co., 178, Clarence-street, Sydney.

Re Differential Rates, Junee.

A DEPUTATION, consisting of Messrs. Humphreys, Davies, and Emslie, introduced by Mr. Gormly, M.P., waited upon me to-day with reference to the position of Junee with regard to the differential rates. Junee is 287 miles from Sydney, and is therefore shut out from participating in the reduction allowed on goods carried for distances 305 miles or more. Wagga Wagga is 22 miles further from Sydney, yet a truck of 6 tons of goods to that town is carried for £20; but against this they had to pay £6 18s. 7d. per ton, or £41 11s. 6d. for 6 tons, and in fact they could send their goods from Sydney to Wagga and have them returned to Junee for £4 5s. per ton, as against £6 18s. 7d. if they were forwarded direct. Again, on the other hand, Junee was under a disability on the up journey. They could send a ton of goods to Albury for £2 18s., but if they wanted to bring goods from Albury they had to pay £4 7s., while the same goods would be carried from Albury to "Old Junee," 5 miles further on, for £3 0s. 2d. These rates were for 3rd class goods, as it was these that were principally affected, and under the present system their town was unduly handicapped against their rival Wagga Wagga. They asked, therefore, for two things:—

1. That ordinary mileage rates be charged from Albury, or
2. The £20 truck rate be extended to Junee.

It was mentioned further that, on the South-western line, the distance where the concession commenced was 340 miles, and as Narrandera was 341 miles it enjoyed the reduction.

I informed them that, at the present time, I did not feel favourably inclined towards making any alteration in the rates from Albury to Junee or Sydney to Junee. The reason for the differential rates was on account of the ridiculously low rates fixed by Victoria to her border for the purpose of securing the border trade, and we had therefore to introduce the differential rates to compete with Victoria. That was the real object of them. In fixing these rates the line of limitation had to be drawn somewhere, and unfortunately for Junee it was drawn so as just to shut her out, other towns by the accident of their position enjoying lower rates under the differential system; but there was no doubt that, unless we adopted this system, the trade of the Riverina district would be diverted to Melbourne, and the railway revenue would suffer considerably. No doubt the differential rates were very low, but they were not fixed below a paying point.

With regard to the rebooking of goods from Wagga to Junee, I promised to obtain a return showing the extent of the rebooking. I had this information with regard to Cootamundra and quoted figures. I pointed out that the whole question required very careful consideration, as a very slight error might make a serious difficulty. I would be glad, as far as possible, to remove any disability under which they laboured, and if I could meet their wishes in any way without disturbing the system materially I would do so. I stated I was not aware Narrandera enjoyed the benefit of the truck rates, and could hardly see it was necessary as the competition with Victoria could not well extend to that town, but I promised this would have consideration in connection with the general question.—W.J.L.

Traffic Manager
for report on
this.—Ch. A. G.,
21/5/86.

No. 36.

Minute by The Secretary for Public Works.

WILL the Commissioner report?

W.J.L., 15/5/86.

Traffic Manager to furnish return of rebooking Wagga to Junee, and to report generally as to relief.—Ch. A. G., B.C., 21/5/86.

Competitive Rates—Deputation from Junee.

No doubt all the arguments advanced by the deputation which waited upon the Minister are perfectly true, but the Minister was equally to the point when he informed them that the line had to be drawn somewhere, and that, unfortunately for Junee, it had been drawn so as just to shut out that township from the reduced rates.

Had it been possible to draw the line at Wagga Wagga it would have been greatly to the advantage of the Department, from a monetary standpoint, to have done so; but if that had been done it would have resulted in our losing the Wagga Wagga trade almost entirely. Indeed, we know that just before the truck rate was introduced, goods in considerable and increasing quantities were conveyed by rail from Melbourne to Wodonga, and by team from Wodonga for as low as £3 per ton.

There has never been any necessity to apply the truck rate to Junee.

No

No doubt my minute of 9/12/85 shows that a considerable proportion of Junee traffic is consigned from Sydney to Wagga Wagga, and reconsigned from there to Junee, so as to escape the ordinary higher rates from Sydney to Junee direct; but I also showed that the small cost the Department was put to in respect of extra haulage was far more than counterbalanced by the trainage derived from the goods that were consigned direct. For the months of September and October last the extra haulage alluded to amounted to about £14, while the Department avoided a loss of £117 19s. 3d. by maintaining the ordinary rates on those goods that were sent direct.

If, in response to the wishes of the deputation, the £20 truck rate were extended to Junee, there would be no good ground for refusing it to Cootamundra (where it has already been repeatedly asked for) or even to Murrumburrah and Harden, and that, it is needless for me to say, would result in a very considerable loss of revenue.

Nor can I recommend ordinary mileage rates from Albury to Junee, because the increased rate was put on simply to counteract the very low rate charged upon the Victorian railways in respect of all goods sent from Melbourne to New South Wales north of Gerobery; but for that low rate there would be no necessity to charge more than the ordinary rate from Albury to Junee.

It was not without due consideration that the reduced rates were applied to Narrandera. It is well known that the Murrumbidgee is navigable as far up as, and often beyond, Narrandera for several months every year, and I do not doubt for one moment that if the ordinary mileage rates were charged to and from the Narrandera district (and of course the argument becomes stronger the further we go towards Hay), the trade would be done with Melbourne by river, as it was in former years.

Nothing has as yet been advanced to induce me to recommend any modification of the existing rates.
W.V.R., 28/5/86.

Uniform mileage rates, which some large number of persons advocate, because of the apparent justice of this mode of charging, would have no other effect than to enhance unduly the value of property and the development of its resources within a certain area of the shipping ports or markets of disposal, and to render unprofitable for cultivation all land beyond that area. Differential rates are therefore absolutely necessary for the development of the resources of a country and to create traffic for its railways, even in circumstances in which the element of competition for the traffic is absent. In cases where the traffic is competed for by opposing systems of carriage, or by different routes to reach the same, or perhaps another central market, the introduction of anomalies in the rates of charges is carried necessarily to a degree which, to the uninitiated, seems absurd. We have an instance of this in the conditions which operate in connection with our efforts to secure the trade of Riverina, and their peculiar application to the goods consigned to Junee; but such anomalies are not confined to our railways. Only recently the farmers of Penzance, in England, appealed to the Railway Commission for redress against the action of their railway company, which established charges by which foreign grown produce was carried from Penzance to London at a considerably less rate per ton than the same description of produce locally grown. The Company, however, successfully contended that this apparent injustice to the local farmer was really a benefit to him, for unless they had secured for their railway the traffic of the foreign grown produce—and they could not have secured it except by charging exceedingly low freights—the farmers of Penzance would have had to pay a higher charge even than they were then paying, in order that the railway might be able to make a proper return to its capital expended. If we are to continue to compete with Victoria and South Australia for the trade of our border land, I do not see how the anomalies which arise from our system of charges to secure that object are to be removed.—*C.H.A.G.*, 1/6/86.

The figures show that it is more profitable to the Department to continue the system of running goods for Junee to Wagga and return than to put them out at Junee, with the additional charge on them, because all goods are not so consigned as to escape the higher rate, and those sent direct to Junee bring in proportionately a revenue in excess of the revenue derived from the goods sent *via* Wagga even, when credited with the expense incurred in the extra haulage which that route necessitates.—*C.H.A.G.*, 1/6/86.

No. 37.

Mr. D. Brown to The Commissioner for Railways.

Sir,

Kallara Station, by Bourke, 19 May, 1886.

Allow me to bring to your recollection an interview I had with you in February last, in company with Mr. Quinn, M.P., referring to the special rates for carriage of wool and goods from and to the stations on the Darling.

I then explained, that as Kallara wool and goods required to be carried as far as there from Buckambe, we were equally entitled to the concession, and Mr. Quinn corroborated my contention. Buckambe is 128 miles from Bourke, on the same or east side of the river. Kallara is 120 miles from Bourke, but on the opposite or west side of the Darling; and, as the bridge is 4 miles above Bourke, we have that 4 miles to travel up and back again, thus making our distance quite equal to that of Buckambe.

No other station is in this position on our side of the river, the west side. The next station is Dunlop, 40 miles nearer Bourke, and, therefore, at the average rate of cartage, viz., 1s. per ton per mile, £2 a ton more favourably situated than Kallara. On the east side, the next station to Buckambe is Barranyalpa, 20 miles nearer Bourke, and, therefore £1 a ton, or just about the amount of the concession, more favourably situated. Kallara, having the same distance of road cartage as Buckambe, is, therefore, without the concession, £1 per ton at a disadvantage as compared with Buckambe and Barranyalpa, and £2 as compared with Dunlop. I therefore submit that we are equally entitled to the concession with Buckambe, and beg to ask that my contention may be considered. With the concession, I am prepared to engage that all the wool shall go by rail to Sydney. Whether there be a river or not, without the concession the wool must go *via* Adelaide. In the event of the river being navigable, anticipated clip 2,000 bales.

I am, &c.,

D. BROWN.
Traffic

Traffic Manager.—D.C.M'L., 27/5/86.

I reported upon this matter on the Commissioner's M.P., 86-1,037d, and have nothing to add thereto. For the reason stated in that report, I do not favour the granting of the reduced rate to Kallara.—W.V.R., 2/6/86. Commissioner.

Is there no paper referring to the interview which Mr. Quinn and Mr. Brown had with me.—C.H.A.G., 5/6/86. No trace of any.—L.P.I., 6/6/86. Inform.—C.H.A.G., 9/6/86.

Sir,

Department of Railways, 10 June, 1886.

With reference to your letter of the 19th ultimo and previous interview, asking that the special rates for the carriage of wool, &c., from, and goods to stations west of the Paroo may be extended to your Kallara station, I have the honor to inform you, with regret, that I am unable to comply with your request.

I have, &c.,

C. A. GOODCHAP,

Commissioner for Railways.

David Brown, Esq., Kallara Station, *via* Bourke.

No. 38.

Memo. by The Commissioner for Railways to Mr. Traffic-Manager Read.

Rates for wool from Bourke.

I WROTE recently to know whether the rise in the river would require us to revise our rates. The Minister is now inquiring on same subject. Let me know early how our rates and time of carriage compare with river-borne goods.

C.H.A.G., 23/6/86.

In accordance with your instructions I proceeded to Bourke to inquire into the prospects of the river traffic and the alleged intention of the Bourke merchants to deal with Adelaide unless large concessions in freight were made to them by this Department. My telegram on Monday conveyed to you the actual state of the case. The river is now navigable from Menindie to Brewarrina, but there being no water in the Murray to back the Darling up, and the Darling itself having commenced to fall at Mogil, unless additional rains fall in the country drained by the Namoi, Macintyre, and their tributaries, the present navigation cannot last long. None of the Adelaide steamers have yet been placed on the berth for Bourke, as although it is just possible that steamers might reach Bourke, on the present fresh it is very doubtful whether they could get back, and the experience of the last two or three years is against risking a detention in the upper waters that might last for many months or even a year. Further interviews, however, convinced me that the river traffic is not the real point of issue with the merchants at Bourke. They would deal with Adelaide quite as willingly as with Sydney. Their real grievance is (and it must be admitted that their grievance is a real one, as it affects their pockets) that owing to the concessions made to Wilcannia and the Paroo country, two or three towns are able to send goods back and undersell them at their very doors, and that much of the traffic between the Darling and the Paroo; up to the Queensland border, that used to be done with Bourke is now done by Wilcannia and other places within the favourite area. So long as the river was closed, although this concession to Wilcannia was felt at Bourke, it did not handicap the Bourke merchants so heavily as at present, when steamers can ply between Bourke and Wilcannia, carrying goods that have come from Sydney at £5 a ton down to Wilcannia for 30s., and bring them back to some station near Bourke for 20s., making the whole charge £7 10s. for freight, whereas the Bourke merchants have to pay £10 14s. 3d. a ton for 3rd class goods, and (say) £1 per ton steamer's carriage to the same place. In such an instance the differential rates would directly favour Wilcannia at the expense of Bourke to the extent of £4 4s. a ton, and in revenge for this loss of business they threaten to deal with Adelaide as soon as they can unless placed on the same footing as Wilcannia. If the river navigation was permanent the Department would, no doubt, be forced to come to terms, as the railway, except at a heavy loss, could not compete with the water carriage; but it is most intermittent, and steamship owners prefer, if possible, to load a whole cargo for one person, except when shipping on their own account, to sell on arrival. It was, therefore, the usual custom for a merchant in Bourke, taking advantage of what might be the only flood of the season to get up 500 tons of goods at a time, for which he had to pay on arrival, or in many instances before arrival. Since the railway has been opened they have been buying a few tons at a time from Sydney on the usual terms, and although, no doubt, the Adelaide merchants would meet them in every possible way, it may be questioned whether a large stock to lie idle for several months, even at cheap freight, would pay better than small stocks, the value of which was constantly being turned over and over, at a high freight. The present flood in the river has come too early for the wool. That will not be ready for another four weeks at least. I notice that the wharf at Bourke is getting on very slowly. At the present rate of progress it will not be finished this year, and that the line has not yet been extended to the river side. It is most important that we should be in a position to truck wool direct from the steamer, otherwise, should it be possible for the steamers to get down, we may lose several clips. The 3s. 6d. a ton cartage through the town of Bourke and the extra handling involved would tend to keep the wool on the steamer.—M. A. HORNIDGE, 23/6/86. Traffic Manager.

Be good enough to see the attached report from Mr. Hornidge respecting the trade of the Darling district. Nothing has occurred as yet to induce me to recommend an alteration of the existing rates in any way. As Mr. Hornidge points out, it is very questionable whether the river will remain navigable so long as to permit of boats getting up as far as Bourke, and even if it does, I am doubtful whether storekeepers and others will venture to get up such large supplies as they must obtain by river when they can keep themselves in small stocks, although for these stocks they have to pay a higher rate per ton for the finer class of goods than by river. My opinion is, that we have very little, if anything, to fear as regards the trade of the Bourke district being again diverted to Melbourne or Adelaide, so long as it is well served by railway. The cause of the agitation amongst the storekeepers is not far to seek; the reductions that were made in the rates some months ago have enabled the storekeepers of that town to outbid those of Bourke for a certain portion of the trade between the towns named, as well as a portion of the trade to the west of the Paroo, which would be done by the Bourke storekeepers if those in Wilcannia

Wilcannia had to pay full mileage rates and team carriage in addition. It must not be forgotten, however, that with a navigable river, the Wilcannia people can get their supplies landed there from Melbourne or Adelaide for rather less than we land them at Bourke, even at the reduced rates, and if we were to charge them the full mileage rates, we would get very little goods to carry for that district, even if the river were not navigable, because when the railway is completed to Silverton (or near to there) it will be from 70 to 80 miles nearer to Wilcannia than Bourke is. It is therefore in my opinion of great importance that we should get a firm hold of the trade of the district before that occurs. What may be a loss to Bourke is a gain to Wilcannia, and to the merchants of Sydney, as well as to this Department.—W.V.R., 6/7/86.

If the river runs for any length of time, we may have to reduce the advantage which Wilcannia gets over Bourke in supplying stations, in consequence of the concession made on goods going west of the Paroo, but at present there does not seem to be any reason for making a change. To foster the traffic on our railway, I must again urge the desirability of the wharf and the railway to the wharf being completed as early as possible.—CH.A.G., 9/7/86.

No. 39.

T. Jones, Esq., M.P., to The Secretary for Public Works.

Dear Mr. Lyne,

20 August, 1886.

Would you kindly have the enclosed letter from one of Mr. Want's constituents replied to and forwarded to me.

I handed you another letter on the same subject about three weeks back (I think in your office) from Mr. F. Cohen, the Secretary Adelong Progress Committee, which has not been replied to, that I am aware of. Would you oblige by seeing that it is also forwarded.

Yours, &c.,

T. JONES.

[Enclosure.]

Dear Sir,

Gundagai, 18 August, 1886.

May I call your immediate attention to the following facts that are at present acting so adversely to the prosperity of this township and district. The wool season is close at hand, and the price of wool per ton from Gundagai is fixed at £2 18s. 6d., whilst from Wagga, some 20 miles further, it is £2 8s. The carriage of all shearing supplies from Sydney by these confounded differential rates present the same disproportion, and unless something is done the entire trade of this district must, to the injury of every trader, be absorbed by Wagga. I was yesterday offered a very large order for shearing supplies and station requisites for a station holder a few miles south of here, but in the face of these rates there is no chance of competition, and without some alteration the entire trade must pass away to that highly favoured locality Wagga. Cannot something be done to meet this emergency. Our district, by population, production, and age, is entitled to equal consideration, and surely the Railway Commissioner must have learned by this time that these differential rates made for the purpose of securing trade to Sydney are to districts situated like ours the death stroke of their prosperity. Can you, my dear Sir, see him and urge these matters, as you know how, upon his attention, and by some change add one more to the many benefits we have received from your exertions.

I am, &c.,

W. BIBO.

Gundagai would appear to labour under the same disadvantages as Juneec as compared with Wagga, but so long as we have to compete with Melbourne for border trade I do not see that any alteration can be made, and the differential rates, though perhaps an evil, must be a necessity.—W.J.L., 20/8/86.

Sir,

Department of Railways, 24 August, 1886.

With reference to your letter of the 20th instant, enclosing communication from Mr. W. Bibo complaining of the disproportionate rate charged for the carriage of shearing supplies, ironmongery, &c., from Sydney to Gundagai, as compared with the rate current from Sydney to Wagga Wagga, I have the honor, by directions of Mr. Secretary Lyne, to inform you that he has given attention to the matter, but he is unable, so long as we have to compete with Melbourne for the border traffic, to see any method by which the present arrangements and differential rates can be altered.

I have, &c.,

CHAS. A. GOODCHAP,

Commissioner for Railways.

T. Jones, Esq.

No. 40.

Minute of The Commissioner for Railways.

Papers about Rates.

REPRESENTATION that now the Darling is navigable unless the Railway Department makes considerable concessions on freight charges the trade will be lost to Sydney at Bourke.

Reports of officers show that no change is required at present. The concession made to Wilcannia (west of the Paroo) is militating against the interests of the storekeepers at Bourke may require to be revised.

The completion of wharf at Bourke to which the railway is to be taken is a matter of importance.

End of month to see what progress has been made with wharf and railway to the river, and whether the situation has changed as regards differential rates.

Resubmitted, 1/9/86.

Traffic Manager for report.—D.C.M'L., 1/9/86.

CH.A.G., 3/8/86.

Re Bourke River traffic.

Traffic Inspector's Office, Wellington, 9 September, 1886.

THE wharf is under water, and has been for the last four weeks. The work has in consequence been suspended. It is in a very incomplete state.

So far as the goods traffic inwards is concerned the state of the river has made no perceptible difference either one way or the other. The wool, owing to the rain and strike among the shearers, is very late. It is therefore premature to report upon that traffic. It is, however, generally understood that the railway will carry the bulk of it, notwithstanding the cheap freights offered by the steamers.

Traffic Manager.

M. A. HORNIDGE.

Re

Re Murrumbidgee River traffic.

Traffic Inspector's Office, Junee Junction, 10 September, 1886.

Hay.—Up to the present, the rise in the river has not affected the traffic, except to the extent of about 16 tons of timber, which has arrived from Echuca, but I understand that the greater part of wool from district will go by river.

Carrathool.—No traffic has gone by the river yet, but I am informed that some of the wool that was sent by rail last year will go by the river.

Darlington.—I am informed that the Kerrarbury clip, which amounts to about 450 or 500 bales, will go by the river this year. The information I have been able to obtain up to the present is very vague, and I am short of replies from Narrandera, and full information from several other stations. However, I will make further inquiry, and let you know the result as early as possible.

G. J. ROBERTS.

Traffic Manager.

Be good enough to peruse the attached reports from the Traffic Inspectors. From inquiries made by Mr. Hornidge, it appears to be thought that notwithstanding the cheap freights offered by the steamers on the Darling the bulk of the wool will be forwarded by railway. My own opinion is, however, that we shall not despatch nearly so much wool from Bourke this season as we did last, and that will be due partly and no doubt principally to the low river freights, and partly to the increase which was recently made upon the railway rates, such increase having, as I have already repeatedly stated, been made at a very inopportune time. I refer of course to the increase from the competitive districts only. I have been in hopes that the wharf would have been completed at Bourke, and the railway extended to it before the wool season commenced, so that, with tolerably low railway rates, we might have reasonably expected to get a large portion of the wool from both up and down the river, but as things are I confess I do not expect to get much of it in that way, because of the expense of cartage between the river and the railway, and the additional handling. It appears from Mr. Hornidge's report that the wharf is now under water, but I should think it is hardly likely to remain so for any length of time, and very probably it will be free from water before the wool season, which, is late, begins.

I must say that I was particularly anxious to get, if possible, a firm hold upon the Darling trade this season so that commercial relations with Sydney on such a basis that there would not have been much inducement to alter them, but I now fear that, to a considerable extent, this will not be accomplished, and as the railway to the South Australian border is expected to be finished within three or four months, we shall always have a difficulty in securing a hold of the trade of the Wilcannia district. The subject is of very considerable importance, and I suggested that Mr. Evans should be sent west to make some inquiries, but have had no reply. Mr. Roberts' report *re* the Murrumbidgee trade is also enclosed, but it is not very complete. I do not, for instance, attach much importance to the statement that "up to the present time the rise in the river has not affected the traffic," because wool shearing in the district has but very recently commenced, and boats will not come up the river to lie for weeks until they can get a cargo back again. It is significant, however, that information is received both from Darlington and Carrathool to the effect that wool which was sent by rail last year will this year go by river. While competition lasts I am of opinion that it would well repay the Department to send an officer to make a tour of the competitive districts every year about the months of March or April, because the conditions are continually changing, and he could, by collecting information on the spot, know what was necessary to secure the traffic. Forwarding agents send a representative through the whole of the districts, and if it pays each firm to do so I think the money spent by the Department in the same direction would be well expended.—W.V.R., 21/9/86. Commissioner.

If it is not too late I would even now recommend such a reduction of rates as would induce at least a large quantity of the Darling and Murrumbidgee wool to be sent to Sydney.—W.V.R.

No. 41.

J. Gormly, Esq., M.P., to The Secretary for Public Works.

Sir,

Legislative Assembly, 16 September, 1886.

I have the honor to enclose a letter signed by the Hon. Secretary of the Coolaman Progress Committee, and would respectfully request that the concession asked for will receive your favourable consideration.

I have, &c.,

JAMES GORMLY.

Submitted for inquiry it may be considered whether it is necessary to draw the differential limit outside Narrandera.—W.J.L., 17/9/86.

[Enclosure.]

James Gormly, Esq., M.P., Wagga,—

Dear Sir,

Coolaman, 4 September, 1886.

We, the residents of Coolaman, beg to call your attention to the great disadvantage we have to labour under the existing rules of the differential railway rates and the truck system. Previous to October last year we could procure goods by truck loads from Sydney at the same rate as Wagga or Narrandera, viz., £20 per 6-ton truck, and for which we have now to pay £44,—an increase of £24 on 6 tons; the only stations this new rate affected here, Coolaman and Grong Grong, and as comparatively little traffic goes to the latter (especially as they are so near Narrandera), it can affect them but little. The truck system was a boon to Coolaman residents and surrounding settlers, outside of the immediate advantage it was to the storekeepers and others, as goods going back to Temora, Broken Dam, Barmedman, and other stations were forwarded from here, which cannot now be done under the existing rates. This district does such a small trade that, under this new system, the advantage either way to Government is insignificant that it would seem some interested party was at the bottom of the altercation for their own aggrandizement.

The Victorian trade if available to Narrandera is also available here; the distance from Sydney to Coolaman is 310 miles and Wagga is the same distance, and the distance by road from Wagga is 23 miles, it must be quite evident to every disinterested individual that the present system must eventually crush the trade of this place.

We see our goods daily going past our own station *en route* for Narrandera, which not only causes delay but must be a useless expenditure of power and haulage, and now that the Government's great policy is retrenchment we think that this is a matter whereby more labour and more expenditure is caused by this useless haulage.

The

The district is quite new and purely agricultural, and all settlers are heavily handicapped with this new and excessive extortion. We may add that this part of the Murrumbidgee electorate polled the third highest number of votes, which shows that it is worthy of consideration.

We would also add to yourself that we have noted the way you have pressed various matters forward, and we may add that if the boon is conferred of having 6-ton trucks running here at a cost of £20, as heretofore, you will confer a boon on us all, and will at future elections win you every possible support.

We are, &c.,
W. MACNAMARRA,
Hon. Sec. Coolaman Progress Committee.

Petition of the residents of Coolaman for reduced rates for general merchandise forwarded from Sydney.—Prior to the issue of the last merchandise rate-book on 1st October, 1885, the £20 truck rate for general merchandise applied to all stations on the South-western line distant over 305 miles from Sydney, but in consequence of the traffic for Temora and Barmedman finding its way to Coolaman at the £20 truck rate (whereas the more direct route was *via* Cootamundra, where the truck rate did not apply, thus causing a loss to revenue to the Department, and complaints from the storekeepers, about the inequality of the rates), it became expedient to extend the distance on the South-western line to which the truck rate should apply, and, after consideration, it was fixed at 340 miles, thus excluding all stations east of Narrandera. Since the 1st October, 1885, therefore, actual mileage rates have been charged to Coolaman, and nothing has transpired to induce me to recommend a reversion to truck rates.—W.V.R., 6/10/86.

For the Minister's information.—C.A.G., 10/10/86. Inform.—W.J.L., 13/10/86.

Sir,

Department of Railways, 20 October, 1886.
Referring to your letter of the 16th ultimo, forwarding communication addressed to you by the Secretary of the Coolaman Progress Committee, urging that the £20 truck rate might be again extended to Coolaman, I have the honor, by direction of Mr. Secretary Lyne, to inform you that the matter has been considered, and that it is not deemed advisable to revert to the truck rate as stated.

I have, &c.,

C. A. GOODCHAP,
Commissioner for Railways.

James Gormly, Esq., M.P., Legislative Assembly.

No. 42.

Minute by The Secretary for Public Works.

Differential Rates.

A DEPUTATION from Goulburn, accompanied by Messrs. Teece, Ball, and Holborrow, M's.P., waited upon me to-day, and, amongst other matters, brought under attention the question of the differential rates.

They represented that these rates unduly prejudiced the trade of Goulburn; that it was impossible for Goulburn traders or storekeepers to compete with the Sydney merchants in the distant districts, and their trade was, therefore, limited practically to a local one.

Mr. Rogers submitted the statement enclosed, showing the nature of the differential charges, and how they affected Goulburn.

I informed them that I admitted the importance of the matter, but the question was one surrounded by difficulties. It was a question engaging attention on almost all railways. It was being fought in England and in America; they sometimes carried goods 1,000 miles for the same rate as they carried them 50, and the Company found it paid them to do it. Mr. Rogers had submitted a very full and clear statement, and it deserved consideration, and it seemed to me there should be in some way an alteration.

I could not promise them an answer off-hand, as the question was such a large one; but I stated I would give it full consideration, and consult with the officers of the Department who had a knowledge of the question.

J.S., 11/3/87.

Put with this extract from Report Committee of the House of Commons on "differential rates." The statement of the different charges between Hay, Wagga, and Albury direct, and those places *via* Goulburn are startling, of course the latter is the equal mileage rate, and the former the competitive rate to win the traffic. We are still competing for it, even at the reduced rates, and any attempt to charge equal mileage rates, would simply be tantamount to handing over the trade of Riverina to Victoria. We do not lose on the low rate charged; indeed, if we could secure twenty times as much, the profit made would be of an appreciable character. It would be better to surrender the trade of the country comprised within the competitive districts than to charge the same rate to intermediate stations not affected by the competition. It is the case the whole world over, that traders at intermediate places cannot successfully contend for the trade of a competitive district supplied from rival metropolitan centres.—C.A.G., 16/3/87.

EXTRACT referring to differential rates, from the report of the Select Committee on Railways appointed by the House of Commons.—Ordered to be printed, 1882.

The Committee consisted of:—Mr. Ashley, Mr. Barclay, Mr. Bolton, Mr. Callan, Lord Randolph Churchill, Mr. Craig, Mr. Cross, Mr. Dillwyn, Sir Daniel Gooch, Mr. Gregory, Mr. Lowther, Mr. Monk, Mr. Samuel Morley, Mr. Mullholland, Mr. W. N. Nicholson, Mr. O'Sullivan, Mr. R. Paget, Mr. Jos. Pease, Mr. Pell, Mr. Samuelson, Mr. Sclater Booth, Sir Henry Tyler, and Sir Edward Watkin.

FIXING RATES.

THE question of the rate which a railway company has the power to fix for any particular kind of goods, under their special Acts, and with due reference to the charge they make for other goods conveyed under similar circumstances, is one of considerable difficulty. Railway managers contend that they have the right to charge any sum not in excess of the maximum authorized by the special Act, and that they ought in no respect to be controlled in charging much more for one kind of goods than for another, although the cost

cost of performing the service is no greater in the one case than in the other. It is indeed contended, as in the case of beef carried from Glasgow to London, that railway companies may properly carry the same kind of goods under similar conditions, from different consignors, at very different rates.

According to the evidence of the railway managers who appeared before us, no general principle or system for fixing rates has been adopted on any railway in this country. The charge for conveyance, they informed us, was such a sum, within the power of the company, as they thought the traffic would bear, having regard to competition, both of other means of conveyance and of other districts or markets; or, in other words, as much as could be got, and without reference to the cost to the company of performing the service. Indeed, the managers examined informed us that they found it impracticable to determine with accuracy the cost of conveying any particular kind of goods between two stations.

The railway managers assert that they carry no goods at a loss, and that even the lowest rates yield a margin of profit over working expenses; but in making this statement they do not include any charge for interest on capital.

No witness has recommended the adoption of equal mileage rates for the conveyance of goods, but may have complained of the anomalous charges by railway companies, and urged the general advantage of fixing rates on some intelligible principle, instead of arbitrarily at what railway managers think the traffic will bear.

It appears in evidence that in the case of one, if not of more, railway companies, no maximum rate has been fixed over a large portion of their system. The Committee are of opinion that it is essential to the protection of the public that a maximum rate should be fixed in all cases.

In some cases particular kinds of goods, or goods over one portion of a railway system, are carried at very low rates, as compared with those charged for other goods, or the same goods over another portion of the same system.

There is no question as to the existence of these "preferential" or "exceptional" special rates, the latter epithet being the term used by representatives of the railway. The evidence given under this head comes almost entirely either from persons engaged in production, who are being charged proportionately higher rates than producers resident in other parts of the country, or from towns or places through which traffic passes, who, as engaged in the business of carrying or distribution, complain that it is diverted from them by the lower rates charged on other routes. But for the competition introduced by the low rates given by railway companies, trade would be much more local, and the trader who was nearest the market would probably make a large profit; but, on the other hand, this competition cannot but be advantageous to the public; that Greenock sugar refiners should be in the same market as the sugar refiners of London, while it may be a grievance to London refiners, must be an advantage to Greenock refiners, and cannot be a disadvantage to buyers of sugar. It may be worth while to follow this as a typical case:—Thirty-nine towns in England to which sugar is sent are at an average distance of 292 miles from Greenock, and the same towns are at an average distance from London of only 150 miles. The rates for these distances, from London and Greenock respectively, are about the same representing in the case of the Greenock rate, 1.09d.; but in the case of the London rate, 2.13d. per ton per mile. In other words, sugar from Greenock is for the same sum carried double the distance as sugar from London. This enables Greenock to compete at these thirty-nine towns, and this is what the refiners of London object to. The demand from London, therefore, is that either the rates for the longer distance should be raised, or those for the shorter distance reduced. The effect of compliance with this demand would be to close some of these markets against Greenock sugar, to deprive the Northern lines of a considerable portion of their trade, handing it over to the Southern lines, and to give a practical monopoly to the London refiners of sugar, who would be real gainers by the transaction. It does not appear to your Committee that such a result would be either just or reasonable.

Although "equal mileage" rates, that is to say, rates proportioned exactly to the number of miles run, have not been advocated on this occasion as before former Committees; still, ideas have been put forward so closely resembling such as would naturally support the mileage system, that it may be worth while to recall the words of the Committee of 1872:—

- "(a) It would prevent railway companies from lowering their fares and rates so as to compete with traffic by sea, by canal, or by a shorter or otherwise cheaper railway, and would thus deprive the public of the benefit of competition, and the company of a legitimate source of profit.
- "(b) It would prevent railway companies from making perfectly fair arrangements for carrying, at a lower rate than usual, goods brought in large and constant quantities, or for carrying for long distances at a lower rate than for short distances.
- "(c) It would compel a company to carry for the same rate over a line which has been very expensive in construction, or which, from gradients or otherwise, is very expensive in working, at the same rate at which it carries over less expensive lines.

"In short, to impose equal mileage on the companies would be to deprive the public of the benefit of much of the competition which now exists, or has existed, to raise the charges on the public in many cases where the companies now find it to their interest to lower them, and to perpetuate monopolies in carriage, trade, and manufacture in favour of those rates and places which are nearest or least expensive where the varying charges of the companies now create competition. And it will be found that the supporters of equal mileage, when pressed, often really mean, not that the rates they pay themselves are too high, but that the rates that others pay are too low.

"Pressed by the difficulties, the proposers of equal mileage have admitted that there must be numerous exceptions, *e.g.*, where there is sea competition (*i.e.*, at about three-fifths of the railway stations of the United Kingdom), where low rates for long distances will bring a profit; or where the article carried at low rates is necessary, such as coal. It is scarcely necessary to observe that such exceptions as these, whilst inadequate to meet all the various cases, destroy the value of 'equal mileage as a principle, or the possibility of applying it as a general rule.'"

But some kind of equality of charge is pressed in other forms and on other grounds. Farmers complain that imported agricultural produce is given a bounty over home produce, by being carried at a lower rate; that foreign corn and meat are carried from Liverpool to London for less than English corn and meat; that American cattle are conveyed from Glasgow to London for less than Scotch cattle; that cattle landed at Newcastle are carried inland for less than cattle reared in Northumberland and Durham; that

that foreign fruit and hops are carried from Boulogne or Flushing to London for less than fruit and hops from Ashford or Sittingbourne. Wire manufacturers complain that Belgian wire and other goods are brought from Belgium to Birmingham for less than similar goods are charged from Birmingham to London. Makers of chemicals complain that the coal which they use is made to pay higher rates than the coal sent past their works to Liverpool for exportation to their foreign rivals; and Limerick complains that foreign bacon and provisions are carried from Liverpool to Limerick at much less rates than is charged for Limerick bacon over the same route to the same port. Bradford complains that the export trade from both Manchester and Bradford enjoy rates which are preferential as compared with those for the home consumption trade. In short, the complaint is frequently heard that railway companies prejudice home producers by low import and export rates.

Your Committee think that many of these differential charges afford substantial grounds for complaint, but they do not consider it necessary to express an opinion as to how far these differential rates constitute undue preferences, because that is a point which the proper tribunal has full power to determine, and each case must be considered on its merits.

At the same time, it must be admitted that when a farmer sees American wheat carried at a lower rate than his own, or when a manufacturer near a market has his profits in that market reduced by a competitor at a distance, who is brought into the market by the lower rates given to him, it is not surprising that there should be complaints, and that attempts should be made, and from time to time repeated to fix some standard by which rates shall be determined. One form in which this proposal has been made is, that the rate ought to bear some fixed proportion to the cost of the service performed; or, in other words, that the companies ought not to be allowed to make a higher profit on one part of their traffic than on another. It would be an answer to this suggestion to say that any such standard of charge would be difficult, if not impossible, in practice. To ascertain what is the relative cost and profit of each description of traffic would be beyond the functions of any Government Department or Court of law, and the companies allege that it would be beyond even their power. It would entail the finding and consideration of such items as the original cost of the particular line; the cost of carriage of the particular goods on that part of the line as compared with the cost of carriage of other goods on the same line, and of the same and other goods on other portions of the line; and the proportion of all these to the whole charges and expenses of the company. But assuming it is to be practicable, it is open to question whether the public would gain by this or by any other fixed standard of rates.

Any fixed standard of rates would materially interfere with competition. Supposing such a standard fixed, the result would be that the traffic which is now carried at a low rate in competition with a sea route would be driven from the railway to the competing sea route, whilst the railway, if it is to make as much aggregate profit as before, must charge a higher rate than it now charges on the traffic which remains to it.

If Parliament were to say that the North-eastern and Great Northern Company shall make no greater profit on cattle or on fish brought from Newcastle, or from Hull, or Grimsby to London, than they do on cattle and fish brought from Scotland or from abroad over the same portions of their respective lines, the effect would be either to send the Scotch and Foreign goods by sea to London, or to prevent them going to London. In either case the traffic of cattle and fish to the London markets would be restricted; the prices would be raised; and though the price would be raised the English producer would not get the benefit of it, for the railway companies would be able to raise their rates on English cattle and fish, in order to recoup themselves for the loss of their Scotch and Foreign traffic; or again, if the Great Eastern were not allowed to have a cheap long distance rate to London, the trade of Norfolk and Suffolk in agricultural produce would almost disappear as regards cattle.

Therefore when it is said that low rates always increase traffic, and that the companies will adopt universally the lowest rates they are now charging to anyone, the answer is that they are likely to understand their interest better than the Legislature; that if you force them into equal rates they will no longer have any inducement, or indeed be able, to make the experiment of low rates, whereas under the present system competition and self-interest oblige them to make these experiments.

Again, taking the case of the inland towns which complain of the lower mileage rates granted between towns which have better access to the sea, it is obvious that the railway companies are really only preserving to the latter the advantages which nature has given them, and that to prevent them giving the lower rates, would really benefit no one except the owners of steamers. Places less accessible by natural avenues, like navigable waters or the sea, may be less fortunate, but it is scarcely just or profitable—it must be unprofitable to some interest—to undertake by arbitrary laws to supply the advantages denied by their situation. Or, taking the preference alleged to be given by the railway companies to Barrow and Fleetwood over Liverpool, or to Hartlepool and the Tyne over Hull, it seems most unlikely that the companies would have incurred the expense of the docks of their own at Holyhead or at Hartlepool, unless they were satisfied that the trade was such as to pay them for these docks, and for the longer railway journey, without destroying what the companies already possessed, viz., the traffic from Liverpool and Hull. If the rate to Barrow and Fleetwood were raised the traffic to those places would suffer, and the railway companies, in order to recoup themselves for the lost profit might charge higher rates to Liverpool; so that Barrow and Fleetwood would suffer, while Liverpool might not gain. The probability is that the trade of the country gains, as a whole, by bringing these routes into operation.

It may therefore be assumed that some of the inequalities of charges complained of are to the advantage, rather than to the disadvantage, of the public. Where there is an "undue preference" the law now gives a remedy. A preference, to be illegal, and to furnish a reasonable cause of complaint, must be unjust. It is not unjust so long as it is the natural result of fair competition, and so long as equal rates are given for like services under like circumstances, and for like quantities of merchandise. It has thus been repeatedly decided in the case of passenger fares that there is no ground of complaint, merely because the fares over one part of a railway system are higher than those over other parts. It has also been decided in the case of goods that circumstances which make the cost of carriage differ such as steep gradients or difference in quantities to be carried, will justify difference in charge; and this is but right; what is reasonable for a road of easy gradient and a large volume of business would be unreasonably low for a road of heavy gradients and a smaller traffic. This discrimination or preference as regards quantities is recognised by the natural laws of trade, and is common to all branches of business. A man who buys goods wholesale expects and will receive more favourable terms than the one who buys at retail. The
seller

seller by one wholesale transaction is saved the trouble and expense of many smaller ones as well as the cost of storage. This is so natural and founded on reason that no one thinks of calling it preference. The same thing must be recognised in the business of transportation; there must be all the difference in cost whether an unbrokered full train is hauled to the terminus of a line, or whether the trucks of which it is composed are distributed at numerous different points, with the delay and expense of stoppages and "shuntings."

Traffic Manager for report.—CH.A.G. Mr. Traffic-Manager Read's report.

STATEMENT.—From 1st January to 22nd March, 1887.

Boots manufactured in Goulburn.			t. c. q.	£ s. d.
1 0 0	.....	Goulburn to Wagga	3 5 1	14 5 0
1 3 2	.....	„ Albury	1 19 0	12 6 11
0 1 2	.....	„ Coonong	0 1 2	0 9 5
	.....	„ Culcairn	0 11 0	2 5 10
0 1 0	.....	„ Yerong Creek	0 1 0	0 5 6
0 1 1	.....	„ The Rock	0 1 1	0 6 7
0 8 1	.....	„ Hay	1 7 1	7 14 0
0 3 3	.....	„ Whitton	1 5 3	5 1 1
0 0 2	.....	„ Carrathool	0 1 2	0 10 4
0 7 2	.....	„ Jerilderie	0 7 2	2 10 10
1 0 0	.....	„ Narrandera	1 13 0	9 10 3
<u>4 7 1</u>			<u>10 14 0</u>	<u>55 5 9</u>
			- 4 7 1	
			<u>6 6 3</u>	

RATES for 4th-class goods "in 6 ton lots."

Stations.	Miles.	Rates per ton.	Tons.	Amount.
Sydney to Goulburn	134	£ s. d. 4 18 8	6	£ s. d. 29 12 0
„ Bathurst	145	5 6 2	6	31 17 0
„ Yass	187	6 11 9	6	39 10 6
„ Gundagai	283	8 18 8	6	53 12 0
„ Junee	287	8 18 8	6	53 12 0
„ Hay	454	.....	.....	.....
Goulburn to Junee	153	5 11 4	6	33 8 0
„ Gundagai	149	5 11 4	6	33 8 0
„ Hay	320	9 13 6	6	58 1 0
„ Wagga	175	6 4 6	6	37 7 0
„ Albury	252	8 2 11	6	48 17 6

Sydney to Goulburn	£ s. d. 29 12 0
Goulburn to Hay	58 1 0
Total—Sydney to Hay	87 13 0
Sydney to Goulburn	29 12 0
Goulburn to Wagga	37 7 0
Total—Sydney to Wagga	66 19 0
Sydney to Goulburn	29 12 0
Goulburn to Albury	48 17 6
Total—Sydney to Albury	78 9 6
Miles.	
309 Sydney to Wagga Wagga	} Maximum rate, £5 10s. per ton, or £20 per truck of 6 tons.
„ „ Narrandera	
454 „ Hay	
386 „ Albury	

RAILWAY rates for goods train, New South Wales, for *third class goods.

Stations.	Miles.	Rates per ton.	Tons.	Amount.
Sydney to Goulburn	134	£ s. d. 3 6 5	6	£ s. d. 19 18 6
Goulburn to Wagga	174	4 16 6	6	28 19 0
Sydney to Wagga direct	308	.....	.....	20 0 0
Sydney to Goulburn	134	3 6 5	6	19 18 6
Goulburn to Hay	320	7 10 2	6	45 1 0
Sydney to Hay direct	454	.....	.....	20 0 0
Sydney to Goulburn	134	3 6 5	6	19 18 6
Goulburn to Albury	†217	6 6 4	6	37 18 0
Sydney to Albury direct	-351	.....	.....	20 0 0

* 2nd class goods would form the average rate. 6 tons of 3rd class goods cannot be got into a truck. † Wrong mileage; 252 is right.

4th Class Goods.—For 6 ton lots.

		£	s.	d.
London to Sydney by sailing ship, 15s. per ton of 40 cubic feet, or say 30s.		9	0	0
per ton weight	...	...	...	...
Sydney to Hay, 454 miles	...	20	0	0
London to Hay	...	29	0	0
Sydney to Goulburn	...	29	12	0
London to Hay	...	£29	0	0
Goulburn to Hay	...	58	1	0; extra
	...	39	1	0
Sydney to Hay	...	20	0	0
Sydney to Goulburn	...	29	12	0
Goulburn to Hay	...	58	1	0

£87 13 0 being £67 13s. extra for breaking journey.

	Miles.	£	s.	d.
Sydney to Goulburn	134	29	12	0
Sydney to Hay	454	20	0	0
Goulburn to Hay	320	58	1	0

THE Commissioner has so clearly and fully stated the case, as far as the Department is concerned, that I do not think there is anything I can add. I can, of course, quite understand the arguments of the deputationists, but I cannot propose any way of effecting a remedy. As the Commissioner fairly points out, it would pay the Department better to sacrifice the Riverina traffic altogether than to reduce the rates for short distances to the same basis as that traffic which is highly competitive; and if that were done, the Goulburn merchants would not only not be assisted, but they would have to help, by paying higher rates than at present, to make up for a lost revenue.

Commissioner.

W.V.R., 4/4/87.

I wish Mr. Pickering to prepare statement, showing what the rate is for 100, 200, 300, and 400 miles, under Miscellaneous, Class A, Class B, 1st, 2nd, and 3rd Class, and what it would be at equal mileage rates—take two prominent articles from each division—also live stock.—CH.A.G., 31/3/87.

Particulars required herewith.—D.C.M'L., 6/4/87. I have sent all the particulars, with extracts from authorities, to Mr. Kirkcaldie, to be worked up into a paper on subject.—CH.A.G., 20/4/87. Report herewith.—W.V.R., 3/5/87.

RETURN showing effect of the introduction of equal mileage rates on Railways of New South Wales :—

Description.	Class.		To Wagga.		To Cootamundra.		To Harden.	
	V.	N. S. W.	From Melbourne.	From Sydney.	From Melbourne.	From Sydney.	From Melbourne.	From Sydney.
Agricultural Produce	AP	A	27/9	28/11	33/-	23/9	48/1	21/1
Ale (in bulk)	M	2	77/3	128/9	100/7	105/5	113/1	93/9
Boilers	3	2	94/7	128/9	117/11	105/5	130/5	93/9
Castings	3	2	94/7	128/9	117/11	105/5	130/5	93/9
Cement	S	B	55/4	51/6	64/8	42/2	69/8	37/6
Dairy Produce	2	1	78/2	103/-	96/10	84/4	106/10	75/-
Fencing Wire	1	1	78/2	103/-	96/10	84/4	106/10	75/-
Furniture (in cases)	3	3	107/5	180/3	140/1	147/7	157/7	131/3
Hardware	3	3	107/5	180/3	140/1	147/7	157/7	131/3
Iron Tanks	4	2	94/7	128/9	117/11	105/5	130/5	93/9
Iron—Bar, Rod, &c.	M	2	77/3	128/9	100/7	105/5	113/1	93/9
Iron—Corrugated	M	1	70/10	103/-	87/6	84/4	99/6	75/-
Nails	1	2	84/7	128/9	107/11	105/5	120/5	93/9
Ironmongery	3	3	107/5	180/3	140/1	147/7	157/7	131/3
Lead	3	2	94/7	128/9	117/11	105/5	130/5	93/9
Machinery	2	1	78/2	103/-	96/10	84/4	106/10	75/-
Salt	M	B	58/-	51/6	67/4	42/2	72/4	37/6
Sugar	2	2	84/7	128/9	107/11	105/5	119/7	93/11
Oil cake	M	B	58/-	51/6	67/4	42/2	72/4	37/6
Whiting	1	B	65/4	51/6	74/8	42/2	79/8	37/6
Woolpacks	S	B	55/4	51/6	64/8	42/2	69/8	37/6

NOTE.—New South Wales equal mileage rates worked out on subjoined basis :—

Miscellaneous Class	1 st d.	whole distance.
A	Class 1 st d.	..
B	..	2d.
1	..	4d.
2	..	5d.
3	..	7d.

Distance.	Miscellaneous.		A.		B.	1.	2.	3.	Cattle.	Sheep.
	Smalls. Per ton.	Trucks. Per ton.	Smalls. Per ton.	Trucks. Per ton.	Per ton.	Per ton.	Per ton.	Per ton.	Per truck.	Per truck.
	Bricks. Ores.	Bricks. Ores.	Flour. Meal.	Flour. Meal.	Coke. Copper.	Soap. Wire.	Iron. Sugar.	General goods.		
100	8/4	.....	9/9	9/9	17/2	34/4	42/5	58/7	66/8	63/4
	<i>6/3</i>	<i>5/-</i>	<i>6/8</i>	<i>5/6</i>	<i>12/10</i>	<i>31/8</i>	<i>31/10</i>	<i>44/6</i>	<i>47/5</i>	<i>39/2</i>
200	15/8	13/2	16/10	14/7	31/4	62/8	77/10	108/2	123/4	98/9
	<i>12/6</i>	<i>10/-</i>	<i>13/4</i>	<i>11/2</i>	<i>25/8</i>	<i>63/4</i>	<i>63/8</i>	<i>89/-</i>	<i>94/10</i>	<i>78/4</i>
	<i>16/8</i>	.....	<i>19/6</i>	<i>19/6</i>	<i>34/4</i>	<i>68/8</i>	<i>84/10</i>	<i>117/2</i>	<i>133/4</i>	<i>126/8</i>
300	20/10	16/11	21/10	18/9	41/4	82/8	102/10	143/2	156/8	127/11
	<i>18/9</i>	<i>15/-</i>	<i>20/-</i>	<i>16/8</i>	<i>38/6</i>	<i>95/-</i>	<i>95/6</i>	<i>133/6</i>	<i>142/3</i>	<i>117/6</i>
	<i>25/-</i>	.....	<i>29/3</i>	<i>29/3</i>	<i>51/6</i>	<i>103/-</i>	<i>127/3</i>	<i>175/9</i>	<i>200/-</i>	<i>190/</i>
400	25/-	20/1	26/10	22/4	51/4	102/8	127/10	178/2	190/-	157/1
	<i>33/4</i>	.....	<i>39/-</i>	<i>39/-</i>	<i>68/8</i>	<i>137/4</i>	<i>169/8</i>	<i>234/4</i>	<i>266/8</i>	<i>253/4</i>

Present rates are shown in black type.

Italic figures show rate on equal mileage basis, starting with rate for 400 miles; thus—Miscellaneous, 400 miles (present rate for 400, 25s.), 75 x 300 = 18s. 9d., reduced rate for 300 miles.

Figures in ordinary type represent charges on equal mileage basis, starting with rate for 100 miles.

NOTE.—It will be seen that if the equal mileage rate be calculated upon the present rate for 100 miles the figures will be much greater for the intermediate stations than if the 400 mile rate be taken as the basis.

What is required is the present rate and the equal mileage rate. There is a basis for every rate; for the 15 miles it is so much, and for every mile thereafter (that is for the 16, 17, and 18 mile the rate is fixed on some scale) for first class it is 4d. a ton per mile; for second class, 5d.; for third class, 7d. What I want is our present rate for (say) 300 miles, and what it would be if equal mileage rates were charged. Take oilmen stores for 300 miles—3rd class, our rate is 7d. per ton per mile; the charge, owing to differential reductions for distance, £7 3s. 2d.; but at 7d. per ton per mile, with nothing for terminal charges, the charge would be £8 15s.; difference, £1 11s. 10d. Again, to secure the trade of the South-western line, the charge to Hay (454 miles) is £5 10s. per ton; or, by truck load, equal to £3 6s. 8d. The equal mileage rate will make it for 1st, 2nd, and 3rd class as under:—

1st, £7 11s. 4d.; 2nd, £9 9s. 2d.; 3rd, £13 4s. 10d.

Again, Bourke (505 miles):—

	1st class.	2nd class.	3rd class.
Present charge	£6 3 8	£7 14 1	£10 14 11
Proposed	8 8 4	10 0 5	14 14 7

but to catch the trade beyond Bourke we have to make a rate for £5 a ton for 1st, 2nd, and 3rd class. Please get out the information in this shape.—Ct.A.G., 8/4/87.

I wish it ascertained how far Victoria, with present rates, could supply Riverina, if we charged equal mileage rates. At a rough estimate, I think we could not well supply beyond Cootamundra. Please make the calculation.—Ct.A.G., 8/4/87.

I enclose a table of calculations, which show that, if an equal mileage rate were adopted on these lines, Victoria would secure nearly all the traffic south of Cootamundra, while we should lose all the traffic (salt, oil-cake, and woolpacks excepted) between Junee and Albury. Harden would really be our trading limit, for there can be no doubt that, if the equal mileage rates were brought into operation in this Colony, Victoria would secure the trade of Cootamundra, which would be left to us. I also subjoin a statement showing what the rates for certain distances would be on the basis referred to in Commissioner's minute of 8/4/87:—

	M.	A.	B.	1.	2.	3.
100 miles	10/5	9/4	16/8	33/4	41/8	58/4
200 "	20/10	18/8	33/4	66/8	83/4	116/8
300 "	31/3	28/-	50/-	100/-	125/-	175/-
400 "	41/8	37/4	66/8	133/4	166/8	233/4
500 "	52/1	46/8	83/4	166/8	208/4	291/8
Basis ...	1½d. per mile;	1½d. per mile;	2d. per mile;	4d. per mile;	5d. per mile;	7d. per mile.

J.P., 13/4/87.

Minute by The Commissioner for Railways.

Differential Rates.

WHILE our position is impregnable as regards the ordinary allowances for distance, I cannot help thinking that we are weak in the case of the special discounts we make for the traffic of the competitive districts—not that we are not right in making these rates, but in their application to one central market only. The traders of Bathurst, Orange, and Dubbo cannot supply Bourke for places west of the Paroo, because the truck

truck rate for £30 is confined to goods sent from Sydney; so as regards truck rate on goods for Wagga and for distances beyond 346 miles on the South-western line, traders at Goulburn and Cootamundra cannot avail themselves of this rate. I have not thought the suggestion right out, but it has occurred to me that, as regards the special rates, traders at intermediate stations might be allowed the truck rate at the Sydney charge for the competitive district. For instance, why, if a merchant at Goulburn wished to do business at Hay, should he not be allowed to send a 6-ton truck load from Goulburn at the same rate as is charged by the Sydney merchant? I do not suppose it would mean much loss of revenue if availed of, but it is not likely that it would be available of to any great extent, but it would take the sting out of the complaint of undue preference shown to the Sydney merchant.

Traffic Manager.

CH.A.G., 11/4/87.

This paper only reached me this morning after my minute of yesterday's date on the same subject had been sent forward to the Commissioner.—W.V.R., 14/4/87. Commissioner.

To the Honorable gentlemen constituting the Legislative Assembly of New South Wales, in Parliament assembled.

The petition of the undersigned residents of Adelong Crossing, Grahamstown, Mount Adrah, Snowball, Mundarloo, Edwardstown, and surrounding districts,—

HUMBLY SHOWETH:—

First—(a.) That your petitioners consider it an injustice that the trade of towns over three hundred and five miles (305 miles) from the metropolis, such, for instance, as Wagga Wagga, should be unduly stimulated at the expense of neighbouring towns, within that distance by means of the system of rates charged on our railway, known as differential, under which a truck load of fourth-class goods is delivered from Sydney to a distance of three hundred and nine miles (309 miles) for thirty-three pounds twelve shillings (£33 12s.) less than if sent a distance of two hundred and eighty-seven miles (287 miles).

(b.) Your petitioners are further of opinion that all 1st, 2nd, 3rd, and 4th class goods should be charged for by the ton only; as at present a truck load of 4th class goods is delivered in places distant over three hundred and five miles (305 miles) for thirteen pounds (£13) less than if paid for by the ton, which unduly promotes the interests of large storekeepers and carrying firms, to the detriment of small traders and at the expense of the taxpayer.

(c.) Your petitioners are still further of opinion that a mileage rate per ton should be charged on all 1st, 2nd, 3rd, and 4th class goods, instead of the differential rates up to two hundred and fifty miles (250 miles), with no increase in the charge to any place beyond that distance.

Second—(a.) That, in view of the policy by which successive Governments have been guided to open up the interior, and to settle the people on the lands, it is desirable in the best interests of the Colony to carry grain at rates considerably lower than are at present charged on our railways. And your petitioners express the opinion that the rates for the carriage of grain should be brought to something the same level (say, one half of the present rates) as those charged in the United States of America, to enable our farmers to compete with those of other countries, where the rates are not more than one sixth of those charged on our lines, and that the rates for hay, straw, and chaff be reduced twenty (20) per cent.

(b.) Your petitioners are further of opinion that such reductions will be a gain to the revenue derived from our railways, as it must result in promoting settlement, consequently increasing passenger and merchandise traffic.

And your petitioners, as in duty bound, will ever pray.

[Signed by 40 persons.]

In response to your request, made during an interview with Mr. Kirkcaldie this morning, that I should submit a report upon your proposal to make the reduced rates which now apply from Sydney only to the southern competitive districts (upwards of 305 miles south and 340 miles south-west) applicable from any station on the Southern line, from which the actual mileage rates to the districts named are not lower than those from Sydney, I beg to state that the proposal is a perfectly just and fair one; but I am afraid it does not go far enough to satisfy the gentlemen at whose instance the recent deputation from Goulburn was formed to wait upon the Minister. Their contention, as I happen to know, from conversations with Mr. Rogers, of Goulburn, long ago, is that merchandise sent from there to Goulburn stations, and particularly to the competitive districts, having already paid the ordinary rates of trainage from Sydney, should be conveyed from there (Goulburn) to the more southern at something like the through rate from Sydney, plus a small charge for the break of journey; and it is not necessary for me to inform the Commissioner that that opens a very wide question, which I am quite sure he will not be in favour of. I attach a draft advertisement, embodying the Commissioner's views and extending the principle to the Western line. I had hoped to be in a position to say what the probable effect would be by the alteration upon the revenue as far as the Southern line is concerned, but find this will not be possible till Friday. I have no hesitation in stating that the effect upon the Western line will be nil.—W.V.R., 13/4/87. Commissioner.

[Enclosure.]

[Draft advertisement.]

Department of Railways, Sydney, 188 .
ON and after the the maximum rates on the down journey from any station on the Southern line to any station distant upwards of 305 miles on the Southern and 340 miles on the South-western lines from Sydney will be the same as from Sydney, viz. :—

1st and 2nd class traffic—Actual mileage rates less 20 per cent. maximum.....	110s. per ton.
3rd and 4th	110s. "
General goods (except explosives) in truck loads not exceeding 6 tons	£20 per truck.
Corrugated iron and fencing wire	£18 "

Similarly

Similarly, the maximum rate for merchandise (other than explosives) consigned from any western station to Bourke for the district from Buckambe station, and all stations below having a frontage to the Darling River on the eastern side and on the western side, including Marra and the whole district south and south-west thereof and stations lying wholly west of the Paroo River will be £30 per truck load not exceeding 6 tons.

Sugar, galvanized iron, and fencing wire, £24 per truck.

Commissioner for Railways.

The Minister is of opinion that the rate for the districts which are known as the competitive districts (viz., beyond 309 south and 346 south-west and for the districts west of the Paroo) should be apportioned to distance, that is to say, it is 454 miles to Hay, the rate is £20 a truck; Goulburn is 320 miles from Hay, and the rate should be the proportion of £20, which 320 bears to 454, and so throughout their difficulty in arriving at a proper rate, because the first rate, Sydney to the competitive district is not fixed on a mileage basis, it is the same for 346 miles as it is for 454 miles.—CH.A.G., 22/4/87.

In continuation of my minute of the 13th instant, I beg to state that for the three months ending the 31st March last, assuming that the Sydney rates of 110s. were made to apply to traffic sent from Goulburn to the southern competitive districts, the decrease in revenue would only have been £5 19s. 10d. = £23 19s. 4d. per annum. In no case was there a truck load so that the truck rate would not have applied. I think Goulburn is the only station that would be affected.—W.V.R., 15/4/87. Commissioner.

The future traffic cannot well be estimated from what the present is, allowing Goulburn and other places to train their goods at Sydney rate may have the effect of bringing a large increase of traffic.—CH.A.G., 20/4/87.

No. 43.

Minute by The Commissioner for Railways.

On the proposal for equal Mileage Rates.

NOTICE of Motion by Mr. William Teece,—That, in the opinion of this House, the differential rates charged for the carriage of goods and merchandise on the Railway Lines of New South Wales should be abolished.

THE term "differential" used in connection with our rates will probably convey an incorrect impression; it will to many persons imply the existence of a practice of charging different rates to different persons for the carriage of the same class of goods conveyed under similar conditions, whereas on our lines all persons are charged alike where the conditions are similar. The meaning of the term "differential."

I assume that Mr. Teece's motion refers to the *competitive* rates which exist in respect of the carriage of general merchandise from Sydney to the southern and south-western districts of the Colony—rates that were forced upon the Department in this Colony by the aggressive policy of the Victorian Railway Department, which, while charging full mileage rates upon all traffic in Victorian territory, has granted, for many years past, exceedingly low rates for the conveyance of traffic going from or coming to this Colony. Scope of Mr. Teece's motion.

Long before our railways had penetrated to any great extent southwards, Victoria had completed her railways to the border, and so secured, with but little effort, a hold upon the trade of the more southern and the whole of the south-western districts of New South Wales. Measures taken to secure Riverina trade.

But about seven or eight years ago, when our railways were being rapidly extended southwards; the Sydney market was made as readily accessible, at our ordinary mileage rates, as the Melbourne market had been; the Victorian Railway Department began to foresee that if that Colony were to retain the trade which it had become accustomed to regard as its own, special inducements would have to be offered, and that was done in the shape of a considerable reduction of railway rates.

A competitive policy followed—our Railway authorities felt it to be their duty to secure as far as they possibly could, the traffic of the districts through which our lines passed, and as the reduced rates on the Victorian lines were turning the stream of traffic towards Melbourne, while its natural channel was towards Sydney, the only course available was to reduce the rates on our lines between the metropolis and those districts of the Colony affected by the concessions given on the Victorian lines, and to raise the carriage-rates on goods between Albury and Wagga.

The success of this arrangement became so apparent, that after a time (in 1882) the Victorian Railway Department, in order to regain the trade, which it had to a large extent lost, offered to convey it over their lines at even lower rates still, and these rates have been in existence ever since.

For a brief, but only a very brief, time, this concession had the effect desired; it was met, however by our Railway authorities introducing a truck-rate, which, while it offered a lower average rate per ton than formerly, had also the effect of securing full loads for the waggons, and so yielded about as much revenue per waggon as had been realized previously, thereby securing the traffic without loss.

Since the time in question, with the exception of a little modification, in regard to the rate for the carriage of wool, no further effort has been made by Victoria to regain the trade; indeed, it is difficult to imagine what further concession they could give, unless they carried the traffic for nothing.

To show, however, the extent of the endeavour made by the Victorian Railway Department to obtain the trade of this Colony, two illustrations are given (one as regards general goods from Melbourne, and the other as regards wool to Melbourne).

First illustration.—Fourth class traffic (comprising furniture, liquors, glassware, and numerous other articles), conveyed from Melbourne to Wodonga (187 miles) for use in Victoria is charged at the rate of 106s. per ton; if the same traffic crosses the border to Albury (190 miles) the charge is reduced to 63s. 6d., and if it is consigned to any part of this Colony north of Gerogery (20 miles from the border) the rate as far as Albury is only 32s. 6d. per ton.

It will be at once apparent that if, as Mr. Teece's resolution proposes, our competitive rates are abandoned, whilst those of Victoria are retained, that Colony will be enabled to regain not only all she has lost but the whole of the trade of this Colony for a distance of 50 to 60 miles further north—as far indeed as *Cootamundra*, which is 253 miles from Sydney, and 323 from Melbourne—as the respective rates for general traffic would then be 126s. per ton from Sydney, and 108s. from Melbourne. The whole of the Riverina traffic as well as that of the Tumut district would be lost to us. Effect of Mr. Teece's proposal.

Second.

Second illustration.—The Victorian rate for wool grown in its own territory, is 7s. 6d. per bale, not exceeding 4 cwt., from Wodonga to Melbourne, but if grown in any part of New South Wales, bounded by the Murrumbidgee on the south, and longitude 144° west, the charges are only 3s. per bale, not exceeding 300 lb., and 3s. 6d. per bale exceeding 300 lb.

It is therefore very certain that the abandonment of our competitive rates, even if it does not prejudicially affect the traffic as far north as Cootamundra, which I have shown to be not only a possible but a probable result, will have the effect of depriving Sydney of the whole of the trade from Juncce southwards and from the south-western district.

The policy we have adopted to secure this trade has had the effect of causing not only an enormous increase of business to the old-established mercantile firms and others of Sydney, but has also resulted in bringing over a number of the largest Melbourne firms to retain the connection which no other course would accomplish. Amongst the firms referred to may be named Goldsbrough & Co. (Limited), Bright Bros. & Co., Cunningham & Co. (Limited), &c., &c.

Although this has been the result, and that the public in the districts referred to have obtained the benefit of very low rates of carriage, it is, nevertheless, to be regretted that such keen competition as I have described should ever have existed. The position, however, was forced upon, not initiated by, the railway authorities of this Colony. And to abandon what we have secured would be uncommercial and suicidal. It may be, however, that Mr. Teece's motion is not intended to affect this competitive traffic, but is confined to asking Parliament to resolve that the rates throughout the lines shall be fixed upon uniform rates per ton per mile according to distance.

To anyone conversant with the principles which govern the conveyance of traffic, either by land or water, it must be apparent that there would be as little reason in such a system as there would be in charging the same rate for the carriage of coal as for silks.

Charges for carriage should, with other consideration, be proportioned to the cost of the service; it costs the Department more per mile for the carriage of goods 100 miles than it does for carrying them 200 miles, and the public who require the goods carried the longer distance should reap the benefit of this decreased cost by being charged a proportionately decreased price. Not only is such a system of charging fair in its incidence, but a contrary practice would most probably drive from Sydney the whole of the trade of the Colony from Murrumburrah southwards, because the conveyance of a ton of general merchandise between Sydney and Murrumburrah would cost £6 13s., while from Melbourne, *via* Wodonga, the charge would be £6 0s. 6d., notwithstanding the distance is 120 miles greater. Most certainly such a system would divert from Sydney all traffic from Cootamundra southwards since a ton of goods from Sydney to that station would cost £7 7s. 7d., while from Melbourne, a greater distance by 70 miles, the cost would be only £5 10s. 1d.

The introduction of uniform mileage-rates would, as regards the carriage of agricultural produce, have the contrary effect to that which the producers have been contending for, *viz.*, a *pro rata* reduction, for distance. This has been granted to them, but they want it to a larger degree. The adoption of Mr. Teece's proposal would increase the rates as follows:—

For a distance of 100 miles, from	9s. 9d.	to	10s. 5d.	per ton.
" " 200	" "	"	16s. 10d. to 20s. 10d.	"
" " 300	" "	"	21s. 10d. to 31s. 3d.	"
" " 400	" "	"	26s. 10d. to 41s. 8d.	"

and so on. Uniform mileage-rates would be the means of closing all the agricultural country beyond 200 miles from its market, whereas by the adoption of the sliding scale of rates proportioned to distance, agricultural country within 500 miles of its market can be made available for the profitable cultivation of produce.

An exhaustive inquiry, which extended over several months towards the end of 1881, was made into the question of rates on our railway lines by a Board of three gentlemen, entirely unconnected not only with the Railway Department but with the Civil Service; and these gentlemen, in submitting their report to the Minister of the day (and here it may be stated that at that time the competitive rates were in existence), the Board stated that they had commenced the inquiry "fully impressed with the importance of the subject, and the influence the policy of the Railway Department, in regard to the rates charged for the conveyance of goods, has upon the progress and development of the Colony."

The Board examined seventy-seven (77) witnesses, "who were fairly representative of the various interests in the Colony," and obtained the written evidence of four gentlemen, who were unable to attend personally; and perhaps I cannot do better than quote from the report of the Board the conclusions they arrived at. They said—

"The rates relating to the pastoral interests have not drawn forth much criticism, the principal matters complained of being the difference between the mileage rates for the carriage of stock and wool for long distances in comparison with the rates for short distances. The charges are, however, defended on commercial grounds and on the score of exigency. We do not see that any alteration can judiciously be made so as to equalize the rates, and we believe the effect of such an alteration would be, in the first place, to divert to other Colonies a considerable portion of the traffic that now comes to our metropolis; and, secondly, to cause much of the cattle now sent by railway to be travelled by road.

"The principal complaints tendered on behalf of the commercial interests are made by the country storekeepers, who state that their trade is practically limited to their own particular district by the differential rates, to remedy which an equal and uniform mileage rate is proposed. We have considered the feasibility of the adoption of a uniform rate, but cannot recommend it. It is against the practice, we believe of any railway company in the world; it is against the common practice of carriers, who will convey goods for a long distance at a cheaper proportionate rate than they will for a short distance; and in this Colony the concession would simply benefit the storekeepers, who must obtain their goods from the terminal station; and the uniform rate, while an advantage to them, would be a disadvantage to the people in the interior, who require the greatest consideration.

"Taken as a whole, the opinions of the various witnesses we have examined are very diverse, and evidently based upon mere local experience derived from the business in which each is most interested—in many cases diametrically opposed to each other—and in no instance offering any comprehensive or practical suggestions for the revision on the rate-sheet, but admitting generally that the present rates are fair and equitable.

"Taking

Result of measure to secure trade.

Wider scope of Mr. Teece's motion.

Considerations which govern the fixing of rates.

Effect of uniform mileage-rates on agricultural produce.

Inquiry made by Rates Board in 1881.

Conclusions arrived at by Board.

"Taking the evidence tendered to the Board, together with the Commissioner's able and exhaustive comments and explanations thereon, we are constrained to accept his assurance that the officers of the Railway Department have studied the question of the freight of charges from every point of view, with the object of affording to all interests concerned fair and equitable rates, and to agree with him that it is not desirable that any hard and fast rule from which departure is inadmissible should be laid down, because changes must be made from time to time to meet the variable conditions of trade, as well as the traffic, and the effect upon the traffic, brought about by the rates charged."

While these conclusions have been arrived at by our own authorities after careful investigation, it may be as well to know what authorities in other parts of the world have to say on the subject. Opinions of other authorities.

Mr. Farrar, Secretary to the Board of Trade in England, says, with reference to the rates question:—

"As to equal mileage rates, they would put an end to competition. The result would probably be 'levelling up' and not 'levelling down.' Parliament would never consent to take the lowest profit which a company now makes by its cheapest traffic as a standard, and fix maximum rates accordingly for all their traffic. The endeavour would be to fix a medium or average rate, and in the struggle over this, the companies must inevitably have the advantage of the public. But, supposing such a standard fixed, what would be the result? The traffic, which was now carried at a low rate, in competition with a sea route, would be driven from the railway to the competing route; while the railway, if it was to make as much aggregate profit as before, must charge a higher rate than is now charged on the traffic which remained to it. If, for instance, Parliament were to take from the South-Eastern Railway Company the power of charging on fruit and hops from Boulogne the low rate they now charged, the result would be that French fruit and hops would reach London by water, and that the Railway Company, to recoup themselves for the loss of the French traffic, would probably charge more on Kent fruit and hops. This charge the Kent fruit and hops would be able to bear, because the price would be raised in the London market. It was probable, therefore, that *most of the inequalities of charges complained of were to the advantage rather than the disadvantage of the public.*"

Applying to our circumstances the principle underlying these remarks, we should find as I have endeavoured to show, that the adoption of an uniform mileage rate for all distances would offer no advantage to the distant producer to send his produce to market; and that for those goods which must under any circumstances go into the interior for the requirements of the people there, water-carriage by rivers, wherever available, and the competing rates of the neighbouring colonies, would reduce our traffic to a minimum. To compensate for this it would be necessary to charge very much higher rates than are at the present time charged for the carriage of goods for short distances, or to places from whence the traffic could not be diverted by competitive routes. Effect of loss of traffic on distant parts of line.

Writing on the same subject, in reply to a communication which I addressed to him, Mr. Swarbrick, the General Manager of the Great Eastern Railway in England, says:— Mr. Swarbrick's opinion.

"You cannot, in my opinion, lay down any very hard and fast line for fixing rates. As a general rule, our home experience is that it is better to foster large quantities and longer distances by means of relatively lower rates, than to try by means of smaller quantities and shorter runs to secure a higher percentage of profit over a smaller area. We also, where there is an exceptionally large industry, or where necessary to foster any export or import trade, make special rates to meet the case, and thus our rate-books are full of anomalies and apparent contradictions to the benefit, as we think, both of ourselves and customers."

And as the result of an inquiry held in England some years ago, by a Select Committee appointed by the House of Commons, on the question, the Committee reported that:— Conclusions arrived at by Committee of House of Commons.

"There is no question as to the existence of these 'preferential' or 'exceptional' special rates, the latter epithet being the term used by representatives of the railway. The evidence given under this head comes almost entirely either from persons engaged in production, who are being charged proportionately higher rates than producers resident in other parts of the country, or from towns or places through which traffic passes, who, as engaged in the business of carrying or distribution, complain that it is diverted from them by the lower rates charged on other routes. But for the competition introduced by the low rates given by railway companies, trade would be much more local, and the trader who was nearest the market would probably make a large profit; but, on the other hand, this competition cannot but be advantageous to the public; that Greenock sugar refiners should be in the same market as the sugar refiners of London, while it may be a grievance to London refiners, must be an advantage to Greenock refiners, and cannot be a disadvantage to buyers of sugar. It may be worth while to follow this as a typical case:—Thirty-nine towns in England to which sugar is sent are at an average distance of 292 miles from Greenock, and the same towns are at an average distance from London of only 150 miles. The rates for these distances, from London and Greenock respectively, are about the same * * *. In other words, sugar from Greenock is for the same sum carried double the distance as sugar from London. This enables Greenock to compete at these thirty-nine towns, and this is what the refiners of London object to. The demand from London, therefore, is that either the rates for the longer distance should be raised, or those for the shorter distance reduced. The effect of compliance with this demand would be to close some of these markets against Greenock sugar, to deprive the northern lines of a considerable portion of their trade, handing it over to the southern lines, and to give a practical monopoly to the London refiners of sugar, who would be real gainers by the transaction. It does not appear to your Committee that such a result would be either just or reasonable."

"Although 'equal mileage' rates, that is to say, rates proportioned exactly to the number of miles run, have not been advocated on this occasion as before former Committees; still, ideas have been put forward so closely resembling such as would naturally support the mileage system, that it may be worth while to recall the words of the Committee of 1872:—

"(a) It would prevent railway companies from lowering their fares and rates so as to compete with traffic by sea, by canal, or by a shorter or otherwise cheaper railway, and would thus deprive the public of the benefit of competition, and the company of a legitimate source of profit."

"(b) It would prevent railway companies from making perfectly fair arrangements for carrying at a lower rate than usual, goods bought in large and constant quantities, or for carrying for long distances at a lower rate than for short distances."

"In short, to impose equal mileage on the companies would be to deprive the public of much of the competition which now exists, or has existed, to raise the charges on the public in many cases where the companies now find it to their interest to lower them, and to perpetuate monopolies in carriage, trade, and manufacture, in favour of those rates or places which are nearest or least expensive, where the varying charges of the companies now create competition. And it will be found that the supporters of equal mileage when pressed often really mean, not that the rates they pay themselves are too high, but that the rates that others pay are too low.

"Pressed by the difficulties, the proposers of equal mileage have admitted that there must be numerous exceptions, *e.g.*, where there is sea competition (*i.e.*, at about three-fifths of the Railway Stations of the United Kingdom), where low rates for long distances will bring a profit; or where the article now carried at low rates is a necessary, such as coal. It is scarcely necessary to observe that such exceptions as these, whilst inadequate to meet all the various cases, destroy the value of equal mileage as a principle, or the possibility of applying it as a general rule.

"Any fixed standard of rates would materially interfere with competition; supposing such a standard fixed, the result would be that the traffic which is now carried at a low rate in competition with a sea route would be driven from the Railway to the competing sea route, whilst the Railway, if it is to make as much aggregate profit as before, must charge a higher rate than it now charges on the traffic which remains to it.

"It may therefore be assumed that some of the inequalities of charges complained of are to the advantage, rather than to the disadvantage of the public. A preference to be illegal, and to furnish a reasonable cause for complaint, must be unjust. It is not unjust so long as it is the result of fair competition, and so long as equal rates are given for like services under like circumstances, and for like quantities of merchandise."

It is gratifying to find that the principle upon which the railway rate-sheets of this Colony have been compiled are supported by such unimpeachable authorities as I have quoted; but as railway management is a progressive science, it may be as well to know what the authorities say to the latest date.

The following extracts are taken from a book written in the end of last year (it is in fact, dated December, 1886), by Mr. Grierson, the eminent General Manager of the Great Western Railway in England, on "Railway Rates, English and Foreign." He says:—

Page 21. While shrinking from advocating equal mileage rates, many persons take up an intermediate position. They object to rates being much out of proportion to distance; they do so, although the traffic may not be carried over the same parts or sections of a railway. The rates to which objection is taken are of several kinds—transit or through rates, special rates generally, special rates for long distances as distinguished from short distances or intermediate traffic.

Such differential rates exist in all countries in which railways have been developed; and it will be found that here as elsewhere they have been adopted not solely or even chiefly with a view to benefit railway companies, but mainly to meet the not unreasonable demands of traders and consumers.

23. Special lower rates enable the manufacturers of exported goods, such as manufactured cottons from Manchester, and hardware from Birmingham, to send them to London, and to avail themselves of lines of steamers sailing from several ports. But for such facilities exporters would be confined to one, and that the nearest port, and they would lose the benefit of the competition in facilities and sea freights.

The railway company which happened to own the route to the nearest port would possess a monopoly of the traffic, and might charge their full rates instead of the present reduced rates.

31. Many apparent anomalies arise from competition of the railways with the sea; others are the results of comparison of the rates charged by railway companies, which must carry, if they are to carry the traffic at all, at the same rates as a company having a shorter route. Inasmuch as competition between railway companies is carried on extensively, many such disparities exist.

Tin plates are carried from South Wales *via* Stockport for Liverpool at lower rates than to Manchester, because the Midland Railway Company has to compete with two shorter routes between these places. This (apparent) anomaly would be entirely removed by the Midland Company ceasing to compete for the Liverpool traffic; but the consumers of tin plates in Manchester would not in any respect be benefited by the change.

32. One more illustration: Steamboats ply between Liverpool and Bristol. Goods carried by railway between these two places by one or other of the three available routes must pass through some one of the following places—Birmingham, Worcester, Hereford, Shrewsbury, Chester, or Warrington.

The local rates to all these intermediate towns may appear disproportionate to those charged between the extreme points, but is there any real injustice done?

What injustice is done to those whose goods are carried to and from intermediate inland places by the fact that their rates are higher, or higher in proportion, than the competitive rates, provided the rates to intermediate places are in themselves fair and within the Company's legal maximum?

33. A third source of complaint of disproportionate rates arises from the competition between ports. Assume, for instance, port A to be 51 miles, port B 72 miles, and port C a greater distance from D, one of the great seats of manufacture and commerce.

The merchants and shipowners at C and B desire to compete with A, and they induce the Railway Company to carry from all three at the same rates.

The result is that the rates are lower for the throughout distance than to and from some of the intermediate places. The grounds of grievance would be removed by the Railway Company ceasing to carry from C and B at the same rates as from A.

34. The chief explanations of differential rates have been mentioned; another cause less important is in operation. Of the various kinds of outlay on the part of a Railway Company, a large portion remains fixed, whether the distance run by a train is 10 miles or 100. Such, for example, are the cost of terminal accommodation, loading and unloading, clerical work, and, broadly speaking, such are the interest on construction cost; maintenance, &c. Another kind of expenditure increases directly with the mileage run; for example, the provision and wear and tear of locomotives, rolling-stock, and permanent way, and liability for loss of or damage to goods in transit.

Certain kinds of expenditure increase with the distance run, but not in the same ratio.

34, 35. Obviously, wages, cost of locomotive power, and cost of haulage generally, are not four times as much in the case of a train which has run a hundred miles as in one which has run twenty-five. With the progress of railways, with improved economy in the use of machinery, and in other ways, this tendency—recognized to some extent by the Legislature in the rates for short-distance traffic—in expenditure not to increase in the same ratio as mileage distance, becomes an important element. The result of all this is to make mileage less a criterion of cost, and tends to place large towns at a greater distance at an advantage as compared with intermediate towns, and to give rise to differential rates. It is also obvious that from many intermediate towns the quantities forwarded are not so large and regular as from terminal towns, and that from the former there is not a constant traffic to and fro.

Differential rates have arisen in no small degree out of the same causes as have necessitated a classification of goods. Goods of small intrinsic value will not be conveyed at all unless at low rates; only on special terms can such goods produced at a great distance be brought to market.

36. Sometimes it is urged as an objection to differential rates that by reason of them companies sustain, on long-distance traffic, a loss which is made up by charges on short-distance traffic; but though producing, no doubt, a lower percentage of profits than the latter, the former yields some profit, unless where undue competition exists. If a company be deprived of this long-distance traffic will it not be forced to raise rates on other traffic to maintain its revenue?

But,

Rate charges made in New South Wales upheld by authorities.

Mr. Grierson's opinions, latest published authority on subject of equal mileage rates.

But, it is also objected, differential rates deprive the inhabitants of certain towns of the natural advantages of their geographical position.

This argument would be more persuasive than it is if it were not generally expressed in the very language of protectionists—if it were not so often a claim of an exclusive right to supply certain markets, and a scarcely concealed dislike to the intrusion of competition.

Preserving the natural advantages of one town means preventing the removal of the natural disadvantages of others.

I could quote from other railway authorities to the same effect, but while it would lengthen it would not materially strengthen the case.

Summary showing effect of proposal.

To put the matter very briefly, the points to be considered are :—

- “1st. That the abolition of competitive rates would mean the diversion from Sydney to Melbourne of the trade of that part of the Colony from Junee southwards, and the whole of the trade of Riverina, which is now conveyed on the South-western line ; and
- “2nd. That the adoption of uniform rates per ton per mile will either involve the loss of an enormous amount of revenue on the short-journey traffic if the ‘levelling down’ process is adopted—that is to say, taking the longest-journey rates as a basis, and fixing all those for shorter distances in proportion, or otherwise divert to Melbourne the whole of the trade of the Colony from Cootamundra southwards.”

I may perhaps be pardoned for saying that, after the success that has attended the efforts of the Department to secure, against keen competition, the trade of our Colony, any action that may be taken to alienate it will be greatly to be deplored, not only in the interests of the Railway Department and its revenue, but of the Colony generally, the commerce of which will be, in a material degree, prejudicially affected.

Alternative Proposal by the Commissioner.

From inquiries I have made on the subject I am led to believe that the agitation for equal mileage rates derives its existence from the representations of country storekeepers that their trade under present system of charging is practically limited to their own particular districts.

Agitation for equal mileage rates promoted by country storekeepers.

They contend that they should be allowed to break journey with their goods, and be charged no more than the through rate, beyond a small terminal charge for unloading and loading at the intermediate stations. A trader at Goulburn, for instance, pays £3 16s. 5d. per ton for goods from Sydney for that place, but he wishes, subsequently, to send a portion of them to Cootamundra, and the charge from Goulburn to Cootamundra is £3 8s. 7d., in all £7 5s.

The storekeeper, however, at Cootamundra can obtain goods from Sydney direct, on the reduced sliding scale for distance, for £6 6s. 9d., and practically the Goulburn storekeeper is shut out from trading with Cootamundra and the district surrounding it.

The Traffic Manager, in a report on the proposal to grant this concession, has given some excellent reasons against it—a copy of his report is appended ; but on the whole I fail to see that the objections are insuperable. The Traffic Manager is in error as regards the statement that the Rates Board dealt with this aspect of the case. I think I am right in saying that this particular phase of it was not before them, the Board deprecated the introduction of equal mileage rates in the interests of local storekeepers to the disadvantage of settlers in the more distant part of the Colony, but the proposal to overcome the admitted disability of country storekeepers trading beyond their immediate district with goods brought from Sydney by the introduction of a “break-journey” rate was not discussed by the Board beyond its application to wheat stopped *in transitu* to be ground into flour, and this principle of charging they found to be in active operation, and approved of it.

Traffic Manager's report reviewed.

There are, it is admitted, difficulties and perils in the way of the application to goods generally of this principle of charging, especially in cases where there are manufactories at the intermediate towns ; but if there be no abuse of the concession I do not see how the Railway revenue can suffer. Country storekeepers are not now supplying such goods to districts beyond their immediate neighbourhood ; they are supplied direct by metropolitan tradesmen and merchandisers ; the adoption of the proposal will have the effect of disseminating trade, and as regards the more distant storekeepers, decentralizing it. The revenue (if there be no malpractices) would obtain a benefit, inasmuch as the terminal charges for break of journey can be made sufficiently high to show, not only a return for the service rendered, but a profit upon it.

Break-of-journey rate.

It is only the comparative absence of local manufactories which makes the introduction of this system of charging possible ; it has no parallel in any other country, and I would not willingly introduce it here, I only submit it for consideration because I fear that, unless this concession be made to country storekeepers, they will have sufficient influence to induce Parliament to sanction the scheme of equal mileage rates, which will result disastrously, not alone to the Railway revenue, but to the general commerce of the Colony.

Alternative proposal recommended and why.

CHAS. A. GOODCHAP.
Commissioner for Railways.

12 May, 1887.

Report of Traffic Manager to Commissioner for Railways on proposal to introduce a rate for goods which break journey at intermediate towns.

I HAVE carefully considered the proposal to give traders, at intermediate towns, the benefit of the reduced rates to the competitive districts proportionate to the distance they are situated from those districts, and would respectfully point out that a powerful argument against the introduction of the principle is that, if adopted in the case of traffic forwarded from Goulburn or other station on the Southern line to the competitive districts, it is all but a certainty that a similar demand will be made throughout

throughout the lines even where no competition exists; indeed the Commissioner will remember that this very matter was pressed upon the Board, which inquired into the rates some years ago, by some storekeepers in Orange who thought they should be able to reconsign goods (which had originally come from Sydney) to Dubbo at a through rate, plus a small charge for the break of the journey at Orange.

The effect of the adoption of such a principle would mean that the nearer a storekeeper lives to Sydney the better his position to compete for the trade of the districts lying near to a town many miles further into the interior.

For example, let it be assumed for the moment that competitive rates do not exist, but that ordinary mileage rates are charged throughout the lines. A storekeeper in a large business in Goulburn pays trainage from Sydney at the rate of £3 16s. 5d. per ton upon third-class goods, while the through rate to Bomen is £7 4s. 7d. His contention is that we should allow him to reconsign goods (originally received from Sydney) to a small store at Bomen at the latter rate, plus (we shall say) 7s. 6d. per ton, = £7 12s. 1d. altogether. But if the Wagga Wagga storekeeper, under precisely the same conditions, desires to supply the same small store at Bomen, he must pay:—

From Sydney to Wagga Wagga	...	...	...	...	£7 6 4 per ton, and
„ Wagga Wagga to Bomen	...	...	...	...	0 9 0 „
Total					£7 15 4 per ton.

So that, in the matter of railway carriage, he is beaten at his own door by a competitor living 170 miles away.

I would respectfully submit that the competitive rates do not affect the principle; moreover, these rates were forced upon us. We did not adopt them from choice, and it would seem judicious that they should not extend beyond the limits suggested by the Commissioner.*

There is another aspect of the case which has, perhaps, been overlooked, and that is that the adoption of the suggestion will necessitate a very largely increased staff at country stations, if adopted generally; and there is a further fear that it would open the door to frauds, the opportunity of which, in the light of past experience, should be avoided.

Take the case of a storekeeper at Orange, who, for every ton of leather he gets from Sydney, gets ten in the district. He sends a ton to Dubbo, and asserts that it came from Sydney and should be charged the through rate, plus the small charge alluded to. Who is to say that this particular ton of leather did not originally go from Sydney, and yet there may be strong presumptive evidence that it did not? The door would certainly be open to a dishonest clerk to defraud the Department by acting in collusion with the sender without much, if any, chance of ever being found out.

It is solicitude for the welfare of the Department which induces me to make these observations. I believe the introduction of this system of charging, while it might please storekeepers who live nearest to Sydney, it would give dissatisfaction to those living far in the interior, and, in my opinion, the latter deserve the most consideration.

W.V.R.,
4/5/87.

No. 44.

Minute by The Commissioner for Railways upon extract from the *Central Australian*.

Bourke, 16 July, 1887.

EXTRACT from the *Central Australian* of 16th July. Copy of paper forwarded by mail.

THE Editor satisfied himself as to the *bona-fides* of this statement before insertion. A confidential officer might pick up something here, but it would only be done to a very confidential officer.—EDITOR *C. A.* To Commissioner for Railways.

Confidential.

Even the paragraph does not necessarily show that any improper manipulation is going on, as a forwarding agent might give his customers the benefit of the truck rate, even for small quantities, but it is worth enquiring about.—*C.A.G.*, 18/7/87.

I visited Bourke and saw Mr. Parsons, the editor of the *Central Australian*. He apparently misunderstood the position of carrying agents in the matter of rebates. His impression was that the 6 tons must be the property of a single individual. There is no doubt, however, I think, but that the system has been, and is being, abused, and false declarations made, and Mr. Parsons' information to this extent is correct. It is not only the general impression of the Bourke people, but it is the cause of a great deal of irritation to them. From another unquestionable source I gathered that at least two steam-boat proprietors, and one firm at Wanaaring, are concerned, and I have arranged to be advised when their next consignments are to hand. I would suggest that one or two confidential officers should travel by the steamer and watch the disposal of the goods, many of which, I gather, are disposed of before reaching the boundary of the rebate system. I may state that the merchants of Bourke are very loud in their condemnation of this differential rate, and are no doubt placed at a very serious disadvantage by it. They have been very anxiously awaiting the result of Mr. Kirkcaldie's visit, and, in the meanwhile, have been dealing largely with Adelaide and Sydney by river, the rate from Sydney to Bourke being about £5 per ton with insurance.—*J. HARPER*, 28/7/87. Traffic Manager.

Commissioner

Commissioner to see. In Mr. Kirkcaldie's report on the Darling River trade, a proposal was made which would effectually stop the abuse alluded to.—W.V.R., 28/7/87. Commissioner.

This matter has been so far settled that no higher charge for wool than rates from Byrock are to be charged.—C.A.G., 30/8/87. Traffic Manager.

I note the reduction in the rates for wool from Bourke, and have taken steps to advise the stations and brokers.—W. V. READ, 1/9/87.

Wool Rates, Western Districts.—Referring to the conversation I had with the Commissioner, yesterday, respecting the wool traffic of the western districts, I now recommend that our present rates from Byrock to Sydney, viz., undumped scoured wool, £5 Os. 3d. per ton; greasy wool, £4 Os. 3d. per ton, be made the maximum wool rates from the western district. These figures are a reduction of 11s. 3d. and 9s. respectively on last year's quotations from Bourke. The reasons for making a reduction in the rates from Bourke have been fully explained in previous reports.—W.V.R., 24/8/87. Commissioner.

For Minister's approval.—C.A.G., 26/8/87. Approved.—J.S., 26/8/87. Traffic Manager.—A.R., 1/9/87. Instructions issued per G.O., No 69.—W.V.R., 22/9/87.

No. 45.

J. Haynes, Esq., M.P., to The Colonial Secretary.

[Extract from the *Evening News*, Saturday, October 15, 1887.]

RAILWAY RATES.

MEMORANDA on the existing merchandise rates of our railways, with proposals for an alteration of the same.

THE following has been addressed by Mr. J. Haynes, M.P. for Mudgee, to the Premier:—

“To the Hon. Sir Henry Parkes, K.C.M.G., Colonial Secretary,—

“Dear Sir,—I beg to submit to the Government, through you the following memoranda on the present system of merchandise charges on our railways. I am aware that, in some respects, the matter concerns the Works Department, and that my proposals might have been submitted to either the Commissioner for Railways or his chief, the Minister for Works; but as, according to my view, the whole thing is a question of public policy, affecting the government of the interior districts of this country, I have thought it the better course to submit the proposals to the Cabinet. In this work I stand representing the entire inland community, who are affected one way or another—for good or for harm—by the management of our great national highways. The question as to this management or control is one far beyond official or departmental concern, and is, in reality, a question of public policy. The representations in regard to the management of our railways which I now make, are from the country. It is fitting that these representations should be made to the Minister who represents the Government. Therefore I address you; and have only to hope that as the reforms proposed are really of an urgent character, no time will be lost by the Government in ascertaining whether they are sound or unsound. With these few introductory words I beg to proceed.

1. For a considerable period of time, principally during my last five or six years connection with the Press, I have watched the relative advance in trade development of our metropolitan and inland districts, and I have been struck with the comparatively small headway of the latter, notwithstanding their varied and great resources. Of late many bitter complaints have come up to us from the country of the continued unproductiveness of labour and enterprise of every kind. The tillers of the soil, spread over the railway-traversed centres of the country, have complained that they are almost wholly shut out from the great coast markets; while, on the other hand, those markets inland at all available are reached by cheaply-borne produce from outside Colonies. Very many of our farmers took up their lands years ahead of railway communication, and they have in the interval plodded on, expecting a complete change with the appearance of the locomotive. But to these the railways have come, and the farmers find their position changed if anything but little; in many cases they are the worse off. This disappointment has been felt inland, not by the farming interest alone. Almost every branch of trade, manufacturing as well as mercantile, has long been suffering from drawbacks which all could feel, but few describe. The recent three or four years of depression, felt here as in other parts of the world, has intensified the effect of this condition of things; and after all it is not perhaps surprising, in the uncertainty of the hour, many of our inland people, hitherto conspicuous as a body in their attachment to free trade, should lend for a time, at any rate, a partially willing ear to the delusive cry of protection.

2. I always felt that there must be something radically wrong with our governmental or administrative system (and as far as our inland communities are concerned they are one and the same under our centralising system), which would induce men to entertain even for a moment a proposition that to relieve trade of depression we must burden it with fresh handicaps rather than free it from those which it already bears. I was convinced that free trade meant deep and lasting prosperity, and I perceived that the existing handicaps to inland development could not come from our fiscal policy. I could see that our farming community were a laborious and steady people, and that our country business men were as energetic as any that could elsewhere be found. I turned my attention to our facilities for transport, and I must say I was not long examining our railway tariff system before I discovered what I believe to be the great—the one only—hindrance to inland development, and the ever-present cause of agricultural depression in this country.

3. I now propose to set forth in this paper the results of my investigation on this head, giving in detail particulars of existing handicaps, and appended hereto will be found my proposals for a complete remedy. Before proceeding further, I must here state my belief that the Commissioner for Railways (Mr. Goodchap) has at all times striven to shape our railway system to the wants of the general community; and I believe, further, that his occupancy of office has been an executive success. He has organised for the country a staff of officers second to none in any other part of the world—steady, reliable, and competent. We can realise this when we note that (with almost an entire absence of sacrifice of life or loss of property) we carry between 53 and 54 million passengers and about $1\frac{1}{2}$ million tons of merchandise on our railways and tramways in a single year. In this way, as an executive officer I believe Mr. Goodchap to have succeeded. But I must say that it is in this executive work his success begins and ends. I regret that I will in this paper have to show that not only has he failed to grasp the wants of the interior as regards our goods traffic, but that he has exercised ministerial rather than official powers, and has inaugurated a system of rates which is illegal as well as being diametrically opposed to the declared free trade policy of the country.

4. The profound blunder of our railway goods system is that it is shaped to meet a wholesale rather than a retail trade. It is impossible, on examination of the system, not to observe that it is to the few any favourable consideration is shown, and that the one object—benefit to the metropolis—is kept always in view. I will have to show that the wholesale principle is the body and soul of the system, as far as the metropolis and (in some respects with the view to benefiting Sydney) Newcastle are concerned, and that where the principle is extended inland at all it is to coal-mine owners and wool-growers.

5. Now it has been proposed to abolish the differential rate system, namely, that under which a specially low rate of carriage was devised to secure our trade in the terminal districts of the south and south-western trunk lines. Now, I propose—it is a paradox—to abolish the system by making it general. I believe it can be shown that the Commissioner is acting directly contrary to law in charging any such thing as a differential rate; and I believe a Maitland, Mudgee, Goulburn, or Bathurst trader could successfully resist in a court of law any further payment for carriage than the average for distance under the differential rate. (Mr. Teece, M.P., for Goulburn, informs me that the English Courts have decided the differential rates are illegal.)

6. As above stated, it is a paradox for me to say I propose obliterating these differential rates by maintaining them in general application over the entire stretch of our railways. My point is that the differential system, low as it is, pays the Department; and, extended all over the country, might be calculated to lead to a vastly increased traffic.

7. First of all, for general information, it may be as well that I describe what the differential rate system is and what it really means in pounds, shillings, and pence. It was inaugurated, as is well known, to enable Sydney to compete for the trade of our southern border with Victoria, who had devised a specially low railway rate to retain her hold of it. Our concession to the Sydney business people was this:—(1.) The maximum rate for any class of traffic (except explosives) from Sydney to stations distant over 305 miles on the Southern and 340 miles on the South-western lines will be £5 10s. per ton; or if in truck loads not exceeding 6 tons, the maximum charge will be,—corrugated iron and fencing wire, £18 per truck; other 1st, 2nd, 3rd, and 4th class goods, £20 per truck. (2.) A reduction of 20 per cent. will be allowed on 1st and 2nd class traffic from Sydney to stations on Southern and South-western lines, distant over 340 miles. With regard to the Western line, a differential rate of £35 per truck of 6 tons is made for a distance of 503 miles.

8. The working out of the system may here be briefly illustrated. A Sydney trader may send 6 tons of corrugated iron 454 miles for £18; but a Maitland trader sending his 6 tons to Tenterfield (120 miles less haulage) would pay £26 17s. Under the same system a Sydney firm dealing, say in Victorian-made agricultural machinery, could send 6 tons of it 450 miles for £20; but the Maitland man, sending exactly the same goods only 334 miles would pay £46 10s. 6d. Under the same arrangement, a Sydney merchant sending goods, known as fourth-class, would get his 6 tons for £20 for 450 miles, while the Maitland man, sending 120 miles less, would have to, and does, pay on 6 tons his £59 19s. Sending to Bourke, 503 miles, goods of this sort, the Sydney merchant would be charged £35, but if he had to pay the same rate per mile as the Maitland business man he would contribute not £35 but £82 15s. to the railway returns.

The rate sheet has not been the work of any one person, nor the outcome of the policy of any one Government; it has been shaped by the policy of the times, and the ever varying conditions of trade.—CH.A.G., 17/10/87.

Mr. Haynes is going to level down his proposal to give the short-journey traffic the benefit of the long-journey rates—he is going, in effect, to demolish the railway revenue.—CH.A.G., 17/10/87.

This has been replied to in anticipation by an official paper written on Mr. Teece's proposed motion for the abolition of the differential rates, supplied by an article in the *Herald* on 27th September, 1887.—CH.A.G.

But in practice we know that 6 tons of fourth-class goods never forms a consignment.—CH.A.G.

9. It might be contended that this instance of Maitland on the Northern line, where the differential system does not apply, is hardly a fair illustration of the workings; but it may be illustrated with equal effect as regards intervening districts on the very lines where the differential system is in operation. For instance, Orange. This town is 192 miles from Sydney. A trader there getting up 6 tons of ironmongery, agricultural machinery, &c., would pay for the distance £31 6s. 6d., while a Sydney merchant could send his 6 tons 454 miles for £20, or 262 miles further for £11 6s. 6d. less. If the trader at Orange were receiving 6 tons of fourth-class goods he would pay £40 8s. 6d., but the man at Sydney could send his 6 tons 311 miles further on the same line for £5 8s. 6d. less; and on the Southern Line 262 miles further for £20 8s. 6d. less.

10. How it has worked out may be judged from this fact: A storekeeper at Cootamundra, being 253 miles distant from Sydney, and consequently too near for the differential system, would pay for 6 tons of ironmongery, machinery, &c., £38 0s. 6d. But he knows the differential ropes. He books his goods to Wagga (56 miles further on) so as to get within the differential reach; gets the 6 tons up to Wagga for £20, retrucks them back from Wagga to Cootamundra for £9 17s. 6d., and saves £8 3s. on the consignment by giving the Department 112 miles of extra haulage.

11. This is the differential system briefly illustrated. It is not for me just here to bring the whole thing right out. That will be done further on. My object now is to justify by illustration my contention that our railway system is the embodiment of the wholesale rather than the retail principle; that consequently it is dead in favour of the metropolitan man, whether he be a big or a little trader, and that where it does extend any advantage to the country, it does it mostly to the big man, represented in the wool or the coal ring. And here I may just keep this idea clear and distinct on the surface, that I do not propose to deprive these men of the advantages they possess under the tariff, but claim rather for an extension of the advantages to every man of the inland community. I have said that the wholesale idea is the principle of our railway system, and then make the apparently illogical assertion (as above stated) that the little man (or the retail trader) of the metropolis is favoured. The point is very simply shown. First of all, it is seen that the wholesale Sydney merchant can send his 6 tons at the reduced rate of £20, and the 6 tons may be made up of any class of merchandise. The Sydney merchant usually deals in large consignments, and they are as often over as under 6 tons. But even if under the 6 tons the same advantage is gained; and herein is the way the retail or small man in Sydney gets the benefit of the wholesale principle. In Sydney, as we know, there are carrying or forwarding agencies—Wright, Heaton, & Co.; Lee, Macalister, & Co.; &c. Now, when a Sydney trader, large or small, has 4 cwt. of a consignment to send, he forwards it to the agents; twenty others do the same thing, and a £20 truck load of 6 tons is made up, the agents charging only commission; and so the £20 principle is extended to and enjoyed by the little and big man alike in Sydney. But the inland man, the farmer or the storekeeper, battling his way on any part of the vast stretch of our railways, knows nothing of such a grand arrangement. The farmer is a retail man, and as a retail man the system kills him. Illustration and proof of this will be amply given further on.

12. Now, with regard to the application of the wholesale principle inland. That it applies to the wealthy coal-mine owner and the wool king is indisputable. For instance, 6 tons of coal are carried (say) 96 miles for 46s., and at Newcastle or at Darling Harbour the use of the cranes or staiths, which have cost the country huge sums of money, is given in free. Now the colliery man is a wholesale customer. The farmer is not. But if he has to send his 6 tons of dairy produce the way in ninety-nine cases out of 100 it is sent, it will cost him the 96 miles, not £2 6s., but £12 4s. 6d.; while his ploughs, harrows, &c., would cost him £16 19s. 6d. As to the woolgrower, he is essentially a wholesale man, and gets his wool down 454 miles for £2 19s. per ton. Now the farmer has the wholesale principle offering to him with respect to grain that he seldom uses. If he sends 6 tons of wheat he can travel at a low rate (and I will show that it may be one at 100 per cent. cheaper); but he is oftenest a small dealer, and at that rate his grain costs him for the 6 tons £34 1s. 6d.

13. In hay, straw, and chaff, the farmer has got a consideration, but these are by no means the staple products of the interior, and the farmer prefers dealing in 1 ton to 4 or 5 ton consignments of hay, chaff, &c., especially if he has any transactions with inland markets.

The

No; the truck load does not average 6 tons; it may be made up of any class of merchandise, and this admission invalidates Mr. Haynes's calculations, which are always based on the supposition that the merchants send in some cases fourth-class goods, but never less than third-class goods.—CH. A.G.

To be accurate, Mr. Haynes must leave Newcastle out of the calculation; the northern coal is carried on very different terms to those he states.

Mr. Haynes's figures are wrong—but it appears that the principle he advocates here is that dairy produce should be carried as cheaply as coal; now, coal is worth 5s. a ton, while dairy produce is worth 6d. a lb., or £56 a ton.

The concession applies to consignments of 5 tons or so; but if a less amount is sent he is charged for the truck load; or his consignment of 1, 2, or 3 tons is charged first-class rates, actual weight. For instance, a wool-king can send his wool down by the ton at £2 19s. for 454 miles; but a farmer sending 1 ton of hay or chaff that distance would pay £5 13s. 6d.; or from my district, Mudgee, 192 miles, £3 0s. 7d.—a rather high percentage on its value. These are illustrations that our railways are conducted on the wholesale principle to the advantage of a few. The farmer gets concessions that he seldom uses, while on the other hand, the very wholesale principle of the tariff is used as a means to swamp him in his own adjacent inland markets. Proof of this latter statement is found in the following fact:—Millers and storekeepers (say) at Tamworth and Armidale, &c., on the approach of harvest time, get up cheaply by rail on the wholesale principle large lines of imported flour from Newcastle. Then, when the farmer comes to town to sell his wheat, the large cheaply-carried stocks of flour are pointed out to him, and he is forced to accept any price, &c., &c.

14. I proceed now to show the whole merchandise system in operation; but before doing so I must lay down this idea: We have no right to consider this or that trunk line separated from any other. All the lines form a system, and the line from Sydney to Albury is as much the property and concern of the Maitland trader and the Glen Innes farmer as is the line from Newcastle to the Queensland border. As portions of the general community, the Glen Innes and Maitland people have to bear the cost and the loss, if there be any, of the Southern and Western lines, and concessions granted to one portion of the people cannot be refused to another.

15. Now, let us take the case of a Maitland business man who does a trade extending along our Queensland border. I will illustrate my point with eight lines of ordinary merchandise, which may be taken as a sample of the articles in which business is every day done. The Maitland merchant sends his goods 330 miles to Tenterfield, and pays as follows:—

	£	s.	d.
Half ton of flour	2	4	4
„ bacon, cheese, &c....	2	15	2
„ salt	2	4	4
„ sugar	2	15	2
Two tons furniture	19	16	0
Half ton galvanized iron ...	2	4	4
„ fencing wire	2	4	4
One ton machinery	7	13	8
	<hr/>		
	£41	17	0

A Sydney merchant, however, could send his 6-ton consignment 454 miles—exactly 120 miles further—for only £20. Or a coal-shipper at Newcastle, who brings flour from Melbourne almost as ballast, could send from Newcastle, 354 miles, his 6 tons of flour for £6 4s., as against the Maitland man's £41 17s. 4d.

16. If the Maitland man wish to send 6 tons of galvanized iron and fencing wire, 6 tons of iron irrigation pipes, 6 tons of pastoral or agricultural machinery, and 6 tons of general merchandise, he pays for the 24 tons in their respective classes a total of £164 4s. 4d. for 330 miles; but the Newcastle flour-ballast importer can send his 24 tons of Victorian produce 354 miles for £24 16s. If we take the same goods and see what the Sydney man can do, I find that, while the Maitland man pays £164 4s. 4d. for 320 miles, the favoured man of the metropolis will send his goods 454 miles for only £78 18s. Those are instances of a monstrous 100 per cent tax fixed on the shoulders of the inland trade.

17. Let me illustrate it further. If we take a hundred business men in Maitland doing the above trade—and we know it merely represents their everyday transactions—and put them side by side with a hundred Melbourne business men doing business through their agent at Newcastle, we find the result as follows:—The men of Victoria would pay £2,480, while the Maitland men would contribute £16,421 13s. 4d.; and let it be understood the Maitland men would have 2,000 miles less haulage than the Victorians. Is it to be supposed that the Maitland merchant stands all this heavy tax? No; he passes on to his customer as much as he legitimately can; and so we find the farmer

This is not correct.

Figures are wrong.

But a Sydney merchant would pay as much if he sent the stuff 330 miles on the Western Line. It simply means that if he sends the stuff to a certain station which is the *entrepôt* of the competitive district he can do so at a cheap rate.—CH. A. G.

The comparison between flour and the miscellaneous articles enumerated is, as regards freight rate, absurd.—CH. A. G.

farmer bearing a ruinously heavy tax for all he requires, while, on the other hand, his very local market is flooded with produce carried for next to nothing, the trucks unproductively returning empty.

18. At Mudgee, the constituency I represent, there are extensive lime-burning works. At a large outlay of money two or three local men have put the industry in full swing, and 100 hands, with a prospect of many more, are employed. A few months ago the work had no existence. Let us see how our railway policy helps this inland industry. The Department will carry 6 tons of limestone 190 miles for £3 16s. 1d.; but for turning the limestone into lime on the spot the company have to pay for 3 tons, 190 miles, £9. Or the limestone, 6 tons of it, may be carried 500 miles for £6 18s. 8d., while 3 tons of lime would cost just £18 18s.—a tax on the Mudgee industry of only a few hundred per cent. The lime is mostly ordered by the ton or half-ton, and when any less quantity than 4 tons is carried (the wholesale principle in operation) the amount is charged as 4 tons, or raised to first-class rates and charged actual weight.

19. Again, Mudgee. There is a tannery in the town, not so large now as it used to be, which is not surprising when we know the why and wherefore. If the tanner wishes to send his leather to Sydney (for the benefit mainly of the Sydney manufacturer, or the produce auction mart people or exporters) he can forward 6 tons under class 1 for £18; but if he wished to reach another and better market inland he would find his goods raised to another class, and 190 miles, not to Sydney, would cost him £22 7s. If the Mudgee man sought to travel to Bourke direct with his 6 tons of leather he would pay £45 17s., while the Sydney man could send it the same distance to the same place for £10 less; and on the Southern Line could send it very nearly the same distance for the monstrous amount of £25 17s. less.

20. At Dubbo there is a soap-making industry, and, as we know, soap is not ordered by the 6-ton lot. Well, the Dubbo maker, sending his goods $\frac{1}{2}$ -ton at a time, would pay on a total of 6 tons for 250 miles; say to Bourke, the sum of £27 2s.; while at the other end of the line the favoured man of Sydney could send his 6 tons nearly double the distance for only £20.

21. At Lithgow there are pottery works, which have had a severe struggle to get to their present success. If the company attempt to do business westward, direct from the works, they are punished for ignoring Sydney. To send 6 tons of their goods 408 miles they would have to pay £31 5s. 6d., while the imported article could be sent from Sydney, 50 miles further, for £11 5s. 6d. less. Now, we know that the Lithgow Pottery does not execute 6-ton consignments— $\frac{1}{2}$ -ton orders are oftener the rule. Then up go the goods to class 2, and when 6 tons have been sent the cost for 408 miles is £38 19s., while the Sydney importer, sending his goods $\frac{1}{2}$ -ton at a time, can, through the carriers' agency arrangement previously mentioned, send his 6 tons for £20 for 454 miles. When I was at Lithgow recently the foreman said to me—"We must have 15 or 20 per cent. protection against the imported article." But here I have shown that this very industry is taxed, as compared with the imported article, by over 100 per cent. If I can get this 100 per cent. knocked off, I wonder whether the Lithgow pottery man will have need to cry out for 15 or 20 per cent. protection.

22. At Bowenfels, 97 miles from Sydney, there are tweed mills. Say the proprietors have transactions amounting in all to 60 tons, sending 6 tons at a time. They would pay £170 10s. for 970 miles of haulage. But a similar amount of Geelong or other imported tweeds could be sent on a haulage of nearly 5,000 miles from Sydney for only £30 more. If the Bowenfels firm wished to trade with Bourke they would pay £541, while the Victorian or other imported tweeds could go along the same line for £191 less, while using 970 miles more haulage. From Bowenfels to Bourke, 406 miles, the company would pay £503; while on another trunk line the Victorian manufacturer or importer at Sydney could use 454 miles for £303 less. But if the Bowenfels man was sharp and looked closely after the shillings, he would not send to Bourke direct. He would first send his goods to Sydney, and thence to Bourke, thus saving £23 by giving the Department 1,116 miles of useless extra haulage. In reality, with regard to our railways we give the outside or foreign manufacturer an advantage of from 150 to 200 per cent. against our local manufacturer. This, simply, is freetrade in a straight-jacket.

Whoever heard of limestone being carried 500 miles. Mr. Haynes should be practical; his *reductio ad absurdum* argument is misleading. If limestone or lime were carried such distances the rates would be very different.—CH.A.G.

See reasons given in rates, Board inquiry, for this apparent anomaly. It is a scientific rate, and can be well defended; it is called for by the circumstances of the case.

This is the only piece of argument approaching common sense which Mr. Haynes has yet used. Bourke market should be as much open to Mudgee tanners as it is to Sydney tanners, and I have urged this.—CH.A.G.

The low rate to Sydney is to allow the manufacturer to get to his central market; this is right and defensible.—CH.A.G.

This is the competitive export argument again dressed in another shape.

23. At Armidale, on the New England Plains, is a first-class man of business—currier, tanner, and boot manufacturer. If he wishes to reach Newcastle (the nearest practicable terminus to Sydney at the present time—the Hawkesbury connection being incomplete), he could send his leather down under class 1, and for 260 miles he would pay on 6 tons £22 4s. But if he attempted to reach Maitland, where a fine new market is developing, he would find his goods raised to class 2, and for travelling 20 miles less he would pay £4 3s. more. Now, does the Armidale man send his goods to Maitland direct? No. For the last ten years he has sent his leather to Newcastle, and retrucked it back to Maitland. Suppose he has done 100 tons transactions with one Maitland man in that time, then he has saved himself £130 by giving the railway 4,000 miles of needless extra haulage.

24. At Newcastle, as is well known, there is one of the largest and most successful biscuit factories in Australia. The proprietor, after a big battle for success, does a great trade in biscuits all over our northern country. Let us see how the Railway Department assists him. For his 6 tons of goods, 350 miles, he pays £48 4s., while the imported or other biscuits may be sent from Sydney 100 miles further in one direction for £28 4s. less, and in another direction 150 miles further for £13 4s. less. While, more astonishing still, if the Newcastle importer of ballast-borne Victorian flour wishes to send his 6 tons over the same stretch of our northern line as the Newcastle biscuit-maker does, he pays not £48 4s. but only £6 4s. In other words, we give the outside man an advantage over our own of about 800 per cent. Evidently the country does want protection—but it is protection from the administration of our railway system.

25. At Tamworth there is a musical warehouse, and when the proprietor comes to sum up his transactions he finds his 6 tons cost him £35 18s. 6d. for 167 miles. But our Victorian squatting friends resident down about Hay, and who do their business in Melbourne, can have their goods sent round to Sydney, and thence by rail to Hay, 454 miles, the 6 tons costing only £20. If the Melbourne transactions (or for the matter of that they may be Sydney transactions) were taxed the same as the Tamworth man's they would pay not £20 for 6 tons, but £76 3s. But the real position of the Tamworth business man is this (and I am giving the case as illustrative of the dreadful handicaps placed on inland development)—First, from Newcastle to Tamworth, his 6 tons to supply his warehouse would cost him £38 16s. for 183 miles, and his transactions in the same goods with the people of Tenterfield, 171 miles distant, would cost in carriage £36 12s. 6d.—a total of £75 8s. 6d. for a use of the railway on a haulage about half that given to the Sydney man for only £20. This is simply a tax of nearly 700 per cent. on the Tamworth business man. At Tamworth, a lot of people, ignorant of these imposts on their trade, are crying out for a miserable 15 or 20 per cent. duty at the Custom House. I propose to relieve them of a huge taxation, of which they appear to know nothing. But with these facts before us, will anyone deny that the time for decentralization has arrived, and that the first step towards its realization is a sweeping change in our wretched railway system.

26. At Newcastle there are several foundries, which, besides turning out first-class marine engines, are capable of the best foundry and engineering work. Now, at the present time there is a movement on the Namoi to store the water and irrigate the land. Well, while the farmer finds that the foreigner—(we may call the Victorian a foreigner from his very hostility to us with regard to his tariff)—can send his 6 tons of flour or fodder to Gunnedah (196 miles) for £4 5s. 11d., both he (the Gunnedah farmer) and the Newcastle foundry man find that 6 tons of their necessary iron material costs them £22 19s., while 6 tons of their machinery costs £31 18s.

27. At West Maitland is to be found one of the most extensive agricultural implement and machinery depôts in the interior of the country; and when I was recently in that town I found some of the members of the firm inclining to protection. Let us compare this firm with (say) a Melbourne branch house in Sydney, now pushing its Melbourne-made manufactures in our southern and western districts. Take for any period transactions in ironmongery up to 500 tons, and in agricultural machinery up to 500 tons. On the two kinds of merchandise, the Melbourne firm at Sydney, using a haulage of 149,850 miles, would pay, in 3-ton lots, £3,340. Now, supposing the Maitland firm used neither the Newcastle nor the Morpeth line to Maitland, but, loading them at Morpeth by steamer, brought their

This is a rate to a shipping port—"leather for exportation"—quite defensible, only Mr. Haynes is ignorant of the why and wherefore.

But not in the same direction. If the Newcastle biscuit-baker wishes to send to Bourke he can do so precisely on the same terms as the Sydney biscuit-baker or the importer. I have not space here to answer all the statements.—CH. A.G., 18/10/87.

goods.

goods on by dray to their depôt, then their transactions would commence with up-country. Their business, carried on in exactly the same way as the Melbourne firms, would result in their paying £7,600 for a haulage of only 109,890 miles. In other words, the Maitland firm, for using nearly 50 per cent. less haulage, would have to pay over 100 per cent. more money. If the Melbourne or Sydney man were served like the Maitland firm, he would pay for his 1,000 tons, not £3,340, but £9,814; while, if the Maitland man were treated as leniently as the other, he would pay, not £7,600, but under £2,650.

28. Let us take the case of a farmer at Cootamundra, 253 miles, who turns his attention to bacon-curing. He pays on 6 tons of salt, $\frac{1}{2}$ ton at a time, £22-11s.; and sending his bacon to market in the same way he pays £27 6s. 6d. On the other hand, New Zealand and Victoria bacon imported to Sydney can be sent 221 miles further for £7 6s. 6d. less.

29. When at Morpeth recently I found two leading residents—one an engineer, and another a cabinet-maker, both in a large way of business—very active in the cause of protection. They wanted a 15 to 25 per cent. duty at the Custom House. Here is how they stood with regard to the railways: If the cabinet-maker attempted business with the new centres about Tenterfield, 330 miles distant, he would pay on his 6 tons £46 2s.; while on another stretch of our railways an importer could send his 6 tons 454 miles in one direction for £20, and 500 miles in another for £35. In point of fact the Morpeth cabinet-maker who cries out for 25 per cent. lives under an impost of something like 130 or 150 per cent. that he knows nothing of. With regard to the Morpeth engineer and agricultural implement maker, I found that if he attempted to reach the grand new wheat areas of the New England tableland he would pay on 6 tons, 334 miles, £46 10s. 6d.; while a similar consignment of Melbourne-made (imported) machinery would be taken on another stretch of our lines 450 miles for £20. However, the New England farmer is not likely to do much business in furniture for his home or with improved agricultural machinery for his farm. He is robbed by railway freight on the one hand, and on the other ruined, even in his own local markets, by cheaply-borne Victorian produce. The farmer's machinery costs him £46 10s. 6d., but a similar load of Victorian flour can be run up on the same line the same distance for £6 4s. Is there any wonder in the Morpeth engineer and the cabinet-maker crying out for relief? In this gloom they cried out for a delusion.

30. We know that half-ton orders of galvanized iron are the rule. Well, if a Maitland firm, who does a large business in the line, sends 6 tons in that way to their constituents, the freight is £32 2s. for 330 miles, but a Victorian squatting firm down by Jerilderie or at Hay can get his 6 tons for £20 on a run of 454 miles.

31. At West Maitland there is just forming a great inland produce depôt or bazaar. That the development of this new centre of trade should be assisted is a matter that cannot be questioned. Buyers flock in increasing numbers from Sydney, Newcastle, the mining districts, and from all the towns above and about Maitland; and a business is doing which augurs an annual cash overturn of £500,000 in a few years hence. Let us see how the railway system helps the thing. A Guyra or Ben Lomond farmer, midway between Glen Innes and Armidale, whose pits and barns are filled with produce which is rotting, never to reach a market, would find, if he attempted to reach Maitland in lots to suit trade, that on his 6 tons of potatoes he would pay £21 13s. for 281 miles, while on his bacon sent in the same way he would pay £29 8s. 6d. On the other hand, he would find the wholesale flour importer at Newcastle sending 6 tons the same distance for £5 3s. 9d., while a $5\frac{1}{2}$ truck load of chaff would go for £2 17s. 1d. Is it to be wondered at that the New England and Liverpool Plains farmers should say they have no markets?

32. At East Maitland are the Shamrock Meat-works; and if their goods are sent to Newcastle (centralising system again) they are carried under special class A. If, however, they are sent in any other direction they are raised to first-class goods (and I am not sure that they are not raised to third-class). Well, taking it at first-class. Now, for 330 miles the Maitland merchant sending these goods northward to his customers would pay £26 12s.; whereas, if the same rate prevailed upward as downward, he would pay, not £26 12s., but only £7.

33. The hay, straw, and chaff rates look very liberal for the farmer, but they are not framed to facilitate the small man or the inland trade. If a farmer executes an order for 2 tons of chaff he finds a tremendous

tremendous jump in prices, and he pays from Mudgee to Sydney, 192 miles, £6 1s. 2d., and when a total of 6 tons is reached he has paid £18 3s. 6d. At Newcastle, however, where the coal exporter deals in return with wholesale lines of Victorian produce, the 5½ tons can be sent 350 miles for £3 10s. If the Mudgee farmer wants to execute a 2-ton order of chaff for Bourke, 500 miles, he would pay £12 6s. 6d., and his 6 tons would cost him £36 19s. 6d.; while the wholesale importer at Sydney could, as he sends it, send it the same distance for £4 11s. 7d.

34. Ale and porter, as well as spirits, are lines in which a great business is done. Here is how the question of freights affect them: The Maitland brewer sending his 6 tons of ale to Glen Innes, 300 miles, would pay £30 17s.; but imported ale on another stretch of our lines could go the 6 tons, 450 miles, for £20. The man at Tenterfield pays for his whisky or brandies £48 4s. for 350 miles; but on another branch of our lines only £20 is the cost for 450 miles. Why even the hotel-keeper at Mudgee, 192 miles, pays £31 6s. 6d. for goods which another man, distant 450 miles, gets for £20. Is this not monstrous?

35. I will now instance how a Glen Innes farmer is swamped in competition by reason of these one-sided railway rates (and I am putting it in the absurd way the Department expects a farmer will send his dairy produce—a ton at a time). He consigns to Newcastle 6 tons of bacon, 1 ton at a time, and in return for his sale gets up 3 tons of agricultural machinery and 3 tons of furniture. Now the freight would stand thus:—

6 tons dairy produce	£26 5 0
3 „ agricultural machinery ...	22 14 9
3 „ furniture	22 14 9
	<hr/>
	£71 14 6

Against him the Newcastle importer of Victorian flour or fodder could send the following goods on the very same stretch of railway:—

12 tons Victorian flour	£10 3 0
10 trucks Victorian chaff	27 15 0
24 tons Warrnambool potatoes ...	20 6 0
12 „ American timber	10 3 0
	<hr/>
	£68 7 0

Balance still against the Glen Innes farmer, £1 18s. The above case, bad even as it is, puts the farmer in a much better position than he usually occupies. He does not send down his bacon in tons, but quarters, and so his cost in the above transaction would be increased from £26 5s. to £32 9s.

36. A Goulburn boot manufacturer sends 6 tons of his boots to Wagga, 175 miles, and pays £28 19s.; but a Sydney importer or manufacturer can send his 6 tons 454 miles, to Hay, for £20. In other words, the Goulburn man pays £8 19s. more for travelling 269 miles less. Let me take a large transaction in which we may illustrate how the trade of an entire town is affected. The Goulburn tradespeople get up 500 tons of ironmongery, furniture, spirits, &c., and would pay on the amount, for 134 miles, the sum of £1,769 15s. 10d., the total, in 6-ton lots, representing a haulage of about 10,988 miles. Now, the Sydney merchant, for sending the same goods on the same line, would pay only £1,680 for a haulage, not of 10,988, but of 37,228 miles, or about £120 less for 26,240 miles more haulage.

37. It would be useless to proceed further with these illustrations. Every branch of industry or occupation inland is affected, and an incalculable amount of mischief is done. I believe I would be correct in saying that a general feeling of disappointment has followed on the opening of many of our railway extensions. The farming community, after waiting for years in expectancy of reaching near and distant markets, find themselves shut out from both, while those very immediate centres hitherto held by themselves are flooded with cheaply-borne produce from outside sources. It might, in fact, be urged that positive disadvantages have, in many cases, come to inland traders from the opening of our railway extensions. The ordinary road-carrying business has disappeared as the locomotive has advanced, and the people have now no alternative but to use the present costly system of the railways.

38. It appears to me that a radical alteration of the whole system is required, and I beg to submit proposals in that direction, and I do so with full confidence that my proposals will lend long-promised but long-denied aid to inland trade development; that they will assist our farmers to regain not only the intervening but also the coast markets of this country, and that they will bring increased returns to our railway revenue.

But so can the New South Wales grower send his own produce by specifying Victorian flour, chaff, and potatoes.

This is all nonsense.

Eureka.

39. From time to time quite a number of proposals have been put forth by way of a remedy; but they more or less have been of a patchwork character—special rather than common. Some reformers have proposed a variety of systems which really have no uniform applicable basis. In the present tariff we have this style of grasping the difficulty, and it is consequently not perhaps surprising to find the noxious principle of protection mischievously adopted to accomplish that which a sound, fair, and common-sense system alone would have won.

40. My proposal is to come to a common basis, allowing discounts or decrease in charges where the run of the train is lengthy—not as is done now, simply to bridge the distance out of sympathy for our people and enmity to our neighbours, but on account of the less handling or terminal work, and the consequent less cost in carriage. The differential system pays or it does not pay. If it pays, then it should be general; while if it be a loss, then a few should not benefit at the cost of the many. But we can safely go on the basis that differential system does pay, and that it may be expected to greatly increase the returns when general.

41. There must still be a classification of goods. Classification is affected by either the bulk of the goods, their perishable or other character, or the amount of handling required in the loading and unloading. Now, the classification at present adopted is notoriously defective and nonsensical. For instance, 6 tons of ironmongery is in most cases neither bulky nor fragile, and certainly does not require as much care, say, as flour. Yet we find that 6 tons of flour are carried 500 miles for £7 14s., while the carriage of the ironmongery for only half the distance would be £37 14s.

42. I have already pointed out that for every class of goods, 1st, 2nd, 3rd, or 4th, or for large or small consignments of anything, the differential system exists in Sydney from the fact that forwarding agents, acting for a number of people, can always secure a 6-ton truck load for conveyance, the maximum distance for the minimum cost.

43. Now, I propose that the present classification be altered to accommodate inland trade in the same way; but as there are no carrying agencies except here and there, I propose that the goods sheds or receiving stations act as such, that the goods be received in large or small parcels, and the loading or unloading be done under the direction and with the assistance of the porters in charge.

44. I propose that for general merchandise there be but one class—on the 6-ton per truck principle, applied retail as well as wholesale at every platform and station in the country, just as it has been so long and successfully applied solely in Sydney.

45. The differential rate appears to be about 1½d. per ton per mile, and so while we would get for a 13-truck goods train the sum of £260 (at £20 per truck of 6 tons) the cost would only be about £85 9s. for 350 miles.

46. Now, I suggest that all goods be received on any stretch of inland railway for 25 miles and over at 2d. or 2½d. per ton per mile—wool, mill and farm produce, coal, wood, hay, &c., being dealt with specially; the basis of this one general merchandise rate to be actual weight, with a reasonable addition in the case of unusual bulk. This would mean that as the Sydney man can take his 1 or 2 cwt. of goods of any description to the carriers' agent and have his consignment forwarded under the differential rate, as if he were sending a truck-load, so the inland man may take his goods to the station, and forward them in amounts as low as 2 cwt., or lower, on the differential estimate, a booking or entry commission being charged for receiving and handling, &c.

47. Let me illustrate this just and simple arrangement. If a farmer now sends 1 ton of bacon 350 miles, the cost is £4 12s. 8d., and 6 tons costs £27 16s.; while if he sends at half a ton at a time the 6 tons costs him about £34 12s. If he were in Sydney his 6 tons, whether sent in the one lot or by ½ cwt., would only cost him £20. Well, applying the differential system to the farmer, he would pay only actual weight at 2d. or 2½d. per mile, and instead of paying £5 15s. 4d. per ton in small lots, he would pay only £3 12s. 11d., and his 6 tons would stand him in £21 17s. 6d. (I have here reckoned at 2½d. per mile). With regard to ironmongery or machinery ordered by him, he would on 6 tons, in small or large lots, pay, not £48 4s., but only £21 17s. 6d. (it will be seen that I am working out these figures above the differential rate, for a purpose subsequently to be seen.) The arrangement would be actual weight down to 56 lb., with a small commission or handling charge added. As to bulk goods, there would be

This is done; see our paper where it is defended—Teece's motion.

And by their value, and the freight they will stand—the most important factors of all: apply them in this case.

If general merchandise is carried at 1½d. per ton per mile for any distance, there will be no net revenue to speak of.—
C.H.A.G.

This is some advance on the 1½d. per any distance.

I do not think this is correct.

be but little extra charge in regard thereto, as a truck will accommodate 6 tons of almost any goods. A truck which carries 6 tons of flour—concentrated produce—will also carry nearly 6 tons of wool, the bulkiest of all merchandise except hay or straw.

47½. Now, the question of grain seems to be one which might, on plain commercial principles, be considered with a view to increased return traffic. It might fairly be expected that if we assisted the farmer by concessions to reach our coast and export markets, a large up-country return trade would result. And, as I have shown that there is a substantial profit on the differential rate, the reduction on the downward or coastward rate would be largely or more than compensated for on the increased inland trade. This is the difference between the protectionist differential rate and that which I propose—a free-trade or soundly economic rate.

48. I find that wheat can be landed from Melbourne to the Sydney wharf-side miller at about 3d. per ton; but as now the railway freight to our farmers is about 6¾d. per bushel. The water-freight from Newcastle to Sydney is 2½d. to 3d. per bushel extra, while at the Darling Harbour terminus cartage is to be added. Now, what we want is not protection against the Victorian 3d. per bushel carried wheat, but extra facilities to our own farmers, and the conflict may be left to the future. Of course, in my estimate above of 6¾d. per bushel, I am conceding to the Department for the moment that the farmer is a wholesale man, and always sends in 6-ton lots. If the farmer sends anything less up go the freights, and a 4-ton consignment would cost him 10d. per bushel, and a 2-ton lot would cost him 1s. 8d. per bushel. Now, a downward or coastward run of thirteen trucks (our lines unfortunately are under the 50-foot grade), containing 78 tons of wheat, would cost the Department, roughly, £85. At the present rate the return would be £80 12s. In point of fact, they about balance. But on the return journey the profit to the Department would be, at 2½d., about £179. Now, against this profit might be charged a 100 per cent. special reduction in the coast-bound wheat rates. This would bring the carriage rate down to about 3d. per bushel, and I propose that the rate should apply to actual weight down to ½-ton lots. All kinds of grain to be similarly treated. Potatoes, included as well, would come down from £6 for 6 tons for 350 miles to £2 18s. or £3. It is rare that a farmer sends more than half a ton of potatoes to intervening markets, in which case he would now, on ½-ton consignments, pay £27 10s. for 6 tons. Under the new arrangement he would be charged actual weight, like the man who lives in Sydney. (Inward rates on mill produce, &c., I propose to charge actual cost and profit.)

49. The other propositions are that (1) with regard to hay, straw, chaff, &c., the present rate be made to apply to lots of not less than ½ ton; (2) goods under class A and B to be brought under above rates with charges on actual weight; (3) miscellaneous to remain with but slight alteration; (4) Class 1, 2, 3, and 4 of the present classification to come under a general merchandise rate, actual weight down to 56 lb.; (5) the minimum to be fixed at a low parcels rate.

50. Thus have I concluded my work. It will be seen that the whole of the proposals are to extend to the country that which the city at present enjoys, and to accommodate the system to catch in a retail way an enormous wholesale traffic which the railways up to the present have (much to inland loss and distress) never been able to secure. I suggest that special attention be at once given to our Newcastle terminus, as the outlet of a new, enormous trade certain to come from the north under the change I propose.

51. I finally urge on the Government to immediately obliterate from the system the principle of protection, with which it has through shortsighted official notions been impregnated; and I ask on behalf of the great army of toilers inland, those in our towns as well as those on the lands, to so have our railways controlled that they will assist inland development in every way, and bring to us at a near day a realisation of the grand and saving policy of decentralization.

Yours obediently,
JOHN HAYNES."

I do not see how this is shown. Mr. Haynes would lose half the revenue derived from down traffic, and make up for it by losing half the revenue derived from up traffic; but while two negatives are said to make an affirmative under some conditions, under no conditions can two losses result in a gain.

Mr. Haynes may think so, but if he means to persist in this matter he will find that he has not commenced his work yet.

Minute by The Commissioner for Railways.

PUT also with this the departmental paper *re* the abolition of differential rates and the competitive rates, and also the article in the *Herald* of 27th September, which was based on the official paper. The two documents answered in anticipation of Mr. Haynes's contentions. As I have said on other papers, Mr. Haynes's contribution to the controversy "bristling" with errors. He has one example which he continually repeats, iterates, and reiterates; nine-tenths of his paper might have been omitted had he been content with one illustration. He tries to give it a new dress with every fresh instance of treatment, but it is the same argument, and the anomaly, in charges which he seeks to establish thereby, is accounted for by the policy of granting competitive rates on the South-Western Railway and at Bourke. He further (while admitting the necessity for classification) exposes what he considers to be a gross injustice, viz., that flour (especially Victorian-grown flour) is carried on the down journey at a cheaper rate than general merchandise. He wishes to cheapen the carriage of flour on the up journey, which at present is carried at the same rate as it is on the down journey. And this freetrader, with a perfect horror of the protectionist leaning which he thinks he has discovered in the present tariff, is unaware, apparently, of any inconsistency in the proposals he makes.

As regards the principles upon which the rate-sheet is compiled, Mr. Haynes is not probably aware that in attacking them he is "couching a lance" at the universal railway practice in this respect, and that in his remedial measure he has proposed to put something in place of the tariff which, if adopted, would have the effect of paralysing the railway revenue.

The Traffic Manager may be directed to answer in detail Mr. Haynes's paper, and I shall be pleased if he will see the Traffic Auditor, and let me know what the railway revenue would be for goods traffic, based upon the tariff which he proposes should be adopted in lieu of that in operation; it will not be possible, as the statistics have not in recent years been kept, to give the present quantities under each line and the loss that would accrue on each article; but this can be approximated to by taking the quantities returned when the statistics were kept, and adding a percentage increase for existing traffic.

As Mr. Haynes will no doubt follow up his paper by some Parliamentary action, it is desirable that the information I have asked for should be got out as early as possible.

In the penultimate paragraph of his paper, Mr. Haynes says triumphantly, "Thus have I concluded my work."

I can promise the honorable Member that so far from this being the case, he will find, if he persists, that he has not yet even commenced his work. It will be my duty to resist the establishment or adoption of his crudities, and to expose his fallacies; but I shall do so with the conviction that only in the interests of the country will any sharp criticisms be defensible, for I am prepared to acknowledge that Mr. Haynes is animated by a belief (often held by others, and as frequently demolished), that the method he advocates is a true one, and ought to be established.

CII. A. G., 18/10/87.

Minute by Mr. Traffic-Manager Read.

A GREAT deal of the subject upon which Mr. Haynes has written at such enormous length was so fully dealt with some months ago in minutes written in answer to motions which were then on the Parliamentary business paper in the names of Mr. Teece, on the differential rate question, and of Mr. O'Sullivan, as regards live stock and agricultural produce rates that, generally, there does not, at the first glance, appear to be much more to be said. I attach copies of the minutes.

The reasons for the existence of the low rates between Sydney and the competitive districts in the southern and south-western parts of the Colony are so well known, and were so exhaustively dealt with in the reply to Mr. Teece's motion, that, as far as that part of the subject is concerned, at all events, it will not be necessary to go over the ground again, particularly as Mr. Haynes will be found to have stated those reasons in the 7th paragraph of his letter.

In the fourth paragraph of his letter, Mr. Haynes states that "the profound blunder of our railway goods system is that it is shaped to meet a wholesale rather than a retail trade"; but if I am able to judge, I should say that it is framed to meet both—the retail even more, much more, than the wholesale.

In paragraph No. 5 it is stated that it has been proposed to abolish the differential (of course Mr. Haynes means *competitive*, for we have no *differential*) rate system. Except the motion of Mr. Teece's to which I have alluded, and which was never brought before the House, I am not aware of such a proposal ever having been made. Certainly it has never come from any of the railway officers, who are but too well aware that so long as the Victorian railway authorities, who initiated the competitive rates, adhere to them, we must in self-defence adhere to ours, or make up our minds to sacrifice the traffic to and from the competitive districts altogether, in which case it would, as a matter of course, be necessary to charge higher rates upon the traffic in the non-competitive districts to compensate for the revenue so sacrificed. And here let me say, in answer to the numerous examples quoted by Mr. Haynes of exceptionally low rates from Sydney to Hay—they are the same to Wagga Wagga, 309 miles—as compared with the higher rates from Maitland to Tenterfield—which, by the way, is 361, not 334 miles as stated—that for the traffic of the Hay district we have to compete with very low water-carriage as well as greatly reduced rates on the Victorian railways, while for the Tenterfield traffic, any more than that of all stations north of Wagga Wagga or east of Narrandera or Bourke, there is no such competition.

But let Mr. Haynes take any 361 miles, or any other distance, on the Southern and Western lines *outside of the competitive districts*, and he will find that they are *precisely the same as on the Northern line*.

If that gentleman would, as he says in paragraph 6, make the low rates of the competitive districts general all over the lines—that is, take the existing rate for the longest distance, and reduce it proportionately for shorter distances, which appears to be the only way he sees out of the difficulty—I have no hesitation in telling him that he would diminish the revenue by something like £150,000 to £200,000, and, *rather than do that, I am satisfied it would be in the interests of the Department to abandon the competitive rates altogether and make Victoria a present of the traffic*. It would take much time and labour to work out the sum with accuracy, and the Traffic Auditor tells me his hands are already full of returns which have been asked for, but Mr. Haynes's proposal is so inadmissible that perhaps the estimate I have named will suffice for the present purpose.

The

The idea that the competitive rates extended all over the country might be calculated to lead to a vastly increased traffic is purely imaginary. Low rates are advisable when they are likely to foster a production which would otherwise languish; but it is useless to say that reduced rates would add vastly to the conveyance of general goods, and it is only upon such goods that competitive rates exist. *All our other rates are very low for the express purpose of fostering production.*

Paragraph 7 contains a fair statement of the reason for initiating the competitive rates; but as Mr. Haynes seems to make a point of their having been introduced to enable *Sydney* to compete for the trade of our southern border with Victoria, it may be as well to mention that in the latter colony they only apply from *Melbourne* upon general goods, and even from there, *only when the traffic comes into New South Wales.*

Mr. Haynes's reference to the rate for corrugated iron in paragraph 8 is quite correct; but he is evidently not aware that it has been decided to carry lots of 5 tons or upwards of any kind of machinery in a truck at *first-class rates*, according to which *three* tons conveyed a distance of 200 miles would be charged as 5 tons at first instead of actual weight at third-class rate, the former being the lesser charge to a small extent; so that if 6 tons (the quantity named by Mr. Haynes) were put in a truck and sent from Maitland to Tenterfield, the charge would not be £46 10s. 6d. for 334 miles, but £28 9s. for 361 miles. The amended rate was approved of since the present rate-book was issued; but it is inserted in the proof now in the hands of the Government Printer.

I cannot make out what deduction Mr. Haynes means to be drawn from paragraph No. 9, in which he implies that, as regards trainage, the trader at Orange is in a less enviable position in connection with the conveyance of his goods from Sydney than the sender in Sydney is in sending the same class and weight of goods 311 miles further (Bourke). Mr. Haynes must know that, as the sender in Sydney does not pay carriage, it is immaterial to him whether it amounts to 20s. or £20 per ton, so why he should think that the competitive rates play particularly into the hands of the Sydney merchant is somewhat of a mystery, since the goods all go from Sydney in the first instance, whether to Orange, Bourke, or Hay.

In paragraph No. 10 Mr. Haynes shows how a storekeeper at Cootamundra can save money by consigning his goods from Sydney to Wagga Wagga at the £20 truck rate, and having them re-consigned from there to Cootamundra. That has been known to us for a very long time, but we have also known that it has only been done to a small extent, and experience tells us that it is to our advantage to adhere to the present practice rather than to carry the goods direct to Cootamundra at *Wagga Wagga rates, plus the additional charge from Wagga Wagga to Cootamundra.*

And in paragraph No. 11 it is contended that the truck rate is the embodiment of the wholesale rather than the retail principle, and that, consequently, it is dead in favour of the metropolitan man, whereas it is well enough known, and a moment's reflection would have convinced him, that it was introduced purely upon economic grounds; moreover, in the very same paragraph, Mr. Haynes admits that it is not the metropolitan man at all but the country constituent who reaps the benefit, since he who does not get a truck load on his own account can get them sent through forwarding agents at a proportion of the truck rate, plus a small commission for the cost of collection and forwarding, &c. It would not pay the Department to run a truck from Sydney to Hay with 2 tons of goods for £6 13s. 4d., but it does pay when that truck, by carrying 6 tons, earns £20—although, of course, it would be very acceptable if we could get more. Mr. Haynes goes on to say that the wholesale Sydney merchant can send his 6 tons, made up of any class of merchandise, at the reduced rate of £20, and that such merchant usually deals in large consignments which are as often over as under 6 tons. In this assertion Mr. Haynes is very greatly mistaken, but even if it were correct it does not seem to have occurred to him that *the consignments of the Sydney merchants are entirely dependent upon the orders they get from their country constituents*, who alone reap the benefit of the truck rates, while the Sydney merchants only reap the advantage of the orders for the goods which would otherwise go to Victoria, where every inducement is offered by the railway authorities to attract them.

The fact, already alluded to, that small consignments are collected by forwarding agents until a truck load is made up, and that those agents only charge a commission for their trouble, shows that the small storekeeper and farmer have their interests as well looked after as others doing a large business.

In the following paragraph, No. 12, Mr. Haynes mixes up coal, dairy produce, agricultural machinery, wool, and wheat, and seems to be astonished that we should carry coal so much cheaper than the other articles named, or why we should insist upon its being carried in wholesale quantities, *i.e.*, truck loads. As regards the coal, he has made a slight mistake in stating that we carry 6 tons of coal a distance of 96 miles for 46s.; the correct amount is 48s., and that is about 150 per cent. of its value. As we cannot put dairy produce or any other goods in a truck beside coal, it is not difficult to understand why we specify that it will only be carried at such a low rate when it is in truck loads, or that, when consigned in smaller quantities, a higher rate is charged.

Dairy produce, in lots of *one* ton and upwards, is charged 33s. per ton for the same distance, so that the trainage of 6 tons would only be £9 18s., not £12 4s. 6d., as stated by Mr. Haynes, and £9 18s. is only about 20 per cent. of its value, assuming that value to be £50 per ton, which, I think, is rather under than over the mark. For £12 4s. 6d.—the amount named by Mr. Haynes—the 6 tons can be forwarded in consignments of 1½ cwt. at a time, and it surely cannot be held to be unreasonable that we should charge more for 100 consignments distributed over a number of days and, consequently, a number of trucks, than for one consignment.

Ploughs, harrows, &c., would only cost £9 18s. if loaded in one truck, not £16 19s. 6d. as stated.

The assertion that the farmer has the wholesale principle offered to him, which he seldom uses, and that consequent upon his being oftenest a small dealer, his grain costs him for the 6 tons £34 1s. 6d. for 454 miles, is not in accordance with fact. The great bulk of agricultural produce is carried in truck loads, and the farmer gets it carried in that way a distance of 454 miles for £7 4s. 10d. for the 6 tons, while, even if he sends it in lots of 1 ton, he gets the 6 tons conveyed for £8 17s., and twelve consignments as low as 10 cwt. each would only cost him £17 14s.

It is not very long since a gentleman largely interested in the trade stated that we ought to carry live stock 100 per cent. cheaper than we do, and now we are told that the same thing might be done in respect of agricultural produce. It would be preposterous to suppose that these gentlemen are not aware that their proposals literally mean carrying the traffic *for nothing*; but so it is, and it would be interesting to know from what other source the revenue so sacrificed is to come, or why the general public should be taxed for the special benefit of the farmer or the grazier.

Mr.

Mr. Haynes admits in paragraph No. 13 that as regards hay, straw, and chaff, the farmer has got a consideration. That is, to say the least, a mild way of putting the case; for I can assure that gentleman that, owing to the weight of such traffic, which can be, and is, put upon trucks—weights which, a few years ago, were considered by farmers and others to be impossible—it is actually conveyed at considerably less than coal rates.

It is true that £2 19s. is the rate for a ton of greasy wool from Hay to Sydney, while the same weight of chaff or straw would be £4 5s., not £5 13s. 6d. as stated; but it is perfectly well known that no hay, straw, or chaff comes from Hay, or even from the district; and, even if it did, it is in the very highest degree improbable that it would come in small consignments when the truck could be loaded up to 6 tons for the same money. On the other hand, wool is the staple product of the district; and, so great are the inducements offered by low water-carriage, coupled with exceptionally low rates on the Victorian railways, that we have great difficulty in getting £2 19s. per ton for it. Still a full truck of wool would earn £17 14s., as against for a full truck load of straw or chaff. Indeed, as I have already pointed out on other papers, the inducements thus offered have attracted an unusually large quantity of Riverina wool to Melbourne this season. Mr. Haynes is mistaken again in stating that the rate for a ton of hay or chaff from Mudgee to Sydney is £3 0s. 7d., for it is only £2 12s. 9d. for hay, and £2 6s. 8d. for chaff, and in each case the farmer can put 6 tons of the same kinds of traffic on the truck for the same money.

The assertion that millers and storekeepers at Tamworth and Armidale get large lines of imported flour from Newcastle does not say much for New England farming if it be true, considering that it has to bear the cost of transit and insurance to Newcastle, whilst the lowest charge from thence to Tamworth is 13s. 9d. and to Armidale 17s. 3d. per ton.

In the 14th paragraph of his letter, Mr. Haynes says:—"We have no right to consider this or that trunk line separated from any other. . . . As portions of the general community, the Glen Innes and Maitland people have to bear the cost and the loss, if there be any, of the Southern and Western lines; and concessions granted to one portion of the public cannot be refused to another." At the first glance this seems a reasonable contention, but suppose, as I have already said, it were preferable to abandon the competitive rates altogether the certain effect would be to drive the competitive traffic to Victoria, and to compensate for the traffic so sacrificed we would have to charge increased rates in the non-competitive districts. Mr. Haynes could not call that good policy.

And he has made a slight mistake in the 15th paragraph as regards the conveyance of certain specified kinds of traffic from Maitland to Tenterfield; the half ton of flour and half ton of salt should be added together and charged as 1 ton at B rate, which would reduce the charge upon these two articles by £2 4s. 4d. It is quite true that a 6-ton consignment, such as that specified by Mr. Haynes, would be conveyed to Hay for £20 if it could be got into a truck, which I have no hesitation in saying it could not, but it would not be carried in any other direction the same distance for less than the charge from Maitland to Tenterfield. The distance on which Mr. Haynes has calculated is 330 miles. The correct distance from Newcastle to Tenterfield is 361 miles. Such a mixed consignment as Mr. Haynes mentions could not be got into one truck.

But this rather extraordinary paragraph goes on to say, "Or a coal-shipper at Newcastle, who brings flour from Melbourne almost as ballast, could send from Newcastle, 354 miles, his 6 tons of flour for £6 4s., as against the Maitland man's £41 17s. 4d." What analogy there is between a consignment of 6 tons of mixed goods from Maitland and a consignment of 6 tons of flour from Newcastle it is difficult to see, since, as regards the flour, there is no competitive rate—the charge being exactly the same on all parts of our lines.

And precisely the same argument applies to the 16th and 17th paragraphs of the letter. It is only necessary to mention that the 24 tons of goods specified in the 16th paragraph would only be charged £125 18s. from Maitland to a distance of 330 miles, not £164 4s. 4d. as stated. But the idea Mr. Haynes seems to have that we should charge as high a rate for flour as for furniture is little less than ridiculous.

In the following paragraph—the 18th—Mr. Haynes draws attention to an imaginary anomaly in the rates for limestone and lime. "The Department," he says, "will carry 6 tons of limestone 190 miles for £3 16s. 1d., but for turning the limestone into lime on the spot the company (a Mudgee company) have to pay for 3 tons, 190 miles; £9; or the limestone, 6 tons of it, may be carried 500 miles for £6 18s. 8d., while 3 tons of lime would cost just £18 18s.—a tax on the Mudgee industry of just a few hundred per cent.," and then he deprecates the fact that the minimum charge for lime is as for 4 tons at A, or actual weight at first-class rate. Now, in this, as in other instances, that gentleman has shown a want of knowledge of our rates, which I should not have expected from anyone who has undertaken to criticise them so exhaustively. The charges for 6 tons of limestone are, it is true, £3 16s. 1d. for 190 miles, and £6 18s. 8d. for 500 miles; but the charges for the lime (6 tons of it, if the company likes to put that quantity into the truck) are not £9 and £18 18s. as stated, but £4 4s. 6d. and £7 14s. respectively.

And the grievance pointed out in paragraph No. 19 is really purely imaginary. It is difficult to know why it should be regarded "as for the benefit mainly of the Sydney manufacturer, or the produce auction-mart people, or exporters," that the Mudgee tanner should be able to send his leather to Sydney for 2d. per ton per mile less than the same material can be sent from Sydney to Mudgee. One would have thought that the advantage was rather in favour of the Mudgee tanner, who is enabled to get his leather conveyed to what must undoubtedly be his best market, at a low rate of trainage. To the Department it is beneficial in every way to encourage inland manufactures, for in addition to getting the products to carry, we get the general supplies, and it is from the latter we derive our principal source of revenue.

It is simply a waste of time to talk about 6 tons of leather being sent into the competitive districts, for such a consignment never has been, nor is ever likely to be sent.

Mr. Haynes is again wrong when he states in paragraph No. 20 that the trainage of 6 tons of soap from Dubbo to Bourke, in half-ton lots, would amount to £27 2s. The correct amount is £25 5s., and if he sent it in lots of 1 ton it would only cost £20 6s. As many as 120 consignments of 1 cwt. each would not cost so much as £27 2s.

And in paragraph 21 Mr. Haynes is very much astray in his figures, although in this case the mistake is quite pardonable, as the new rates have been adopted since the existing rate-book was issued.

in 1885; still, as Mr. Haynes admits having visited the Lithgow Pottery Works, and conversed with the foreman (who appears to be a protectionist as far as his own business is concerned, at all events), a simple inquiry would have put him right on the rates question as well as upon others, and he would not have hazarded the assertion that the Company are punished for ignoring Sydney if they do business westwards. 6 tons of their pottery, carried a distance of 408 miles, would not be charged £31 5s. 6d., but £15 13s. It is admitted that if forwarded in half-ton lots the charges for the same distance are £31 5s. 6d. (not £38 19s., as stated); but it is useless to say that the Sydney importer can send his half-ton lots through a carrier's agency for £20 for a distance of 454 miles, because in the one case we know that the truck does earn the £20, while in the other, as there is really no loading at Eskbank beyond the half-ton of pottery for the same place, the truck would only earn £2 12s. 2d. for 408 miles.

Nearly the whole of the remainder of Mr. Haynes' letter might have been left unwritten if he had left the competitive rates alone instead of comparing them with the non-competitive rates, between which, as the terms imply, there cannot possibly be any analogy.

His reference in paragraph 23 to the Armidale tanner paying more for the conveyance of his leather to Maitland is, as I notice the Commissioner has observed, due to the fact that Newcastle is a place of export; besides, the lower rate to Newcastle only applies when the leather is forwarded in consignments of 1 ton and upwards—smaller consignments are charged the very same rate per ton per mile to both places. Still, instead of making the reduced rates apply to Sydney and Newcastle only, I think they might be made to apply to all leather carried on the up-journey.

The comparison between the rates for flour and biscuits is equally uncommercial (*vide* paragraph 24). Admitted that a 6-ton consignment of flour is carried 350 miles for £6 4s., what has that to do with the fact that 6 tons of biscuits would cost £48 4s. for the same distance?

To begin with, there is admittedly a great difference in their respective values, and while it is more the rule than the exception to carry 6-ton consignments of flour, where can Mr. Haynes or any one else point to a 6-ton consignment of biscuits? To get the advantage of the £6 4s. rate for the flour it must be sent in one consignment—for £48 4s. the biscuits may be sent in nearly 250 different consignments.

What does it matter whether for auction sale or for export. The probability is that lots of leather submitted to auction at Maitland would ultimately find their way to Newcastle for export.

Flour, about £10 per ton; biscuits, about £50 per ton.

The statement that we give the outside man an advantage over our own of about 800 per cent. is utterly at variance with facts—in each case the "outside man" pays precisely the same as our own.

In paragraph No. 26 an extraordinary comparison is made between the rates for flour, iron, and machinery, the rate for which latter is £18 9s. 6d. for 196 miles, and not £31 18s., as stated. But suppose we went so far as to reduce the rate for machinery to the same as that for flour, would it help the engineers at Newcastle in any way, or would it not mean a sacrifice of revenue which would result in putting probably a good deal more money into the pockets of the Victorian implement maker than into those of our own. It is an undoubted fact, whether Mr. Haynes knows it or not, that the bulk of the machinery used in the Colony comes from Victoria.

It is unnecessary to follow Mr. Haynes in the examples cited in the 27th, 28th, and 29th paragraphs, since the circumstances in each case are so different, and seeing that these circumstances have already been fully dealt with. If he will take the same conditions and distances outside the competitive districts all the anomalies which he has made so much of will disappear. In the 30th paragraph we find Mr. Haynes stating that half-ton orders of galvanized iron are the rule, and that if a Maitland merchant sends 6 tons in that way to Tenterfield, 361 miles, the trainage is £32 2s., while "a Victorian squatting firm down by Jerilderie or Hay can get his 6 tons for £20 on a run of 454 miles" (Hay). Now, if we take the same conditions in each case it will be found that twelve half-ton consignments from Sydney would be charged £33, while if the whole 6 tons are sent in one consignment the trainage is only £18, not £20, as stated; and if the squatter could not get the iron from Sydney for that money he would get it from Melbourne. Equally misleading is the example quoted in paragraph No. 31. It is a most extraordinary circumstance that Mr. Haynes should conceive the idea of a farmer near Armidale or Glen Innes sending his 6 tons of potatoes to Maitland in lots of 5 or 6 cwt. at a time, as he must do to cause the trainage to amount to £21 13s., and in the same breath bewail the possibility of the wholesale flour importer at Newcastle being able to send (in one consignment) 6 tons "the same distance" for £5 3s. 9d., and that, too, into a farming and comparatively thinly populated country. Put the 6 tons in one consignment in each case and the trainage is exactly the same.

From flour and potatoes we come, in the 32nd paragraph, to meat, and here we are challenged with carrying preserved meat from the country districts to the ports of shipment at Sydney and Newcastle at lower rates than to the country districts further northward, southward, and westward.

If Mr. Haynes cannot see a good reason for the concession to Sydney and Newcastle as outlets for country-killed and preserved meat, I am afraid it will be useless to point it out to him. I question whether any is sent from the country stations to places other than Sydney and Newcastle, and if there is it must be in very small quantities.

Fresh meat is charged the same rates everywhere throughout the lines.

In paragraph 33 we are told the hay, straw, and chaff rates look very liberal for the farmer, but that they are not framed to facilitate the small man or the inland trade, and then it is asserted that 2 tons of chaff from Mudgee to Sydney cost £6 1s. 2d., and that consequently three such consignments (or 6 tons in all) costs £18 3s. 6d. Mr. Haynes is very imperfectly conversant with the rate-book, otherwise he would not make such glaring mistakes. *As a matter of fact, 2 tons would only cost £2 6s. 8d., and if the chaff is well pressed and 6 tons put upon the truck it would not cost more.*

It is almost unnecessary to say that the assertions about the rates for 500 miles being £12 6s. 6d. for 2, and £36 19s. 6d. for 6 tons, are equally wrong. In each case they are really only £4 11s. 7d., and the rates are the same on all lines.

Paragraph 35 gives a very peculiar mixture. Here Mr. Haynes states that the Glen Innes farmer sending 6 tons of dairy produce, 3 tons of agricultural machinery, and 3 tons of furniture to Newcastle would have to pay £71 14s. 6d., which is quite correct; although why a farmer should send agricultural machinery and furniture to Newcastle (these can hardly be called the products of his farm), instead of flour, chaff, and potatoes, which he grows in the district, but is supposed by Mr. Haynes to get from Newcastle, it is difficult to know.

The figures named by Mr. Haynes as the cost of conveying the produce are wrong. I shall here enumerate them, and place the correct figures side by side with them.

Mr. Haynes' figures.				£	s.	d.	Correct figures.			
				£	s.	d.	£	s.	d.	
12 tons	Victorian flour	...	...	10	3	0	11	16	6
10 trucks	Victorian chaff	...	...	27	15	0	33	3	4
24 tons	Victorian potatoes	...	...	20	6	0	23	13	0
12 tons	American timber	...	...	10	3	0	14	15	8
				£68	7	0	£82	8	6	

And of course it is hardly necessary to say that these amounts do not refer to Victorian produce or American timber, but to the same traffic, no matter where it is produced or upon what line it is conveyed. It is somewhat strange that all the mistakes Mr. Haynes makes are in favour of himself or his argument, and against the Department.

The assertion "that a general feeling of disappointment has followed on the opening of many of our railway extensions" is as new as it is astounding. Evidently Mr. Haynes wishes we had back the "good old times" when farming was unknown where it is now largely carried on, and the farmers had to burn their straw upon the ground because it would not pay to cart it to the railway and send it to Sydney, whereas now it is carried 200 miles by rail for about 8s. or 9s. per ton, and is then sold at prices varying from £1 10s. to £3 10s. per ton. Is it likely that the farmer is desirous of reverting to the old order of things?

In the 40th paragraph Mr. Haynes, unlike some previous writers on the rates question, advocates the "allowing of discounts or decreases in charges where the run of the train is lengthy," and this, it is scarcely necessary to say, has always been our practice, as well as it has been the practice of all carriers both by land and sea; but in the same paragraph he again introduces the threadbare subject of what he is pleased to term "differential," but is in reality *competitive* rates, upon which it is not necessary to enlarge further.

And in the 41st paragraph, while the necessity for a classification is admitted, Mr. Haynes contrasts the cost of carrying 6 tons of flour, which, for a distance of 500 miles, is £7 14s. with an equal weight of ironmongery, which, for half the distance, is £37 14s. This contrast, I must say, is a peculiar one. Conceive the quantity of flour used throughout the country as compared with ironmongery, and then consider that the cost of the former is about £10 per ton, while the latter is worth from five to ten times that amount. And then let it be borne in mind that a much greater weight of flour could, as far as measurement is concerned, be put upon any of our trucks than they are authorised to carry; whereas of the general ironmongery we could not possibly put nearly 6 tons upon our ordinary trucks. Mr. Haynes must surely have been dreaming when he wrote that "6 tons of ironmongery is in most cases neither fragile nor brittle, and certainly does not require so much care as (say) flour."

In paragraph 44 Mr. Haynes proposes that there shall be but one rate for 1st, 2nd, 3rd, and 4th class traffic, which means that, under all circumstances, whether the traffic is competitive or non-competitive, he would charge as much for the farmer's dairy produce or his seed as he would for a like quantity of silks, which are worth probably fifty times the value of the other!!! Where would be the justice of such a course, or what becomes of the classification Mr. Haynes has admitted the necessity of?

Then how would the truck system work in cases, of which there are thousands, where there are only a few cwt. of goods to be sent from one station to another? Are they to be kept, probably for many weeks, until a truck-load is made up? How would that answer in respect of dairy produce, which Mr. Haynes has taken so much pains to show is only forwarded in lots of a few cwt. at a time? Why introduce, when there is no necessity for it, the wholesale system, which he condemned so strenuously in the beginning of his letter?

If we do introduce the wholesale system generally, it will have to be with the knowledge that, while the trucks containing goods are provided with full loads, many will have to be run to the country empty to bring back farm produce at rates which, although they may answer well enough for return loading under present circumstances, would be absolutely ruinous if we had to run the trucks empty to get the traffic.

Mr. Haynes is entirely mistaken when he says (*vide* paragraph 47) that a truck "will accommodate 6 tons of almost any goods," and his assertion that "a truck which carries 6 tons of flour (concentrated produce) will also carry nearly 6 tons of wool, the bulkiest of all merchandise, except hay and straw," is also wrong. As far as accommodation is concerned, much more flour could, as I have already said, be put on any of our trucks than their dead-weight carrying capacity would render safe; and the same may be said of greasy wool; but it is impossible to put on anything like that quantity of scoured wool, which is more bulky than either hay or straw.

In paragraph No. 48 Mr. Haynes starts away with the assertion that "the railway freight upon wheat to our farmers is about 6½d. per bushel," but he does not say whether that rate is for 30 or 300 miles. As a matter of fact, the trainage of 6½d. per bushel is for a distance of 380 miles, when the wheat is carried in 6-ton lots—and that is only about 17 per cent. of its value. The trainage of an equal weight of coal would be only about 10 per cent. less, while it is only about one-eighth the value of the wheat.

And it is absolutely incorrect to say that "a 4-ton consignment would cost him (the farmer) 10d. per bushel, and a 2-ton lot 1s. 8d. per bushel;" for, in either case, and even if the consignment did not weigh more than 1 ton, the charge would be only equal to 7½d. per bushel.

Still Mr. Haynes contends that "a 100 per cent. special reduction in the coast-bound wheat rates" should be made; and, he innocently observes, "this would bring the carriage-rate down to about 3d. per bushel; and I propose that the rate should apply to actual weights down to ½-ton lots." Reduced to practice, this means that, in the absence of other loading for a truck, it would run 380 miles for 5s., and that too in the face of our being compelled to send trucks to the country empty to return with produce if the wholesale system is made general as regards general goods; and Mr. Haynes wishes the same principle applied to all kinds of grain, potatoes, &c.

As regards hay, straw, and chaff, he proposes (*vide* paragraph 49) that "the present rate be made to apply to lots of not less than half a ton," the meaning of which is that while half a ton of wheat, valued at £3 10s., is to be conveyed a distance of 380 miles for 5s., an equal weight of straw, which is about half the value of the wheat, is to be charged 6s. 2d.!!

And Mr. Haynes says that "under the new arrangement he (the country farmer) would be charged actual weight, like the man is charged who lives in Sydney." I confess I can scarcely follow him in this, for the farmer would not be charged actual weight if he only sent 5 cwt. and was charged Mr. Haynes' proposed minimum of 10. Surely that gentleman cannot be unaware that as far as farm produce is concerned "the man who lives in Sydney" occupies the same position as the one who lives at Bourke, Albury, or Hay.

And this, we are told by Mr. Haynes, is the completion of his work! Well, as the Commissioner has observed, nine-tenths of his letter is taken up with contrasts between the competitive and the non-competitive rates, the former of which must, as I have said, either be adhered to or the traffic abandoned to Victoria; and if he had been conversant with his subject, as so avoided the mistakes and incongruities to which I have drawn attention, there certainly would have been no necessity for the remaining tenth of his letter.

Briefly summarised, Mr. Haynes contends at the beginning of his letter that "the profound blunder of our railway goods system is that it is shaped to meet a wholesale rather than a retail trade," but before proceeding far he advocates the general adoption of the wholesale system. This, again, he practically condemns towards the end of his letter by submitting that farm produce should be carried in lots of half a ton or upwards, and other traffic under classes A and B at actual weight under the existing rates.

I may point out, however, that if the small farmer wishes to take advantage, either of the truck or the ton rate, he can easily do so by arranging with some of his neighbours to make up the consignment.

Now let us see how Mr. Haynes' proposals will work in actual practice. Hitherto the down and up traffic have tolerably fairly balanced each other as far as trucks are concerned; but adopt the wholesale system for general goods throughout the lines and we shall at once be faced with the necessity of having to send large numbers of empty trucks to the country to return with small consignments of farm produce, assuming, of course, that small consignments are sent, as Mr. Haynes seems to think will be the case.

In this we should not only lose £150,000 to £200,000 on the general goods, and something like £50,000 in the farm produce, if the reductions proposed by Mr. Haynes were carried out—to say nothing of other kinds of special class traffic being carried at actual weight at existing rates—but our working expenses would be enormously increased by the number of additional trucks that would be used, and consequently, the extra trains that would have to be run.

If Mr. Haynes had recommended what he is pleased to call the wholesale system both on the down and the up journeys there would at least have been consistency in his argument, but as it is there is none.

The reductions he proposes on the farm produce would make the rates from 30 to 50 per cent. less than those for coal, although the latter commodity is twenty or thirty times less valuable.

I would commend to Mr. Haynes a book which was written on "Railway Rates, English and Foreign" by an eminent English railway manager, and published in the end of last year; the reports of the Select Committee appointed by the British House of Commons on the rates question; the report of the Board which was appointed by the Government of this Colony some years ago to inquire into the matter; and any railway rate which he can get hold of, and I do not hesitate to tell him before-hand that nowhere will he find carried into effect the extraordinary ideas he has promulgated.

On the contrary, he will find very much greater apparent anomalies than he will be able to discover in our rate book. Although, as far as produce is concerned, he is not likely to find a more liberal tariff than ours.

And it is somewhat extraordinary that farm produce is the only country product in which he takes any interest except, perhaps, the lime burnt at Mudgee, for he appears to deprecate the idea of a country tanner or meat-preserver getting their products sent cheaply to the central markets at Sydney or Newcastle.

W.V.R., 3/11/87.

Commissioner.

Report by The Traffic Manager, Northern Line.

THE purpose of Mr. Haynes' report is to expose the anomalies brought about under the system of differential rates, which, as everyone knows, are intended to conserve the interests of the Colony as a whole by keeping its trade within its borders. Indirectly every taxpayer in the Colony benefits by this policy, and would inevitably suffer to a greater or less extent if the measures adopted were not in force, and the money now generally diffused went to other Colonies with the trade.

The system is in accordance with the law of self-preservation, and to abolish it by levelling down would be as suicidal as levelling up, while another Colony maintains the practice.

Railway companies in all parts of the world, conducted, as no person will deny, on commercial principles, which are prescribed with much persistency as the thing necessary to bring the management of the N. S. Wales lines to a proper state, have tariffs to meet competitive circumstances, and consequently the anomalies that Mr. Haynes so much objects to. In business firms, where commercial principles may be supposed to have the fullest scope, it is no uncommon thing to sell goods at a distant market more cheaply than on their own ground, so as to cope with competition.

The numerous illustrations, multiplied to a wearisome extent, conveying to the minds of the public that the tariff is as a whole anomalous, absurd, and unjust, are—notwithstanding the variety of treatment, elaborations, inversions, and changes of all kinds, but the one thing, and one plain statement—if the public required any, would have been ample.

The public in general know that owing to the pressure upon our trade from other Colonies we carry to districts where this pressure is operative goods for longer distances for less money than for distances where we are free from it.

But

But many Northern people have been led by Mr. Haynes's mode of exposition to suppose (not having looked into the subject themselves) that as a general thing the rates on these lines are higher than on the Southern and Western, even where there is no competition, and they consequently feel aggrieved that their lines have to make up for losses on the other lines. Mr. Haynes has not told them that all within the 305 and 340 distances respectively on the other lines have also to make up for loss on differential rates—supposing there is any.

The way in which unlike cases have been paired, and in which he has compared conditions that do not exist, and never will, with natural conditions, is amazing, completely nullifying all the intended effect of his arguments.

If such irregular reasoning and arbitrary comparisons are allowable, it is competent for any person to bring euclid or the science of astronomy into ridicule.

In paragraph 40 an approach to reason is made in the admission that goods should be classified according to risk, bulk, amount of handling, fragile character (though he says nothing about values, which all over the world are an unavoidable factor in freights), but throughout the whole of his article Mr. Haynes ignores the principle. For instance, in No. 12 he speaks of the injustice of carrying Newcastle coal, run over a portion of the Coal Companies own lines, in their own waggons, millions of tons annually, at a less rate than dairy produce, carried in small quantities at a time, and in Government waggons, wholly on Government lines.

It is further stated that the use of the cranes is given free. I am afraid this imperfect knowledge pervades the whole of Mr. Haynes's article.

1. It is stated roundly that in many cases the extension of railways has affected inland farmers injuriously; "because they are almost wholly shut out from the coast markets, while on the other hand, the inland markets are reached by the cheaply-borne produce from the other Colonies." A farmer reading this would be indignant to learn that the produce from other Colonies is carried cheaper than his own. The farmer, however, is misinformed, because the implied difference in rate against him is not a fact. Paragraphs 1 and 2 are founded on this assumption, and are therefore baseless.

4. While it is accordant with "commercial principles" everywhere to charge higher, *pro rata*, for small quantities than for large ones, Mr. Haynes says it is a "profound blunder" for the New South Wales Railway Department to carry out this principle. He has admitted that cost of handling, &c., should have a part in classifying, but, although small quantities cost more, *pro rata*, than large ones for handling, and do not admit of economical loads as a rule, we must still charge the same rate as a large lot, fulfilling all conditions of economy for the Department.

8. Here Mr. Haynes gives an impossible case—one that never occurs—in speaking of 6-ton lots of fourth-class goods. Any reasoning founded on 6-ton lots of fourth-class goods is invalid, because unreal.

13. "Millers and storekeepers, say at Tamworth or Armidale, * * * get up cheaply by rail large quantities on the wholesale principle of imported flour; then when the farmer comes into the town to sell his wheat the large cheaply-carried stocks of flour are pointed out to him, and he is forced to accept any price." Tamworth is a great wheat-growing district. The farmers do not grow wheat retail. The millers, as everywhere else, sell flour wholesale as well as retail. Though it is implied that it is dearer to send a given quantity of Tamworth flour to Newcastle than to send the same quantity of Adelaide flour the other way, it is not a fact. There is here a distinct, though unintentional, impeachment of the business capacity about Tamworth. With the same chances, the Victorian or Adelaide flour is nevertheless, run in upon him, although it has to pay two railway freights and the sea freight—at least Mr. Haynes says it is. If it be true, it is a state of affairs for which the railway tariff is not answerable.

15. Victorian flour is again compared with (among other things) furniture, although, as the articles differ so widely, there is no common ground for comparison. The admission that there should be classification is forgotten.

16. Victorian flour, irrigation pipes, and agricultural machinery compared as regards freight needs no comment.

17. Speaking of the country farmer, Mr. Haynes repeats an inaccuracy, to which I have before alluded. He says "his local market is flooded with produce carried for next to nothing." If the inward produce is carried for next to nothing, so is the country farmer's. While the inequality of differential rates is loudly complained of, so are the rates that act equally everywhere. It is hard to say whether Mr. Haynes has most objection against equal rates or against the competitive. If neither is right, what system is? A higher rate on Victorian flour, I take it.

23. Leather to Sydney or Newcastle 1st class; to other stations 2nd class. Mr. Haynes does not appear to comprehend the reason for the lower rate to the ports. It is, of course, to allow easier access to the great markets, and consequently admits of tanneries being established in the country. If the rate were higher, access to market would be retarded, and the tanneries would have to be established on the coast. Mr. Haynes favours decentralization; this rate, in the way indicated, has that tendency. The Armidale tannery (Messrs. B. A. Moses & Co.) has shipped a considerable quantity of leather from Newcastle direct to London. To give a cheap rate the other way would allow the Sydney tanner a better opportunity of competing in Armidale with the local establishment. This rate is not in favour of the Sydney merchant, as it is implied that the rates in general are.

24. A complaint that Victorian flour is carried cheaper than the Newcastle biscuits. There is no need to defend it. Gives the rate at which Newcastle biscuits are sent a given distance on the north, and imported biscuits on the south and west—like is seldom compared with like. Newcastle biscuits can be sent at same rates on all lines as other biscuits. Arnott's biscuits, as a matter of fact, are sent to the competitive districts on south and west, and get the benefit of the rates.

25. A Tamworth musical warehouse gets 6 tons musical instruments for £35 18s. 6d., and this is compared with the competitive district's rate.

26. Complains that the "Victorian foreigner" can send his fodder more cheaply than the Newcastle foundries can send irrigation pipes and machinery to the country. This is a curious kind of attack on rates.

31. Speaks of produce rotting at Guyra and Ben Lomond that can never reach a market. If a Ben Lomond farmer sends 6 tons potatoes in lots to suit purchasers "it will cost £21 13s. for 281 miles." This is a misstatement, unless the farmer sent 120 lots of 1 cwt. each to different persons at different

times; he would then pay £24. If he sent a truck load of 6 tons he would pay £5 8s. 6d. for the load. The unfairness of Mr. Haynes' statement lies in the fact that it is stated it will cost the Ben Lomond man £21 13s. for the same tonnage that the Newcastle importer pays £5 3s. 9d. (should be £5 8s. 6d.) for.

32. The "centralising system" of charging A rates for preserved meats to ports—the only outlet to a suitable market that these meats have—is alluded to. Mr. Haynes quite misses the point, and complains of the high rates on preserved meats to the country, where they never go, and would not go if they were carried for nothing. He does not perceive that cheap rate from the meat preserving establishments to their natural markets through the ports aids decentralization by permitting such establishments to be set up in the country. If there was not this special rate either the factories could not start or they would have to be located on the coast.

It is not worth while pursuing the investigation of this report any further. I have dealt with Mr. Haynes' illustrations and facts, which are typical of the whole. Though all varied, and the changes rung with some skill, they all apply to the one thing.

The remedy Mr. Haynes proposes is extremely crude, and would deprive the railways of the greater part of their revenue. He fails to know that rates must be made to suit particular circumstances, and that his hard and fast recommendations would not work.

Railways are about to be established in China. If that nation's producing powers be developed in anything like the ratio that railways have developed those in England, America, and other countries, China's production will, before many years, become a menace to the industries of all nations on the globe.

If, however, the Chinese could be persuaded to adopt Mr. Haynes' system the railways would before long become extinct, and the danger to other nations from China's competition be averted.

J. HIGGS,
9/11/87.

1888.

LEGISLATIVE ASSEMBLY.
NEW SOUTH WALES.

RAILWAY FROM BOWRAL OR MOSS VALE TO ROBERTSON.
(CORRESPONDENCE, &c., RESPECTING.)

Ordered by the Legislative Assembly to be printed, 22 November, 1888.

RETURN to an Order of the Honorable the Legislative Assembly of New South Wales, dated 14th June, 1888, That there be laid upon the Table of this House,—

“Copies of all papers, minutes, reports of officers, or other documents, having reference to the construction of a Railway from either Bowral or Moss Vale to Robertson.”

(Mr. McCourt.)

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No. 1.

Petition from certain residents of Moss Vale to The Honorable John Lackey, Minister for Works.

The Petition of the undersigned, residents of Moss Vale and surrounding districts,—

RESPECTFULLY SHOWETH:—

That Parliament having affirmed the principle of constructing tramways as feeders to the main lines of railways, your petitioners desire to point out, that a line from Moss Vale to Robertson would be a great benefit to the settlers, and remunerative to the Government.

That the country through which the line would pass is thickly populated, having been selected in small farms since 1861, and from which Government is now receiving considerable revenue by way of interest. The land is rich and very productive; but its productiveness would be greatly increased if better means of transit to market were offered to the settlers.

That if the tramway were constructed, nearly the whole of the present large expenditure upon the main roads would be saved.

That the residents of Kangaroo Valley, who are now almost isolated, would be greatly benefited if the abovenamed line were constructed, as it would save them a distance of some 20 miles along very inferior roads.

And your petitioners, as in duty bound, will ever pray, &c.

THOMAS TATE, Moss Vale,
and signed by 197 residents.
Petition

Petition for Tramway from Moss Vale *via* Burrawang, Wild's Meadows to Robertson.

To The Honorable The Minister for Works,—

The humble Petition of the undersigned inhabitants of the districts of Burrawang, Wild's Meadows, Robertson,—

SHOWETH :—

That your petitioners are for the most part *bonâ-fide* settlers, representing an area of 325 square miles of the richest agricultural land in the Colony, who for some years past have suffered great inconvenience and serious losses for the want of good roads and cheap and rapid communication with the markets of the metropolis.

2. That your petitioners, numbering over 1,200 adult males, are chiefly occupied as dairy farmers, with holdings free selected since 1861, of from 40 to 320 acres each, a large portion of which is now cleared and used for grazing, agriculture, and orchards, which, twenty years ago, was one vast impenetrable scrub; but, by many years of toil, and the expenditure of large amounts of capital, has been converted into prosperous homesteads, now valued at from £500 to £5,000 each, whilst land has risen in price from £1 to £20 per acre, very strong evidence of the great progress which these districts have made.

3. That the districts enumerated above are situated at a distance of from 10 to 15 miles from the Moss Vale railway station, the roads to which from various places named are very heavy and in condition bad, and in winter very difficult to travel over; that the cost of carriage is very high, being from 15s. to £1 per ton for the short distance of 10 miles, or double of that charged for the whole distance (86 miles) by train from Moss Vale to Sydney, which, taken in conjunction with the great loss of time, and the large amount of damage done to the goods during their carriage to the station, your petitioners would most respectfully submit, are very strong reasons for urging upon your Honorable House, that a cheaper and more expeditious means of transit is absolutely necessary than that now in vogue, in order that your petitioners may be placed on a more equitable footing, so as to enable them to compete fairly with those more favourably situated, and especially so with the farmers of the neighbouring Colony of Victoria.

4. That the districts interested in this Petition have a total population of 6,200; that there are eight public schools, with an aggregate average attendance of 400 scholars; two or more churches in each, with clergymen, post and telegraph offices, three mechanics' institutes and schools of art, three friendly societies, with public halls, two or more general stores in each, three large steam saw-mills, whilst at Burrawang, the central district of the group, there is a Farmers' Club of over 200 members, and a splendid public hall, a race club, and an agricultural society which ranks either fourth or fifth in the Colony for importance, whose annual show is attended by 3,000 persons, thus marking the great social and commercial progress of the district; but your petitioners believe that all this would be more than doubled in a short time if a tram-road was added to our present system of traffic in the district.

5. That the district through which the proposed tramway will pass is the richest and most populous in the Colony, and is capable in itself of supplying the whole of Sydney with field, garden, and dairy produce in abundance, whilst its mineral resources, slumbering in the soil unworked, are rich and varied, such as coal, iron, limestone, kerosene shale, and copper, and quarries of building stone abound everywhere. It possesses a great variety of trees useful for building purposes, and its natural scenery alone would command a very large passenger traffic in the event of the tram being constructed; but, despite all these natural advantages of our district, your petitioners would urge the attention of your Honorable House that we have not advanced as we should have done for the want of cheap, easy, and rapid communication with Sydney.

6. That, upon a mere rough calculation, about 10,000,000 quarts of skimmed milk is thrown on the soil yearly which could be utilised in fattening calves; that there are 6,000 cows in daily milk, and that 4,000 gallons of new milk could be sent daily to Sydney; that 5,000 calves are annually destroyed—not even the skins are preserved—both of which could be utilised; the calves would be fattened and the skins preserved and sent to market; that fully 5,000 more pigs would also be forwarded on, and that hundreds of tons of the best English fruits, which are abundantly grown here, but mostly thrown to pigs, and many thousands of tons of potatoes more, which are produced in unlimited quantities, and unsurpassed by any in Australia for quality, would be sent to the metropolis, instead of being allowed to rot in pits as at present to the extent of many hundreds of tons annually.

7. That, should your Honorable House view with favour the contemplated tramway from Moss Vale to Burrawang and Robertson, your petitioners would represent that a great extent of these rich districts would be almost immediately cleared and brought under cultivation; that many industries would spring up which are at present quite impracticable; several steam saw-mills would be set in operation by which many thousands of tons of excellent timber would be utilised and sent to the market, instead of the trees being ringbarked or destroyed by fire; that the great coal measures existing on the line of road would soon be actively worked, and a large amount of capital and labour brought into the district; that, dense as the population of these districts is, there is ample room for thousands more to settle in our midst, and by affording facilities for transmitting our produce to the markets, a great impetus will be given to further settlement all along the proposed line of tramway, which would drain the metropolis of a deal of its surplus labour, and add very considerably to the traffic and tonnage on the line; that considerable advantage will be gained in the punctual and safe delivery of the daily mails in each of these districts, and at considerably less cost to the Government; and that the annual grant of public money to construct and repair the roads and bridges would also be greatly diminished; so that, apart from the great boon that would be thus granted, your petitioners believe that the cost of construction of such a work will not only be met by ample returns, but that a considerable amount will be added to the revenue of the Colony, as well as paying full interest for the outlay, and also the working expenses of the proposed line.

8. Your petitioners would invite the attention of the Assembly to the following approximate returns of a tramway from Moss Vale *via* Burrawang to Robertson. The data thus afforded having been collected with much care by parties specially appointed for that purpose at Burrawang, the central district of the group; but no allowance has been made in the estimate below for the use of, and the receipts from, the tramway for the conveyance of goods and passengers, &c., on the return trip; but it is based on the fare charged for a single passage from Burrawang to Moss Vale only, estimating the return traffic to be about

about one-third. Your petitioners believe the total receipts would equal the cost of the working and construction of the line, and be considerably in excess of the figures here quoted, namely:—

Data of approximate returns.

		£	s.	d.
15,000 tons potatoes and turnips	... .. at 1s. per ton	3,000	0	0
5,000 " sawn timber	... .. at 4s. "	1,000	0	0
4,000 " stone and brick	... .. at 2s. 6d. "	500	0	0
3,000 " store goods	... .. at 5s. "	750	0	0
1,500 " grain and meal	... .. at 4s. "	300	0	0
1,000 " artificial manure	... .. at 4s. "	200	0	0
1,000 " sundries	... .. at 5s. "	250	0	0
1,500 " butter and cheese	... .. at 10s. "	750	0	0
2,000,000 gallons milk per annum	... .. at ½d. per gal.	4,166	13	4
6,000 cases of fruit	... .. at 3d. per case	75	0	0
2,000 " eggs	... .. at 3d. "	25	0	0
500 coops fowls	... .. at 1s. per coop	25	0	0
5,000 calves	... .. at 1s. each	250	0	0
5,000 pigs	... .. at 1s. "	250	0	0
1,000 stock sundries	... .. at 2s. "	100	0	0
36,000 passengers per annum, estimated at 100 per day	... .. at 1s. "	1,825	0	0
16 miles mail contract, at 3d. per mile per day	... ..	72	16	0
		£13,559 9 4		

9. That the approximate cost of the proposed tramway is estimated, according to the opinion of persons competent to judge, at about £25,000, including the stations and rolling stock for the total length of the line—16 miles; and your petitioners feel that they are in a favourable position to appeal to your Honorable House, since it has become an established principle adopted by the Government to construct tramways as feeders to the great trunk lines, in connection with the great railway system of the Colony, and that the tramway herein proposed your petitioners have every reason to believe will, both commercially and economically, prove a great success.

10. That, with a view to gather exact data as to the proper route, and cost, and construction of the line for information of your Honorable House, your petitioners would respectfully suggest that an engineer and surveyor be directed to visit these districts, and make the necessary survey, as soon as possible; that the cheapest, most suitable, and the most desirable route, is that indicated in this Petition, as it presents no engineering difficulties, is the shortest line; almost equally divides these districts, running, as it will, through the centre of about 300 farms, thus benefiting a very large majority of the inhabitants, whilst it would favour a further extensive settlement along the whole line of tramway, and satisfy the most sanguine expectations of your petitioners' future hope of success.

11. That your petitioners believe that the construction of a tramway from Moss Vale, through these districts, *via* Burrawang to Robertson, has become a necessity, as without this public work, being farmers, and depending solely upon the markets of the metropolis, we are placed at a great disadvantage, and suffer great inconvenience, loss of time, damage to goods, and serious pecuniary losses from bad and heavy roads, slow transit of goods, and high charges for carriage; your petitioners are exposed to undue peril, and may perhaps be overtaken by positive ruin.

12. Your petitioners, therefore, for the reasons stated, and for others which could be deduced, humbly pray that your Honorable House will take these premises into your favourable consideration, convinced as your petitioners are, that a tramway from Moss Vale to Burrawang and Robertson would amply pay cost of construction, with interest; and also, not only pay well for the repair and of the due working of the line, but actually yield a good profit, to be added over and above to the revenue of the Colony.

And your petitioners will ever pray.

Dated at Burrawang, this 24th day of January, A.D. 1881.

[Here follow 317 signatures to Petition.]

Residents of Burrawang, &c., urging construction of Tramway from Moss Vale to Robertson, *via* Burrawang, Wild's Meadows, &c.

Get map of district, and show thereon line of tramway sought for.

CH.A.G., 24/2/81.

The Minister considers it desirable that an exploration of the country should be made to ascertain if there is any prospect of a trial survey resulting in a suitable line being found.—CH.A.G., 1/4/81.

Mr. Secretary Lackey wishes the petitioners to be informed that an exploration of the country will be made. Will Mr. Cowdery direct an exploration.—CH.A.G., 6/4/81.

Sir,

Department of Railways, Sydney, 5 April, 1881.

Referring to the deputation introduced by you to the Minister for Public Works, on the 19th February last, for the purpose of presenting a Petition for the construction of a tramway from Moss Vale to Robertson *via* Burrawang, Wild's Meadows, &c., I have the honor, by direction of Mr. Secretary Lackey, to request that you will be good enough to inform the petitioners that an exploration of the country will shortly be made, in order to ascertain whether there is any prospect of a trial survey resulting in a suitable line being found.

I have, &c.,

CHAS. A. GOODCHAP,
Commissioner for Railways.

Thomas Garrett, Esq., M.P.

No. 2.

The Hon. Secretary, Burrawang Committee, to The Commissioner for Railways.

Sir,

Burrawang, 22 April, 1881.

I have the honor to inform you that your letter of the 5th instant, No. 81-903, referring to the proposed tramway from Moss Vale to Robertson *via* Burrawang and Wild's Meadows, was duly forwarded to me by Thomas Garrett, Esq., some few days ago, and after due consideration of same by the committee, it was determined to forward you the enclosed sketch of the proposed route, believing that it might be of some service to the engineers when making a trial survey of the said tramway line.

I have, &c.,

WILLIAM BARRETT,

Hon. Secretary, *pro. tem.*

No. 3.

The Hon. Secretary, Burrawang Committee, to The Secretary for Public Works.

Sir,

Wild's Meadows, Burrawang.

If the tramway route from Moss Vale *via* Burrawang and Wild's Meadows to Robertson, as asked for by the petitioners, be not approved of, I would suggest that the road from Moss Vale to Wild's Meadows, by the lower road be examined, as I believe this would save considerable in costs of construction; also a branch from Wild's Meadows to the Cambewarra Road, at top of mountain, Kangaroo Valley. This would intercept the mail passenger and goods traffic from the coast district, and will be found to be the best paying routes of any submitted, as the line would pass through the best land in the district.

Hoping the same may be examined in connection with the other routes specified:

I am, &c.,

THOS. BLENCOWE.

Mr. Cowdery, B.C., 27/4/81. Mr. Halligan's report forwarded herewith.—G.C., 6/5/81. Seen by Minister, to be considered at the proper time.—CH. A.G., 9/5/81.

Railway Department, 2 May, 1881.

George Cowdery, Esq., Acting Engineer for Existing Lines, Railways and Tramways,—

Sir,

Acting on your instructions, I proceeded to Moss Vale on Tuesday last, the 26th April, to report on the question of tramway communication between Moss Vale and Robertson *via* Joe Wild's Meadows and Burrawang, and have the honor to submit the following:—

From Moss Vale to Robertson there is one macadamised road. Starting from Moss Vale, the main Southern Road is followed to point marked M. (on the accompanying sketch), from thence to Robertson *via* H and K. The old road use to go from H to Burrawang, and from thence to K. This still exists, but heavy traffic all passes direct from H to K. This direct road from Moss Vale to Robertson is, with a few exceptions, very good indeed, the gradients being very easy for most of the way.

In three or four places only would it be necessary to make cuttings or deviate from the road. By deviating from the road at any of the hills a good gradient could be obtained. The road is 1 chain wide, and the length from Moss Vale to Robertson is 15 miles.

The next route proposed is from Moss Vale to Bunter's, the same as before. From Bunter's a side road is taken to a point E *via* D; from E across country to Robertson *via* point F. This route from Bunter's to point F is very good indeed, and will accommodate more people than the main road, as it passes through the traffic centres of the populous districts of Yarrunga, Burrawang, and Wild's Meadows. From point F to Robertson a line will have to be chosen, and by following up Meadows Creek I think a good line could be obtained. This route has a decided advantage over the first one, *viz.*, the main road, inasmuch as the main road is entirely north of all the districts which will feed a tramway, and this latter route passes right through them. The village of Burrawang is on top of a hill, and is out of the question; but from the village to point F is scarcely a mile.

Another route, and one which, I think, will answer the requirements of the locality better than either of the others, is from Moss Vale across country to B; from B along a road at present unused to point C; from thence across a paddock to D; and from D the same route as last to Robertson. The main road being north of all the districts requiring a tram, it is so much better to have this latter road, which is three-quarters of a mile further south, and also along a Government road, which is much less hilly, and where cuttings or banks could be made without interfering with traffic.

In conclusion, I beg leave to draw your especial attention to this latter route, which is easier in grade to any of the others, and more central. Certainly it passes through about 9½ miles of private land altogether, and is altogether about 1 mile longer than the main road, and the same length as the deviation from Bunter's; but it catches more traffic, and will leave the main road untouched.

I have, &c.,

EDWIN MOLLOY HALLIGAN.

Commissioner.—G.C., 6/5/81.

No. 4.

Mr. D. T. Smith to The Secretary for Public Works.

Dear Sir,

Burrawang, 28 April, 1881.

I would draw your attention to the fact that Bunadoo is a better tramway junction than Moss Vale. Mr. E. M. Halligan has been sent up to inspect and report upon our present roads as to their suitability for the proposed Wingecarribee tramway (so we understand from him). Now, it is well known by the public that when roads were surveyed through this district in the first instance the country was so thickly timbered that it was impossible to pick out the best routes. That dray tracks were followed by the surveyors, and that to save time they ran their lines over the steepest hills regardless of severe gradients

gradients or public convenience. In proof of this statement consider the fact the Road Inspector is every year making deviations round and over the hills, and that at the present time efforts are being made at Robertson to give up two impracticable (surveyed) roads, and to make a new one (avoiding three severe hills) which will shorten the distance between Robertson and East Kangaloon by one half. I have no hesitation in saying that our main road to Moss Vale is an expensive and improper route on which to lay down a tramway.

But observe that the principle on which Mr. Halligan is to base his observations is, that the main roads must be the line on which the tramway is to be laid, and if this principle is persisted in Moss Vale must be the junction, to the marring of the gradients of the line and loss of public money. It seems strange that our common roads can be deviated year after year through private property, but that a tramway which is to serve generations is to be marred at the outset by not being allowed the principle sanctioned by this privilege. The petitioners were so convinced of the main roads being impracticable that in their estimate of the cost of the line they set aside a sum of money to purchase the land for the tram through private property, and the action of the Government (if correctly reported) negatives this portion of their prayer.

Mr. Halligan's report is unknown to me, but I fear that it will be biased by the Moss Vale people. They shepherded Halligan closely in Moss Vale and Burrawang, and a leading Moss Vale man said in my hearing he should recommend the main road to Moss Vale as the route. Moss Vale people have no land or interest here, but now they can stop the progress of our line no longer, they take improper means to gain a deviation of our line to suit themselves.

The line recommended by the Moss Vale people with Halligan is to start from Moss Vale, follow the main road up to the back of Barrett's mill, Burrawang, and then go on to Robertson. I am not now concerned to discuss whether the proposed line should come any nearer to Burrawang. But I will take Barrett's mill as a point common to both lines. Is Moss Vale or Burradoo line a short distance from the mill? Is the Wingecarribee Swamp the source of the Bong Bong River? The country by the side of this swamp and along the course of this river is perfectly level, and the fall so slight as to be imperceptible. It runs in a straight line from the mill to Burradoo; the line, therefore, would traverse a level open valley crossing the properties of Shipley, Perkins, and Throsby, at foot of Sheepwash Hill, keeping to same level country it passes over Riley's run to Bunadob Station. There is not a hill to impede, or cutting to stay the road. The Moss Vale Road, on the contrary, is continuous hill and dale from end to end, and graded in many places from 1 in 5 to 1 in 20. But allow me to point out more advantages than a level and inexpensive track:—

1. This Bunadoo Line would be more central as regards Upper Mittagong, and would save at Canole platform 5 miles road carriage to Bowral.
2. The carriage of goods from West Kangaloon would come to the Sheepwash platform, and save a road carriage of $7\frac{1}{2}$ miles. The Moss Vale Road would be useless to both these places.
3. And worthy of notice is this last fact, that by the Bunadoo Line the distance to Sydney would be shorter (by 5 miles) than by the Moss Vale route. A premium on every ton of produce carried, I may remark that the length of the proposed rival lines is the same in both cases, and Bunadoo is nearer to Sydney by 5 miles than Moss Vale.

The Bunadoo Line will have to run through private property. It avoids the main road, and thus does away with the risk of frightening country horses and breaking the necks of country people. The cost of the land would be met by the money saved in construction of an inexpensive route. This Bunadoo route should be granted in justice to Upper Mittagong and West Kangaloon people; it would disarm their opposition to the tram. At present these people are shut out altogether, and the benefit is to be reaped by Burrawang and Robertson, and indirectly by Moss Vale. The Bunadoo route is a benefit to Robertson and Burrawang, as it saves 5 miles of carriage on the Southern Line.

What is required is—

1. Power to put the line through private property.
2. A complete survey, with estimate of cost, including bridges, earthwork, cuttings, and gradients of the lines. This survey to extend to all feasible routes.

There has been mention made of a third line from Moss Vale to Burrawang *via* Yarrunga. Mr. E. M. Halligan was to inspect this road; but as it runs on the boundary of the district and skirts poor barren country, it hardly deserves consideration compared with the Bunadoo central line, though no doubt, failing to get the Moss Vale main road line, the whole force, interest, and support of the Moss Vale people would be given to this one. Of course at the present juncture we hear little about it; but in equity it should be surveyed and cost ascertained.

I have no interest in one line more than another. I feel interested in all the districts, and seek the greatest good to the greatest number.

I claim also to have seen something of the difficulty and expense of working a line with steep gradients.

I take the liberty of addressing you on the subject from the following considerations. You take a great interest in the welfare of this district.

My own duties prevent me giving any time to writing up this subject in the press or advocating it upon the platform.

That even if I had time it would be prejudicial to the interests of my church and of myself to contend with judgments blinded by self interest and the cliques of different local parties.

That the interests of this district will naturally suffer if a costly and difficult line is made not only in freights but also in the extension of the said line.

That I cannot see public money uselessly spent and not do my duty in making a protest.

I am, &c.,

DAVID T. SMITH.

I would be glad to show the Bunadoo line to any one taking an interest in the matter.

Mr. Cowdery.—G.B., B.C., 10/5/81.

7.

No. 5.

T. Garrett, Esq., M.P., to The Commissioner for Railways.

Tramway to Robertson.

Land and General Agency, 283, George-street, Sydney, 3 May, 1881.

Sir, I beg to forward you herewith a letter from Mr. T. Blencowe on the subject of route of proposed tramway from Moss Vale to Robertson. The statements and suggestions of the writer may be of use to your Department.

I have, &c.,

THOMAS GARRETT.

Forwarded to Mr. Cowdery.—CH.A.G., B.C., 5/5/81.

Mr. T. Garrett,—

Dear Sir,

Wild's Meadows, 2 May, 1881.

An officer has been sent by the Government to look over the route for the tramway from Moss Vale to Robertson. The route over the range through Burrawang was condemned, and it now remains whether the route by the main road on the north side of the dividing range be approved of or the route by the south side of the range be *via* Wild's Meadows, be preferred. The petitioners wish you to use your influence in the matter in favour of the route by Wild's Meadows, for the following reasons:—

1st.—That the object of the petitioners in asking for the tramway was to facilitate transit of agricultural produce. To effect this the line was asked through the centre of the district by Wild's Meadows to Robertson, and a branch from Wild's Meadows to the Kangaroo Valley Road to the top of the mountain. The whole of the land is first-class through which these routes pass, and includes five-sixths of the district. There are ten public schools located on these routes, and the population would number 90 per cent. as against the line on the north side of the range, and the people benefited by the direct route to Robertson.

Now if the line is constructed on the north side there is but one-sixth of the population would derive any benefit from this route as the dividing-range forms an obstacle that debars the south from participating in any benefit conferred. Again, the Wingecarribee Swamp runs direct for 6 miles in line with this route, on which not one single person is living, being a water reserve; and there are only twenty-four farms on the north slope of the range that would receive any benefit from this line. I may also add there is but one public school on this line, namely, at Robertson. You will see from this that the tramway, if constructed on this line of route, will be of no use to the district whatever, and the result will be as far as paying goes, a total failure. Why, the produce from Wild's Meadows side is now at least 80 per cent. more than that taken from Robertson, and if a Petition from the people was sent, 1,000 signatures could be obtained against 100 from Robertson in favour of the south side of the range. Hoping you will do your utmost to prevent an everlasting injustice being done the district is my excuse for troubling you with this long letter.

I am, &c.,

THOS. BLENCOWE.

No. 6.

Mr. W. Barrett to T. Garrett, Esq., M.P.

Dear Sir,

Burrawang, 2 May, 1881.

I beg to inform you that Mr. Halligan was up in our district on last Wednesday and Thursday making an exploration of the various roads with a view of having a survey of the most suitable site for the tramway. Would you kindly furnish me with a copy of his report on same as early as you possibly can do so, and by so doing you will very much oblige,—

Yours, &c.,

WILLIAM BARRETT.

Would the Commissioner for Railways kindly accede to this request.—T.G., 3/5/81. Mr. Cowdery for report.—CH.A.G., B.C., 5/5/81.

No. 7.

Messrs. Barrett Bros. to T. Garrett, Esq., M.P.

Dear Sir,

Burrawang, 16 May, 1881.

Would you kindly inform us if you have yet heard anything respecting the report of tramway route. We think it is now quite time that some steps should be taken in the matter, and trust that you will stir up the Department with respect thereto, and advise us of result at your earliest convenience and oblige.

Yours, &c.,

BARRETT BROTHERS,

(per W. BARRETT.)

Memorandum by Mr. Garrett.

My dear Goodchap,—Can you give me any information as to the matter referred to in the enclosed. I wrote some days back on the same subject.

Yours, &c.,

THOMAS GARRETT, 17/5/81.

Ch. A. Goodchap, Esq.

No. 8.

No. 8.

Memo. from Mr. W. McCourt to T. Garrett, Esq., M.P.

Deputation *re* Tramway from Robertson to Moss Vale.

Dear Garrett,

A DEPUTATION of five or six from here and Burrawang wish to wait upon the Minister on Friday next, with reference to the tramway from Moss Vale to Robertson. Would you arrange for their reception by the Minister. It has been decided to push this matter, or we will be left out in the cold.

W. McCOURT,
Moss Vale, 5/12/81.

Friday, at 11.—J.L., 6/12/81. Inform Mr. Garrett, M.P.—J.R., 6/12/81.

Sir,

Department of Public Works, Sydney, 6 December, 1881.

Referring to Mr. McCourt's letter of yesterday's date, I am directed to inform you that the Secretary for Public Works will receive the deputation on the subject of a proposed tramway from Robertson to Moss Vale, on Friday next, the 9th instant, at 11 o'clock a.m.

I have, &c.,

JOHN RAE.

Thomas Garrett, Esq., M.P.

Railways.—J.R., B.C., 6/12/81. Mr. Cowdery.—G.B., B.C., 8/12/81. Most urgent. The country between Robertson and Moss Vale has been explored by Mr. Halligan, an officer of this Department. See his report with attached papers.—G.C., 8/12/81. Commissioner. Put report of deputation with this.—G.B., 9/12/81.

No. 9.

T. Garrett, Esq., M.P., to The Under Secretary for Public Works.

Sir,

Sydney, 10 June, 1882.

I enclose your letter from Secretary to the Burrawang Farmers' Club, asking for a day to be fixed upon which the Minister would kindly consent to receive a deputation upon the subject of the projected tramway to Moss Vale.

I would ask you to inform me the day it would suit the Minister's convenience to receive the deputation.

I have, &c.,

THOMAS GARRETT.

[Enclosure.]

Burrawang Farmers' Club and West Camden Agricultural Society,
Burrawang, 9 June, 1882.

Dear Sir,

At a large meeting of the above club held at the "Club Hotel" on the 1st instant, it was unanimously resolved that a deputation from this society should again wait on the Honorable the Minister for Public Works, and urge his special attention to the matter of the tramway from Moss Vale to Burrawang and Robertson, which formed the subject of their Petition presented nearly two years ago, and furnishing data which, in the Minister's opinion, fully made their claim good.

In furtherance of this object, it is now proposed to ask the Minister to have a trial survey made of the proposed line, and I am instructed by the society to ask the aid of your kind services by accompanying the deputation, and assist in obtaining the object of their visit. If you will kindly state in reply what Friday you can make it convenient to see the Minister with the deputation you will much oblige,—

Yours, &c.,

S. K. MILLER,

Hon. Secretary.

Thomas Garrett, Esq., M.P., Sydney.

Inform nothing can be fixed till Minister returns.—J.R., 13/6/82.

Sir,

Department of Public Works, Sydney, 14 June, 1882.

Referring to your letter of the 10th instant, requesting an appointment for a deputation on the subject of a proposed tramway to Moss Vale, I am directed to inform you that the Secretary for Public Works is at the present time absent from Sydney, and that nothing can be done in the matter until his return.

I have, &c.,

JOHN RAE.

Thomas Garrett, Esq., M.P.

No. 10.

The Hon. Secretary, Burrawang Committee, to The Under Secretary for Public Works.

The Burrawang Farmers' Club and West Camden Agricultural Society,
30 June, 1882.

Sir,

Will you kindly inform me as early as possible when the Honorable the Minister for Public Works will be able to receive the deputation from the above society.

The object of the deputation is to obtain from the Minister a trial survey of the proposed line of tramway from Moss Vale to Burrawang and Robertson.

The deputation will consist of the following prominent gentlemen of the above club (the members of which number 350), viz. :—

D. Moffitt, Esq., J.P., President; W. Barrett, Esq.; Jno. Hanrahan, Esq., J.P.; and Thos. Blencowe, Esq.

The deputation will also be accompanied by the following influential Members, viz. :—

Thos. Garrett, M.P.; Jno. Kidd, M.P.; Hon. A. Campbell, M.L.C.; Hon. Jno. Marks, M.L.C.; Dr. Tarrant, M.P.; G. H. Reid, M.P.; Major Holborow, M.P.; and W. Hezlett, M.P.

As the above gentlemen desire to be informed of the date a day or two before the time fixed by the Honorable Minister to receive the deputation, I shall feel greatly obliged if you can, by return post, furnish the necessary information. I may state that Friday, the 7th instant, would suit all parties if convenient to the Minister himself.

I have, &c.,

S. K. MILLER,

Hon. Secretary.

Friday, 20th, 11.30.—J.L., 13/7/82.

Burrawang

Burrawang Farmers' Club and West Camden Agricultural Society.

The Hon. the Minister for Public Works,—

Sir,

Randwick, 7 July, 1882.

Will you kindly let me know, as early as possible, when it will be convenient for you to receive the deputation appointed by the Burrawang Farmers' Club and West Camden Agricultural Society on the matter of a trial survey of the proposed tramway from Moss Vale to Burrawang and Robertson, which is the subject of a Petition signed by 357 farmers, presented to you in January, 1881.

Your reply, stating the day and hour that the interview can take place, may either be sent per post or telegraphed to me to Burrawang *via* Moss Vale.

I have, &c.,

S. K. MILLER,

Hon. Secretary.

Sir,

Department of Public Works, Sydney, 15 July, 1882.

Referring to your letter of the 30th ultimo, I am directed to inform you that the Secretary for Public Works will receive the deputation from the Burrawang Farmers' Club and the Camden Agricultural Society on the subject of a trial survey of line of tramway from Moss Vale to Burrawang and Robertson on Friday next, the 21st instant, at 11:30 o'clock a.m.

I have, &c.,

JOHN RAE.

Mr. S. K. Miller, Secretary Burrawang Farmers' Club and West Camden Agricultural Society,
Burrawang.

Sir,

Department of Public Works, Sydney, 15 July, 1882.

Referring to your letter of the 10th ultimo, I am now directed to inform you that the Secretary for Public Works will receive the deputation from the Burrawang Farmers' Club and the Camden Agricultural Society on the subject of a trial survey of a line of tramway from Moss Vale to Burrawang and Robertson, on Friday next, the 21st instant, at 11:30 o'clock a.m.

I am, &c.,

JOHN RAE.

Thomas Garrett, Esq., M.P.

Railways for the necessary information,—J.R., B.C., 15/7/82. Mr. Cowdery, B.C., 18/7/82. An exploration has been made of this route, and particulars forwarded to Commissioner. I cannot at present spare a surveyor for the purpose of making a trial survey.—G.C., 18/7/82. Commissioner.

No. 11.

Telegram from The Hon. Secretary, West Camden Farmers' Club, to T. Garrett,
Esq., M.P.

17 July, 1882.

BURRAWANG deputation, *re* tramway, wait on Minister, Friday, 20th instant, 11 a.m.

Dear Rae,—

Let me know at once whether this is fixed for, or, if not, will it suit the Minister.

Yours, &c.,

THOMAS GARRETT.

Sir,

Department of Public Works, Sydney, 19 July, 1882.

Referring to Mr. Miller's telegram to you of the 17th instant, I am directed to inform you that I wrote you on the 17th instant intimating that the Secretary for Public Works would receive the deputation on the subject of a survey for a tramway from Moss Vale to Burrawang on Friday, the 20th instant, at 11 o'clock a.m.

I have, &c.,

JOHN RAE.

Thomas Garrett, Esq., M.P.

No. 12.

Mr. A. Osborne to The Secretary for Public Works.

Sir,

Barrengarry, Kangaroo Valley, 20 November, 1882.

I beg to call your attention to matters in connection with proposed tramway line from Moss Vale to Robertson.

In the first place the original Petition presented by the deputation was signed by a large number of residents at Kangaroo Valley and Kangaloon, on the grounds that the line would be constructed to suit the requirements of the whole of these districts, which will necessitate branches, if the present proposal from Moss Vale to Robertson is carried out, thereby causing a large expenditure in the working of the lines hereafter. I therefore request, in the interest of these districts and two-thirds of the people who signed the Petition, that a through line be surveyed and constructed from or near Bowral through Kangaloon, crossing the main range in a depression between Burrawang and Robertson's, thence by Wild's Meadows to the top of the Barrengarry Mountain, at which place it will be necessary to provide for a township. This line has an immense advantage over any other, and although a little more difficult to construct, the line will run through the centre of these rich farming lands, and will bring double the traffic to the railway than the route now proposed, thereby making the line a complete success financially and satisfying the whole of the districts concerned.

I would also call your attention to the fact that 80 per cent. of the traffic would be to Sydney, and as this will shorten the distance thereto by 6 or 8 miles than the detour through unproductive country to Moss Vale, is of itself sufficient evidence in favour of this route being approved of.

In conclusion, I have it from those most interested that a large majority of the people of Burrawang concur in this route as being more direct, bring double the traffic to the line, and satisfying the requirements of the original petitioners.

I therefore ask that a survey may be made of the route suggested as soon as practicable in the interests of the districts as a whole.

I am, &c.,

ALICK OSBORNE.

No. 13.

The Secretary, Bowral Vigilance Committee, to The Secretary for Public Works.

Honorable Sir,

Bowral, 23 January, 1883.

Some months ago your predecessor in office promised, in reply to a Petition sent in from a number of residents in this district, asking for a trial survey of a route for tramway—Bowral to Kangaloon and Robertson—that, as soon as an officer could be spared, one should be sent to make the survey; since that time nothing has been done in the matter. I would respectfully ask you in the name of the petitioners to see that the matter is attended to.

The Petition was sent down some time in the month of July.

Your attention will very much oblige.

Yours, &c.,

W. J. OSBORNE,
Secretary, Bowral Vigilance Committee.

I have the honor of forwarding the within request.—W. McCOURT, 24/1/83. Railways.—J.R. B.C., 27/1/83.

No. 14.

The Hon. Sec. Burrawang Farmers' Club, &c., to The Secretary for Public Works.

Railway from Moss Vale to Burrawang and Robertson.

Burrawang Farmers' Club and West Camden Agricultural Society,

Sir,

Burrawang, 31 January, 1883.

At a general meeting of the members of the above society, held on the 25th instant at the "Club Hotel," Burrawang, the subject of the light line of railway from Moss Vale to Burrawang and Robertson (which was promised by the Honorable John Lackey, late Minister of Public Works, in reply to a Petition signed by over 350 farmers), was considered, and it was unanimously resolved "that the honorary secretary of the society be instructed to write to the present Minister, and request that this important matter may receive his early and favourable consideration, that the promised survey of the proposed line of railway be at once proceeded with, and, as the necessary grant is on the Estimates of the late Ministry, it is confidently hoped that the work of construction will be commenced with as little delay as possible. The favour of an early and satisfactory reply in reference to the above matter is respectfully requested.

I have, &c.,

S. K. MILLER,

Hon. Secretary.

Recommended by Mr. Garrett, M.P., for the early and favourable consideration of the Minister.—T.G., 10/2/83. Railways.—J.R., B.C., 15/2/83. Put answer in Parliament to-day with this.—G.B., 20/3/83.

No. 15.

Questions and Answers.

LEGISLATIVE ASSEMBLY, 20TH MARCH, 1883.

LIGHT BRANCH RAILWAYS:—MR. BADGERY, for MR. GARRETT, asked the Secretary for Public Works,—

- (1.) Is it the intention of the Government to submit an estimate to cover the cost of a system of light line railways in connection with, and as feeders to, the existing main lines of railways?
- (2.) If so, will one of such lines be one from Moss Vale to the township of Robertson?

MR. STEWART answered,—Following up the intentions of our predecessors, this matter, with others, will be considered during the recess.

No. 16.

Minute by the Commissioner for Railways.

EXTENSION of Tramway, Moss Vale to head of Kangaloon Valley. Write to J. T. Mulligan. Send letter open care of Thos. Garrett, Esq., M.P.

CH.A.G., 21/4/83.

Sir,

Department of Railways, Sydney, 21 April, 1883.

With reference to your personal representations respecting the necessity for the construction of a tramway from Moss Vale to the head of the Kangaloon Valley, I have the honor to inform you that the question of the construction of this line will be considered with others, during the recess of Parliament.

I have, &c.,

CHAS. A. GOODCHAP,
Commissioner for Railways.

Mr. J. T. Mulligan.

In Mulligan's letter was a request for the Minister to see a deputation on the subject. Is this request to be complied with? Next Tuesday week will do.—THOS. GARRETT, 24/4/83. Approved.—A.S., 24/4/83. Appoint Friday week at 11, and inform Mr. Garrett.—J.R., 24/4/83. Railways.—J.R., B.C., 24/4/83.

Sir,

Department of Public Works, Sydney, 24 April, 1883.

In reply to your letter of this day, I am directed to inform you that the Secretary for Public Works will receive the deputation from those interested on the subject of construction of tramway from Moss Vale to head of Kangaroo Valley, on Friday, 4th proximo, at 11 o'clock.

I have, &c.,

JOHN RAE.

Thos. Garrett, Esq., M.P.

Mr.

Mr. Cowdery to say if he has any papers *re* the survey of lines by Kangaloon Valley. Mr. Surveyor Halligan, I think, surveyed route to Robertson. It seems to me that the route *via* Kangaloon Valley should have been surveyed. There is a large number of producers in this valley, and though the line would be a little longer to Robertson *via* the Valley, the increased traffic secured would pay for the extra cost.—CH.A.G., 27/4/83.

The line should start, if it goes to Kangaloon Valley, some 3 or 5 miles this side of Sutton Forest or Moss Vale.—CH.A.G., 27/4/83. An exploration only has been made between Moss Vale and Robertson *via* Joe Wild's Meadows and Burrawang. The route *via* Kangaloon Valley has not been explored.—G.C., 1/5/83. Commissioner.

As the tramway to Robertson is one of the lines in contemplation, the route *via* Kangaloon Valley should be explored and report made.—CH.A.G., 7/5/83. Mr. Cowdery. Mr. Hyndman to arrange early for Mr. Halligan to make an exploration of the route referred to by Commissioner.—G.L., 8/5/83. Mr. Hyndman.

Mr. Halligan instructed.—R.H.H., 10/5/83. Mr. Cowdery.

No. 17. Petition.

Kangaloon Valley, 22 March, 1883.

To the Honorable the Minister for Works,—

The Petition of the inhabitants of Kangaloon Valley and district, praying that a line of light railway be constructed to the top of the Barrengarry Mountains.

SHOWETH:—

From the undermentioned statements the absolute necessity for the construction of a line of light railway to the top of the Barrengarry Mountains,—

1. That the population of Kangaloon Valley is over 1,000 at present, and rapidly increasing.
 2. That the inhabitants are principally employed in dairy farming and other agricultural pursuits, and that a very large quantity of produce is sent out, viz., some 500 kegs of butter, 300 pigs and calves, besides other produce, weekly, and that, if a proper means of transit was available, a large supply of milk would be sent to the Sydney market.
 3. The district is an exceedingly fertile one, and produces fruit and grain in great quantity and abundance.
 4. The general merchandise imported and exported into and from Kangaloon Valley exceeds 30 tons per week.
 5. The passenger traffic from Moss Vale is very great, and hundreds of persons are continually visiting the Fitzroy Waterfalls.
 6. The immense quantity of valuable timber growing upon the Crown lands adjacent to the proposed line would cover a large proportion of the cost of construction, and the said Crown lands are also very rich in minerals.
 7. That the inhabitants of this and the surrounding district are suffering great loss and inconvenience on account of there not being no proper means of conveyance for their produce to Sydney.
- And your petitioners, as in duty bound, will ever pray.

ALICK OSBORNE, J.P.,

and 500 others.

Railways.—J.R., B.C., 12/5/83.

No. 18.

Mr. T. Blencowe to The Secretary for Public Works.

Sir,

Wild's Meadows, Burrawang, 16 May, 1883.

I wish to call your attention to the proposed tramway, or the now substituted light railway line from Moss Vale to Robertson. I have been sent as a delegate on three different occasions to wait on the Minister for Works in reference to this line, and was first to propose the line in question at a public meeting held at Burrawang. I have been a resident of this parish for the past twenty years, and claim to have a good knowledge of this part of the district; and as the present Government is now in recess, and preparing their railway policy for next Session, I feel a responsibility on this matter; and as I have the present and future welfare of the district at heart, I ask patiently to be heard on this subject.

I beg to call your attention in the first place to the route of line. You will remember that, originally, it was intended to construct the tramways on the main lines of road. This was the policy avowed by your predecessors in the first instance, but it was afterwards discovered that trams were unsuitable for goods and heavy traffic. Light railways were then substituted. Now, my resolution asking for this line was based on the tramways running on the lines of road, as your predecessors had stated; but as the policy has been changed to light railways, if a better route, more suitable to the requirements of the district, and that will pay at the least 400 per cent. more than the line first proposed, it will be infinitely better for the district and the country to adopt this line of route in preference to the originally proposed line.

My proposal, as amended, is to construct a branch line from or near Bowral to Kangaloon; thence through the range between Burrawang and Robertson to Wild's Meadows, with the terminus at Barrengarry Mountain.

I will now deal with the leading features of this line. Commencing at Bowral, the first 5 miles would skirt the foot of the Mittagong Range, and is good pastoral land. The farmers are chiefly engaged in dairying pursuits, and grow large quantities of potatoes, &c., for local and Sydney markets; but the special features are the immense quantities of iron ore found in the range and spurs, forming an item of prospective value beyond calculation. The next 4 miles is through thickly-populated country to Kangaloon, laid down in rye-grass and clover, from which the best dairy produce is sent to Sydney; thence

thence crossing the Wingecarribe Swamp. The embankment across the swamp would serve to make a large fresh-water lake above, while below the land is of the best description for dairying purposes. The next 7 miles is through splendid land and densely populated, the land all laid down in artificial grasses; and capable of growing anything grown in a cold climate. The last 2 miles is poor sandstone country to the Kangaroo Valley Road, on top of Barrengarry Mountain, and most of it is reserved from sale. The terminus would be suitable to lay out a township, as it is Government land. Kangaroo Valley immediately adjoins the terminus at a depth of 1,800 feet. In the valley and the sides of the mountains are large numbers of people engaged in farming and dairying pursuits, who, I safely estimate, would contribute one-third the traffic on the line in question. Immediately to the terminus the mountains are broken down in perpendicular cliffs, and have revealed splendid seams of coal, said to be of good quality.

I wish especially to call attention to the vast mineral wealth on this route. Abundant coal at the terminus, with unlimited quantities of iron ore at the Bowral end, with one of the thickest-peopled localities in the Colony on the central part of the route, will make this line, if constructed, one of the most attractive and payable in the Colony. The charming scenery in which this district is unrivalled, with the magnificent Fitzroy Falls and Belmore Falls within 2 miles of the line, the bracing atmosphere and healthy climate, will bring, ere long, large numbers from Sydney, who already recognize this district as the grandest summer climate in New South Wales.

With regard to the originally proposed route from Moss Vale to Robertson, the first 8 miles is through second-class pastoral country, not capable of contributing much produce or traffic on the line, as population is scant, and the soil is too poor for farming or dairying purposes. The next 8 miles is through splendid land, thickly populated, as already described in the Bowral route. The two lines would intersect each other about the centre of the 8 miles, or (say) 3 miles west of Robertson. This line, instead of intersecting the ranges, would run between them, thereby accommodating only about one-third of the district, and, if constructed, will not pay interest on cost alone. There are interested parties at Moss Vale, Burrawang, and Robertson, who favour this line. The reasons are simple enough. Moss Vale is jealous of Bowral becoming the leading place, Burrawang because the Bowral route would take it from their property, and Robertson because the terminus would not be there. But is the district to be sacrificed to these factions? Are the Kangaroo Valley people and Kangaloon to be sacrificed, and the immense mineral stores of wealth to lay undeveloped for ever, because these miserable selfish people want to especially benefit themselves at the sacrifice of the district and expense of the country?

In conclusion, sir, I am satisfied I have done my duty in calling your attention to this matter, and have not the slightest objection to any one seeing this paper; as my object is the good of the district at large, and not private individuals, for their especial benefit.

All I ask is that Ministers, if possible, and officers will thoroughly inspect this amended route and obtain all the information possible from all sources in this district before committing themselves to any scheme, and that the best route for the district as a whole may be approved and constructed.

I remain, &c.,

THOS. BLENCOWE.

Acknowledge receipt, and say that prior to the receipt of his communication directions had been given for a survey of a route from the neighbourhood of Bowral *via* Kangaroo Valley to Robertson, and that I am glad to see, by the valuable information afforded in his letter, that it is more than probable that the survey will result in the adoption of a really good route.—CH. A. G., 27/5/83.

No. 19.

Minute by Mr. Surveyor Halligan.

Mr. Armstrong,—

Railway Department, Sydney, 1 June, 1883.

WILL you please let me have papers relating to Bowral and Kangaloon tram-line, as I wish to affix my report, &c.

G. M. HALLIGAN.

Papers herewith, but return them at once, as they are wanted by Commissioner.—G.L., 6/6/83.
Mr. Hyndman. Mr. Halligan's report herewith with plan.—R.H.H., 8/6/83. Mr. Cowdery.
Forwarded to the Commissioner with plan.—G.L., 12/6/83.

District Engineer's Office, Sydney, 7 June, 1883.

R. D. Stephens, Esq., District Engineer, Goulburn,—

Sir,

I have the honor to report that, acting on instructions, I proceeded to Bowral to report on the practicability of constructing a tramway from Bowral to Robertson *via* Kangaloon, and beg to submit the following.

Before describing the various routes suggested to me by the different people interested in the district, and by the Vigilance Committee of Bowral, I beg to call your attention to the accompanying plan, which shows most of the roads, creeks, and places of importance in the district. Each route is lettered distinctly to catch the eye:—

1. The first route is the road from Bowral to Kangaloon and Robertson, shown A, B, C, L, D, N, H. This route is altogether too rough for a tramway, it being (after leaving C) a succession of hills and valleys.
2. This route starts from Bowral (A) and follows main Kangaloon Road to C, thence it follows dotted blue line to D, M, and H (Robertson). From C to D is very flat and construction easy, but the remainder is very rough and passes almost entirely through private farms—length, 15 miles.
3. This route starts from Bowral as before, and follows main road to Kangaloon to point L; from thence along road to P and to H, continuing on from H to F and E, and terminating at Moss Vale, making a complete horse-shoe, and connecting Bowral, Robertson, and Moss Vale. The total length is about 35 miles. The portion of this route from C to L, P, and H is very rough, and line could not be constructed on main road without spoiling road with cuttings and embankments.

4. This route is the same as others from Bowral to point C; from thence *via* dotted blue line to D; thence along Sheepwash Road (crossing Wingecarribee River) to point E; thence to F and along main road to H (Robertson)—length about 15 miles. This route is undoubtedly the easiest to construct, and I also think will meet the requirements of the greater portion of the inhabitants of the district. If a line be constructed from Moss Vale direct to Robertson then the inhabitants of Kangaloon will be left out entirely. In the same way, if a line be constructed from Bowral to Kangaloon the people of Burrawang and Yarrunga, Wild's Meadows, &c., will be left out. A line cannot be constructed from Bowral to Robertson *via* Kangaloon without great expense.

As there are other suggestions likely to be made every day about leaving out Robertson and carrying line on to Kangaloon Valley and Barrengarry Mountains, I beg to state that my instructions were to report on a line of route from Bowral or Burradoo to Robertson, and in recommending one for your favourable consideration I call your attention to route A, B, C, D, E, F, H, as being the cheapest to construct, and I believe the most central for all parties, and the most remunerative to the Crown.

All the routes mentioned can start from Bowral (A) or Burradoo (K). A to B being shorter than K to B by a quarter mile. I think if it be determined the line terminus be on the north of the Wingecarribee River, the Bowral should be the terminus in preference to Burradoo, as Bowral is 2 miles nearer Sydney and will save $2\frac{1}{2}$ miles haulage, and is an established town, whereas Burradoo is nearer a railway platform.

I have, &c.,
E. C. HALLIGAN.

No. 20.

T. Garrett, Esq., M.P., to The Secretary for Public Works.

Sir,

I have the honor to enclose for your consideration a communication from the hon. secretary of the Burrawang Farmers' Club, as to the position of the question in your Department regarding the proposed line of railway or tramway from Moss Vale to Burrawang and Robertson.

Petitions have been presented, deputations received, flying surveys and plans prepared and submitted, and what the society whom the writer represents wishes to know is what do the present Government intend to do in the matter. An early answer will oblige.

Yours, &c.,
THOMAS GARRETT, 16/7/83.

Mr. Whitton for report.—F.A.W., 16/7/83. Mr. Garrett states that a survey has been made; if so, nothing is known of it in this Department.—J.W., 20/7/83. Under Secretary for Public Works. Railways.—J.R., B.C., 17/7/83. There was a survey made for tramway. There are a large number of papers on the subject. Obtain.—CH.A.G., 24/7/83.

[Enclosure.]

Burrawang Farmers' Club and West Camden Agricultural Society.

Thos. Garrett, Esq., M.P.,—

Dear Sir,

Burrawang, 13 July, 1883.

At a large meeting of the members of the above society, it was unanimously resolved to ask the Members of the district to urge the following matters upon the Minister to whose Department they severally belong, viz. :—

1st. That the hon. secretary write to the Members to wait on the Minister of Works and ascertain what has been done, or what is intended to be done in the matter of the promised line of railway from Moss Vale to Burrawang and Robertson, and the survey of same line by the present Government, and if it is found that nothing further is done or intended to be done, to withdraw the Petition from the office of the Minister for Public Works, and carry same into Parliament as soon as it again assembles, and also then call for all papers, documents, correspondence, &c., to be laid on the Table of the House in reference to same, with a view to support our claims to this work, and obtain something definite in the matter. It was stated at the above meeting by one of the Members that he waited on Mr. Wright, the Minister, and he said he knew nothing whatever of the matter.

I am, &c.,
S. K. MILLER,
Hon. Secretary.

No. 21.

Mr. A. M'Niven to The Hon. Secretary, Farmers' Club, Burrawang.

Sir,

Barrengarry, Kangaloon Valley, 20 July, 1883.

I am instructed by the Kangaloon Valley Progress Committee to inform you, that some time ago a deputation from this district waited on the Minister for Works, with the view of having the tramway extended to the top of Barrengarry Mountain, in the event of its coming to Burrawang, and a promise to that effect was given by the Minister.

I am, therefore, requested by the committee to state that the inhabitants of Kangaloon Valley are desirous of co-operating with the residents, Burrawang, in urging the necessity of steps being taken for the immediate construction of this line, but that we advocate no particular route.

I have, &c.,
A. M'NIVEN,
Hon. Secretary.

No. 22.

T. Garrett, Esq., M.P., to The Secretary for Public Works.

Sir,

21 July, 1883.

I am desired by the members of the Burrawang Farmers' Club to ask you to be pleased to name a day when it will suit your convenience to receive a deputation of the members of the club, to urge the early extension of a light railway or tramway from Moss Vale to Robertson *via* Burrawang, which has formed the subject of correspondence and deputations for some time past.

I have, &c.,
THOMAS GARRETT.

Will Mr. Ford fix the hour for Friday next?—F.A.W., 21/7/83. Railways.—J.R., B.C., 24/7/83.

Sir,

Sir, Department of Public Works, Sydney, 23 July, 1883.
I am directed to inform you, in reply to your letter of the 21st instant, that the Secretary for Public Works will receive the deputation on the subject of a light railway from Moss Vale to Robertson *via* Burrawang, on Friday next, the 27th instant, at 12:30 o'clock p.m.

Thos. Garrett, Esq., M.P.

I have, &c.,
JOHN RAE.

No. 23.

Minute by The Commissioner for Railways.

THE railway or tramway to Robertson should go, in my opinion, by the Kangaloon Valley or near it. It is in that valley that the greater proportion of the traffic will be found.

If the line goes direct from Moss Vale to Robertson, the Kangaloon Valley will be left out altogether, and if it is taken by the Kangaloon Valley, Burrawang will be left out. A compromise might be effected by taking the line from Bowral by the line marked A, B, C, D, E, F, H, to Robertson, and this will benefit in some degree both Kangaloon Valley and Burrawang.

CH.A.G., 24/7/83.

No. 24.

Minute by The Secretary for Public Works to The Engineer-in-Chief.

Extract from M.P. 83/3,327.

THE Minister for Works' (Hon. F. A. Wright) instruction to make a trial survey for a light line of railway, Bowral to Robertson *via* Burrawang. August, 1883.

No. 25.

Mr. S. K. Miller to T. Garrett, Esq., M.P.

Burrawang Farmers' Club and West Camden Agricultural Society.

Dear Sir,

Burrawang, 24 August, 1883.

At an adjourned meeting of the members of the above society, when yours and Mr. McCourt's letters were warmly discussed, having reference to the trial survey authorized by the Minister for Public Works, for a light line of railway from Bowral to Robertson *via* Burrawang, I was instructed to ask the Members of the district to see the Minister and urge him to have a survey made of the line he promised to the late deputation, from Burradoo or Austermere to Burrawang (at the foot of the hill at Barrett's Steam Saw-mills), which branches from this point to Robertson and also from the same point to Wild's Meadows, and to the Barrengarry Mountain.

Yours, &c.,

SAMUEL K. MILLER,

Hon. Sec.

Inform Mr. Garrett that it is quite impossible to have the survey asked for made for many months to come. There are already three surveys made in this district, and I have now a fourth one in view of the fact.—F.A.W.

No. 26.

T. Garrett, Esq., M.P., to The Secretary for Public Works.

Sir,

7, Gresham-street, 27 August, 1883.

On behalf of my colleague and myself, I have the honor to enclose a letter from the Secretary of the Burrawang Farmers' Club, urging that when the officer of your Department is sent or instructed to survey the light railway from Bowral to Robertson *via* Burrawang, that he should also be instructed to survey a line from about Burradoo or Austermere to Burrawang, with branches from the latter place to Robertson and *via* Wild's Meadows to the top of Barrengarry Mountain, so as to establish the Kangaroo Valley and south coast traffic.

Hoping that this very reasonable request may meet with your approval,—

I am, &c.,

THOMAS GARRETT,

(For self and Mr. McCourt, M.P.)

That trial survey now ordered will take time—twelve or eighteen months—to complete, and therefore I cannot grant the additional one asked for.—F.A.W., 28/8/83.

No. 27.

The Assistant Engineer for Trial Surveys to Mr. G. L. Wilkins.

22 October, 1883.

You may now proceed with your party to Bowral on the Southern Railway, and may make a trial survey from that place to Robertson *via* Burrawang.

Report when you will be there, and I will forward to you, addressed post office, Bowral, a county map of the district, on receipt of which you will please examine the country, and report before commencing the survey on the route you may propose to adopt for trial survey.

HERBERT PALMER.

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No. 28.

M. G. L. Wilkins to The Engineer-in-Chief.

Sir, Railway Survey Camp, Bunyan, near Cooma, 24 October, 1883.
 With reference to your letter No. 83-368, I have the honor to state that I shall be at Bowral
 on the 27th instant. I have, &c.,
 G. L. WILKINS.

No. 29.

The Assistant Engineer for Trial Surveys to Mr. G. L. Wilkins.

26 October, 1883.
 UNDER separate cover I have forwarded to you to the above address a map of the county of Camden.
 You may proceed without delay to examine the country between Bowral and Robertson, and may
 report on the route you consider the most suitable for a trial survey from Bowral to Robertson *via* Burra-
 wang, returning at the same time the county map, on which you should sketch, as nearly as practicable,
 the route you propose to survey.

HERBERT PALMER.

No. 30.

The Assistant Engineer for Trial Surveys to Mr. G. L. Wilkins.

3 November, 1883.
 You may proceed with the trial survey from Bowral to Robertson by the route recommended by you in
 your report, dated the 2nd instant. I will forward to you without delay tracings of plan and section of
 the Southern Railway, near Bowral, to enable you to show the junction on your plan of trial survey.

HERBERT PALMER.

No. 31.

The Assistant Engineer for Trial Surveys to Mr. G. L. Wilkins.

6 November, 1883.
 UNDER separate cover I have forwarded to you a tracing from the 10-chain plan of the Southern Railway,
 near Bowral, which you will be able to transfer on the commencement of your plan of trial survey,
 Bowral to Robertson; also a tracing from the working section from the Gibraltar Tunnel to Burradoo,
 from which you will be able to obtain the correct reduced level of the rails at your point of junction.

HERBERT PALMER.

No. 32.

Mr. G. L. Wilkins to The Engineer-in-Chief.

Sir, Railway Survey Camp, near Bowral, 10 November, 1883.
 I have the honor to request that the following may be forwarded for use on Bowral to
 Robertson trial survey:—

Two level-books.
 Two field-books.

Plan of roads between Bowral and Robertson *via* Burrawang, would also be useful to show on the
 plan of above trial line shortly to be forwarded.

I have, &c.,
 G. L. WILKINS.

No. 33.

The Assistant Engineer for Trial Surveys to Mr. G. L. Wilkins.

13 November, 1883.
 I FIND there is no through plan of the Bowral and Robertson Road that would be of use to you, and
 this being so short a length it will occupy but little time to traverse and plot this road on your plan,
 where it is sufficiently near to the centre line of your trial survey to render it necessary that it should
 be shown.

HERBERT PALMER.

No. 34.

Mr. G. L. Wilkins to The Engineer-in-Chief.

Sir, Railway Survey Camp, near Bowral, 1 December, 1883.
 I have the honor to report progress made with trial survey, Bowral to Robertson *via* Burra-
 wang, November, 1883.

The reconnaissance survey was finished and reported on early in the month, and instructions
 received for trial survey to be made on route examined.

Leaving the Southern Railway near Bowral the trial line traverses undulating downs until reach-
 ing the Wingecarribee stream, at 2 miles 30 chains, marshy ground prevailing on the southern side of that
 river for half-a-mile; thence to the end of the present work (7 miles) a very easy line of country, only
 requiring light cuttings and embankments.

Before adopting the above line for survey the alternative plan of keeping on the north bank of the
 river was examined so as to defer crossing for 3 miles and avoid all marshy ground, but it was found that
 the line would thereby be lengthened 1 mile, besides having a worse section and many curves. There
 remains about one-half, or 7 miles, of this survey to be completed. Camp will be moved to Burrawang
 early in December.

I have, &c.,
 GEORGE L. WILKINS.

No. 35.

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No. 35.

Mr. G. L. Wilkins to The Engineer-in-Chief.

Sir, Railway Survey Camp, Burrawang, 7 December, 1883.
I have the honor to request that all letters for me may be forwarded to the above address in future. I have, &c.,
G. L. WILKINS.

No. 36.

Mr. G. L. Wilkins to The Engineer-in-Chief.

Sir, Survey Camp, Burrawang, 3 January, 1884.
I have the honor to report progress made with trial survey, Bowral to Robertson *via* Burrawang, for the month of December, 1883.
The survey has been completed as far as the town of Burrawang, with all necessary traverses. Plan and section have been plotted thus far.
The road between Robertson and Burrawang has been traversed and roughly levelled, and the trial line marked for about 1 mile.
Owing to the dense bush prevailing for the greater portion of the route progress has been slow.
There now remains about $3\frac{1}{2}$ miles of this survey, which may be expected to be finished about the 10th instant. I have, &c.,
G. L. WILKINS.

No. 37.

Mr. W. McCourt, M.P., to The Secretary for Public Works.

Sir, Moss Vale, 10 January, 1884.
I write to ask if you would kindly receive a deputation from this district on Friday, 25th January, concerning the survey, &c., of routes of railway between Robertson and Southern Railway. Yours, &c.,
W. McCOURT.

No. 38.

The Assistant Engineer for Trial Surveys to Mr. G. L. Wilkins.

14 January, 1884.
On completing your trial survey from Bowral to Robertson you may forward, without delay, the plan, section, book of reference, field and level books, &c., after which you may proceed with your party to Goulburn to take up one of the alternative trial surveys to Crookwell, viz., from the Sydney side of Goulburn to Crookwell, with branch to Taralga. HERBERT PALMER.

No. 39.

Mr. G. L. Wilkins to The Engineer-in-Chief.

Trial Survey, Bowral to Robertson *via* Burrawang.
Sir, Railway Survey Camp, Burrawang *via* Moss Vale, 14 January, 1884.
I have the honor to report that the field-work of above survey is now completed. Plan and section will be forwarded to-morrow. I have, &c.,
G. L. WILKINS.

Mr. Palmer.—W.H.Q., 15/1/84. Instructions were sent to Mr. Wilkins yesterday to proceed to Goulburn on completion of his present work, to survey one of the alternative routes to Crookwell and Taralga.—H.P., 15/1/84.

No. 40.

Mr. G. L. Wilkins to The Engineer-in-Chief.

Sir, Goulburn, 19 January, 1884.
Under separate cover I have the honor to forward level-book and field-book of trial survey, Bowral to Robertson. I have, &c.,
G. L. WILKINS.

No. 41.

Mr. G. L. Wilkins to The Engineer-in-Chief.

Sir, Railway Survey Camp, near Goulburn, Post Office, Goulburn, 22 January, 1884.
With regard to book of reference for trial survey, Bowral to Robertson *via* Burrawang, I have the honor to inform you that owing to absence of land plans and difficulty of obtaining information on the ground, I did not satisfactorily complete this branch of the work.
If approved, I will proceed to the locality on the 26th instant, and obtain the necessary information. A tracing of trial survey would expedite the work, besides making references clear. I have, &c.,
G. L. WILKINS.

No. 42.

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No. 42.

The Assistant Engineer for Trial Surveys to Mr. G. L. Wilkins.

24 January, 1884.

WHEN making the trial survey from Bowral to Robertson you must have been aware that a reference to the plan would be required.

Your statement that the difficulty in obtaining information on the ground as to ownership prevented your supplying this information can hardly be considered a satisfactory one when you suggest that by returning to the district for one day, viz., the 26th, you would be enabled to obtain the necessary information.

On the completion of your present survey you may, on your way to Sydney, collect the information required.

HERBERT PALMER.

No. 43.

The Secretary for Public Works to The Engineer-in-Chief.

Trial Survey, Moss Vale to Robertson.

A DEPUTATION, accompanied by Messrs. Garrett, McCourt, and Humphery, waited upon me to-day to ask for a trial survey from Robertson to Moss Vale. The advantages of such line are set forth in the Petition enclosed. I promised to send an officer up to examine the country and would place him in possession of previous papers on the subject in regard to proposed routes. I would obtain a report from the officer entrusted with the survey as to which was the most practicable route, and would be guided by his opinion in the matter.

F.A.W., 25/1/84.

Will Engineer-in-Chief send some person up to examine and report upon this country.—F.A.W. 25/1/84. Mr. Palmer.—W.H.Q., 6/2/84.

Mr. Bell proceeds to Moss Vale to-day to make the required examination of the country from Moss Vale to Robertson *via* Yarrunga, Wild's Meadows, and Burrawang. Mr. Bell takes with him the plan and section of survey already made between Bowral and Robertson, which will enable him to compare the two routes, and he will report on his return to Sydney.—H.P., 26/2/84. The Engineer-in-Chief.

No. 44.

Mr. G. L. Wilkins to The Engineer-in-Chief.

Sir,

Survey Camp, near Goulburn, 1 February, 1884.

I have the honor to report progress made with the trial surveys, Bowral to Robertson and Goulburn to Crookwell, for January, 1884.

The former survey was completed on the 15th, and plan and section forwarded to you.

In commencing trial survey Goulburn to Crookwell *via* Woodhouselee, the ground was thoroughly examined for the best route from the junction with the Great Southern Railway, at 130 miles 24'30 chains to the northern boundary of the Norwood Estate.

The centre line has been staked between these points, and the section will probably show an even ascent of about 350 feet for 6 miles.

Before leaving the locality a deviation of about 2 miles will be required to obtain, if possible, a better crossing of the Wollondilly River.

I have, &c.,

G. L. WILKINS.

No. 45.

The Assistant Engineer for Trial Surveys to The Engineer-in-Chief.

Sydney, 15 February, 1884.

ATTACHED is a tracing for the Lands Department, showing the centre-line of the trial survey lately made from Bowral to Robertson, for the purpose of dealing with reserves.

HERBERT PALMER.

No. 46.

The Assistant Engineer for Trial Surveys to The Engineer-in-Chief.

Sydney, 26 February, 1884.

I HAVE instructed Mr. Bell to proceed this evening to Moss Vale to make an examination of the country, as directed by the Minister for Works, between Moss Vale and Robertson. I have to recommend that, while on this work, he may be allowed £1 per diem for expenses in lieu of equipment allowance.

HERBERT PALMER.

Appd.—J.W., 27/2/84.

No. 47.

Mr. W. R. Bell to The Engineer-in-Chief.

Report on routes for proposed Railway, Bowral or Moss Vale to Robertson.

Sir,

Trial Survey Office, Railway Department, Sydney, 12 March, 1884.

On the 26th February I received instructions from the Engineer in Charge of Surveys to ^{Instructions.} proceed to Moss Vale, examine the district towards Robertson, and report upon the most suitable route for a railway connecting Robertson with the Great Southern Railway.

Having

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Having made the examination and devoted considerable time to inspecting the districts to be served by the proposed railway, I have the honor to report as follows:—

Description of country.

The township of Robertson, about 14 miles east of Moss Vale, lies on an elevated plateau, and is approached from the Southern Railway at Moss Vale and Bowral by the Burrawang and Kangaloon Ranges, between which lie the Wingecarribee Swamp and the Bong Bong River. These two ranges are covered with extensive tracts of rich chocolate soil, eminently adapted for dairy farming, and this good land extends 3 or 4 miles past Robertson, gradually getting poorer however. Around Robertson settlement is not so advanced as in the more westerly parts of the district.

Opposite the west end of the Wingecarribee Swamp the ranges die out about 5 or 6 miles from the Southern Railway, and are succeeded by grazing country.

On the Burrawang Range, 10 miles from Moss Vale, lies the private township of Burrawang, through which the line already surveyed from Bowral to Robertson passes. Three-quarters of a mile southward, at the foot of the hill, is the head of Joe Wild's Meadows, formerly a swamp fed by the Meadows Creek from the southern slope of the Burrawang Range. This meadow is now occupied by dairy farms; it runs out towards the Fitzroy Waterfall, a favourite of pleasure-seekers, and is crossed at its lower end by the road from Moss Vale to Shoalhaven and Broughton Creek, and is bounded on east and west by fertile ranges. The Shoalhaven Road, 3 miles after passing Wild's Meadows, descends the Barrengarry Mountain by a road 4 miles in length and falling more than 1,500 feet into the Kangaroo Valley.

This is the most important district in the neighbourhood, and comprises Kangaroo, Barrengarry, Broger's, and Cambewarra Creeks, and the district round Bendiea. Up each of these creeks are large tracts of fertile land, a great portion of which has been cleared of brush and dense scrub, and is occupied by dairy farms of from 40 to 100 acres and upwards. The tenure is largely freehold, and the land is already selected on the hillsides up to the foot of the cliffs. The climate is very mild, and the settlers could thus keep up the supply of produce throughout the winter, when the upland pastures were unproductive.

Between Wild's Meadows and Moss Vale is the parish of Yarrunga, containing the settlement of Manchester Square. The land is in small farms, but the soil is not so fertile as in the districts already described.

Description of route existing survey.

There is already a railway-line surveyed direct from Bowral to Robertson. Starting from the Great Southern Railway near the former place it runs in a south-easterly direction for $2\frac{1}{2}$ miles, where it crosses the Bong Bong River in a flat half-a-mile across, and subject to floods upwards of 6 feet deep. Continuing in the same direction through pastoral land it crosses the Moss Vale and Robertson Road about $7\frac{1}{2}$ miles from Bowral, and begins to ascend the Burrawang Range, keeping on the north side of the ridge until at $11\frac{1}{2}$ miles it crosses a saddle, whence it continues on the south side of the road and ridge to near Robertson, which it enters on the south-west. It passes through Burrawang township at 10 miles, and the summit is reached at $12\frac{1}{2}$ miles from Bowral.

The districts it serves are the Burrawang Range, Robertson, and through it East Kangaloon, while the West Kangaloon people would meet it about 6 miles from Bowral. The Wild's Meadows settlers would have to either travel uphill to Burrawang (at 10 miles), or go out to meet the line on the level, at the crossing of the Moss Vale Road, 7 miles from Bowral. The Kangaroo Valley and Manchester Square traffic would be entirely cut off.

Accommodation of districts. Kangaloon.

The various districts would be accommodated as shown hereunder.

Kangaloon is completely cut off by Wingecarribee Swamp from communication with Burrawang direct; East Kangaloon has, therefore, an outlet by Robertson, the country falling in that direction, while West Kangaloon, sloping towards Bowral, would be accommodated only at the "Sheepwash" by the line as now surveyed; but considering the short distance saved and the extra mileage to Bowral, it is doubtful whether the western settlers would avail themselves of the branch line.

In deciding therefore upon the route for a railway to Robertson, Kangaloon interests must be set aside, as nothing less than a railway through Kangaloon would serve the country properly, and the district is too rough and too circumscribed to justify the construction of a line.

Burrawang Hill.

The Burrawang Range is best served by the surveyed line, but the district is too small of itself to make a railway pay, there being actually only half-a-mile to a mile of land between the surveyed line and Wingecarribee Swamp, the virtual boundary on the north, whereas all the other districts lie to the south of the line, and to reach it would have to come uphill.

A line by Wild's Meadows would give the settlers three-quarters of a mile more to carry their produce, but as this is downhill, and as no part of the Burrawang District would be 2 miles from such a line, they would have nothing whatever to complain of.

Wild's Meadows.

Their objections to such a line resolve themselves into a fear that the present township would be hurt, and that stores would have to be brought three-quarters of a mile uphill.

Of Wild's Meadows and the districts between Burrawang Hill and the Shoalhaven (Kangaroo Valley) Road, the centre is about $2\frac{1}{2}$ miles from the surveyed line, and the carriage is uphill, whereas the proposed line would not be more than 2 miles from the centre, and would meet the traffic on the flat.

Kangaroo Valley

At present there are two modes of exit from Kangaroo Valley by which produce is brought out. The one is *via* Barrengarry Mountain to Moss Vale, about 20 miles from the valley township, and the other is over the mountains to Broughton Creek, about 16 miles.

At Broughton Creek the exports, consisting of butter, eggs, fowls, pigs, and cedar are shipped on a small steamer for Shoalhaven, where they are again transhipped to the coasting steamers. By this route there is great loss and deterioration, as after the heavy journey up and down the mountain the produce is much knocked about and delayed in the several transshipments. One item of produce, *viz.*, calves, cannot be transported either *via* Broughton Creek or Moss Vale, and farmers have consequently to destroy large numbers which might otherwise be a source of profit.

In coming out of the valley *via* Moss Vale, there is only one hill to climb, but the distance is such that the double journey cannot be performed in one day. The settlers in the valley were unanimous in stating that their wants would be well satisfied by any line that came sufficiently near the top of the hill on the flat, so that each man could take out his produce by his own vehicle and return to the valley the same day.

This would be accomplished by a line at the upper end of Wild's Meadows, but the valley traffic could not be counted upon if, in addition to the long carriage up from Barrengarry, the carts had to climb another

another hill at the end. It is a matter for consideration how much of the traffic would be diverted from such a line by the completion of the Illawarra Line to Shoalhaven, but so important is the valley traffic that it might even be advisable to lengthen the proposed line by going so far down Wild's Meadows in order to bring it nearer to the Valley Road, and also to accommodate visitors to the Fitzroy Falls, which at holiday times are visited by great numbers of people.

One of the largest landowners in the valley has at present to devote a large part of his land to fattening cattle, whereas, were there better facilities for getting to market, he would lay it out in dairy farms. There is always a great amount of clearing going on, which will greatly increase the traffic in the district as the land is brought into use.

The Yarrunga and Manchester Square settlers would be accommodated only by a line from Moss Vale ^{Yarrunga.} *via* Wild's Meadows.

There are three practicable routes other than the line at present surveyed; they would unite before ^{Proposed new routes} reaching Wild's Meadows, which would be passed on the level ground, they would have easier gradients and a considerably lower summit level than the present line.

- 1st. Leaving Bowral by the line already surveyed, and following it for 7 miles, then bearing to the south so as to get on to the southern side of the Burrawang Range on E. Shipley's section of 378 acres, then keeping up to the head of Kelly's Creek through Stagg's 237 acres to water reserve where Meadows Creek crosses Wild's Meadows Road; keeping thence on the slope of Burrawang Range up the Meadows Creek to the saddle on William Hanrahan's land at head of the creek; thence in to Robertson nearly on the line of the existing survey.
- 2nd. Starting from Austermere, on the Great Southern Railway, keeping round the bend of the Bong Bong River, crossing the western boundary of Throsby's 4,000 acres, about 30 chains from the southern corner; thence straight to meet the first proposed line in Shipley's 378 acres; thence *via* top of Wild's Meadows to Robertson as before.
- 3rd. Starting from the Great Southern Railway, 20 or 30 chains to south of Moss Vale Station, and keeping up White's Creek; thence bearing eastwards through the 1,000 acres, originally Chas. Throsby's, along the southern side of the watershed separating the Bong Bong basin from that of the Meryla to a point about a mile to the north of Yarrunga School, where the selections of Messrs. T. Seery, Bath, and Hayter adjoin; thence keeping up by Kelly's Creek and joining the first proposed route between Shipley's and Stagg's land, whence it is continued *via* Wild's Meadows to Robertson as previously described.

The three proposed routes coinciding from near Shipley's 378 acres to Robertson the advantages of ^{Comparison of new routes} that portion over the surveyed route are:—It is more in the centre of the district, and from that part whence the line is diverted the traffic is downhill. The rise does not commence until after leaving Wild's Meadows, and the gradients up to Robertson are easier, the summit level being nearly 100 feet lower than on the present survey. There is a good permanent supply of water in the Meadows Creek.

- 1st. Of the portions of the proposed routes before they unite, the advantages of the first running on the surveyed line to Bowral are that it will save 6 miles of carriage on Sydney traffic over a line starting from Moss Vale, and it will partially serve West Kangaloon. The disadvantages are the scantiness of the population and the liability of the Bong Bong River to floods.
- 2nd. The second route starting from Austermere will avoid the Bong Bong River entirely, and will save 2 miles on the Sydney traffic over the Moss Vale route. On the other hand, the junction is away from a township, and the population for the first 8 miles from the Southern Railway is scattered.
- 3rd. The line to Moss Vale has the advantage of joining the main line near the township, which at present is the chief place in the district, and it also serves the Yarrunga residents. It is carried for some distance on the watershed, and thus avoids gullies and creeks. The only disadvantage is that the distance towards Sydney is 6 miles longer than *via* Bowral.

It therefore appears that the most payable line would be one from Robertson down the south side ^{Recommen-} of the Burrawang Range, past Wild's Meadows, and that the most suitable junction would be at Moss Vale, unless the saving in mileage on the other routes would override other considerations. It would be necessary to open a road along the side of Wild's Meadows to enable the Kangaloon Valley traffic to come from the head of the mountain to the railway on the level, as the present road runs on the top of a range.

The lengths of all the routes do not differ greatly, but on the new proposals the heavy work commences on leaving Wild's Meadows; and it is worthy of consideration whether the line should be constructed to that point in the first instance, leaving its extension to Robertson to a future time. The drawback to such a course would be that it would very greatly retard the progress of East Kangaloon.

I have, &c.,

WM. REID BELL.

I have attached to Mr. Bell's report portion of a county map on which I have shown the line already surveyed from Bowral to Robertson and the alternative routes that have been suggested and examined by Mr. Bell. It appears from this report that a line from Moss Vale to Robertson would pass through the most populated part of the district, and I think a trial survey of this route might be made, to compare with the route from Bowral. I do not see any necessity for surveying the intermediate routes, as I imagine the point to be eventually decided will be whether this line is to leave the Southern Railway at Bowral or at Moss Vale.—H.P., 14/3/84. The Engineer-in-Chief. Forwarded for the information of the Minister for Works.—J.W. (*per* W.H.Q.), 20/3/84. Under Secretary, B.C. Submitted, 21/3/84.—J.R. I approve of Mr. Palmer's suggestion that a trial survey be made from Moss Vale to Robertson.—F.A.W., 22/3/84. Mr. Palmer.—W.H.Q., 25/3/84. Instructions given to Mr. Bell to proceed with this survey without delay.—H.P., 26/3/84.

No. 48.

F. J. Humphery, Esq., M.P., to The Under Secretary for Public Works.

Deputation, Trial Survey from Wild's Meadows to top of Barrengarry Mountain.

Dear Sir,

Sydney, 10 May, 1884.

A deputation from Kangaroo Valley desire to wait upon the Honorable the Secretary for Works on Wednesday next, to ask for a trial survey from Wild's Meadows to the top of Barrengarry Mountain, and I shall be obliged if you will be good enough to inform me if Mr. Wright can conveniently receive the gentlemen who have been appointed to form the deputation.

Yours, &c.,

F. J. HUMPHERY.

Write Friday, at 11:30.—F. J. HUMPHERY, Esq., M.P., 13/5/84.
13/5/84. Seen.—J.W. (*per* W.H.Q.), 14/5/84. Under Secretary, B.C.

Mr. Whitton.—J.R., B.C.,

Trial Survey, Wild's Meadows to Barrengarry Mountain.

Department of Public Works, Sydney, 15 May, 1884.

A DEPUTATION, consisting of Messrs. Osborne, McIlwrath, Miller, and Alexander, waited upon me at the Assembly last night to ask that a trial survey might be made for a light railway from Wild's Meadows to Barrengarry Mountains. Wild's Meadows is on the line being surveyed from Moss Vale to Robertson, the distance between Wild's Meadows and the mount is about 6 miles, and the country is said to be level. The deputation stated that already there was a considerable population in the vicinity, and the traffic assumed fair proportions; but were a convenient means of transit afforded the traffic would be largely increased, and would pay a good return upon the railway if constructed.

I informed the deputation that I would be glad to grant their request for a trial survey; but I could hold out no promise that the railway would ultimately be constructed, as subsequent action would depend upon the character of the reports I received. At the same time I stated that our experience of light lines had not been a bright one, the experimental line, that to Camden, proving in working unsuccessful.

14/5/84.

Railway Trial Survey, Wild's Meadows to Barrengarry Mountain.—No. 2 deputation, Mr. T. J. Humphery, M.P. 11:30 o'clock.

Department of Public Works, Sydney, 16 May, 1884.

THE Engineer-in-Chief has not yet been instructed in the matter. Letter enclosed. What reply shall be sent to Mr. Humphery.

Proposed railway, Bowral, Robertson Park, Barrengarry, Robertson, &c.—Deputation, 12 o'clock.
Thos. Garrett, M.P. (See memo. of Commissioner for Railways.)

Department of Public Works, Sydney, 8 August, 1884.

MR. GARRETT, M.P., informed 15th instant at 12 o'clock noon, 9/8/84.

Submitted, 15/8/84.

No. 49.

W. McCourt, Esq., M.P., to The Secretary for Public Works.

Sir,

Moss Vale, 11 July, 1884.

As the Government are now preparing their railway policy I trust the line to connect the township of Robertson and the splendid agricultural district of Wingecarribee with the Southern Railway will be included in the proposals. The late Minister for Works (Mr. Lackey) promised a deputation that if he remained in office he would sanction the construction of this line, and as the present Government have sanctioned different trial surveys to be made, and are now in a position to fix upon the most suitable route, I do hope our railway will be placed amongst the new lines of railways to be constructed by the present Government.

Yours, &c.,

W. McCOURT.

Inform matter now being considered by Cabinet.—G.R.D., 13/3/84.

No. 50.

Mr. W. Barrett to T. Garrett, Esq., M.P.

Dear Sir,

Burrawang, 4 August, 1884.

Referring to your memo. on my letter of 25th ultimo, *re* railway route, I regret you were unable to furnish me with the necessary information on this point. Do you think it would be to our interests to get up a deputation to wait upon the Minister for Works and point out the necessity of constructing the Bowral line in order to suit the requirements of the whole district? As this route would suit Robertson Park, West Kangaloon, Yarrunga (where the line crosses at Shipley's Corner), Burrawang, then the branch line to top of Barrengarry Mountain would run through Wild's Meadows, and in addition to all this the line is easily constructed. No matter what any selfish person may say there is no other line that will serve so many people as this one.

Should you think it advisable to form a deputation for first Friday, if you send me a telegram to-morrow (Tuesday) I will be in Sydney for that day. My reason for asking you to wire is this: I have to be in Moss Vale early on Wednesday morning, so that if I knew to-morrow I could arrange to go on to Sydney from Moss Vale on Wednesday night instead of coming home again that evening. I shall pay for telegram at this office.

If

If you think that the following week would be time enough you could write and let me know. However, the people of Robertson, Burrawang, Kangaloon, and Bowral are anxious about this line; but the people of both Wild's Meadows and Moss Vale are striving to obtain the Moss Vale line if possible.

You will, therefore, now know how to act in this matter, and I shall await your early reply by either wire or letter as herein directed.

I have, &c.,

W. BARRETT.

No. 51.

The Acting Secretary for Public Works to The Engineer-in-Chief.

LET me have Wilkins' report, with others, by Thursday next when the Cabinet is considering.

G.R.D., 15/8/84.

Memo.—Will Mr. Palmer please say if Mr. Wilkins has furnished a report on trial survey from Bowral to Robertson, in compliance with circular sent to surveyors, dated 18th January last.—W.H.Q., 18/8/84.

I do not think so. This survey was finished by Mr. Wilkins before the circular was issued.—H.P., 18/8/84.

No. 52.

The Engineer-in-Chief to The Secretary for Public Works.

Sydney, 21 August, 1884.

Railway Trial Surveys, Moss Vale to Robertson *via* Wild's Meadows; branch line thence to top of Barrengarry Mountain, and Bowral to Robertson *via* Burrawang.

IN accordance with the Minister's instruction of 15th instant, I forward the accompanying reports from surveyors employed on the undermentioned railway trial surveys, viz.:—

Mr. W. R. Bell's report on trial survey, Moss Vale to Robertson *via* Wild's Meadows, dated 5th June, 1882.

Mr. W. R. Bell's report on trial survey for branch line from Wild's Meadows to top of Barrengarry Mountain, dated 8th August, 1884.

Mr. G. L. Wilkins' report on trial survey from Bowral to Robertson *via* Burrawang, dated 2nd November, 1883.

JOHN WHITTON,

(*per* W.H.Q.)

Seen.—F.A.W., 13/10/84.

No. 53.

Mr. G. L. Wilkins to The Engineer-in-Chief.

Sir,

Railway Survey Camp, Bowral, 2 November, 1883.

Under separate cover I have the honor to return the county map of Camden, on which I have shown by a red line the route which I recommend for a trial survey from Bowral to Robertson *via* Burrawang.

The proposed line will give an easy upward gradient of good section from the curve on the main line, about 20 chains south of the Railway Station at Bowral for a distance of about 8 miles; thence a gradient of about 1 in 40 will be necessary to approach the town of Burrawang, which is situated on very high ground about 10 miles from Bowral. From Burrawang to Robertson ($4\frac{1}{2}$ miles) either side of the leading range may be followed for the trial survey, and in this locality the works are likely to be heavy owing to the steepness of sidings, and depth and number of watercourses. The gradient for this portion is also ascending. The route for the greater part of the way is heavily timbered.

I have, &c.,

G. L. WILKINS.

Mr. Palmer.—W.H.Q., 3/11/83. County map received, and instructions sent to Mr. Wilkins to proceed with the trial survey.—H.P., 3/11/83.

No. 54.

Mr. W. R. Bell to The Engineer-in-Chief.

Report on Trial Survey—Moss Vale to Robertson *via* Wild's Meadows.

Sir,

Wild's Meadows, 5 June, 1884.

In handing you the plan, section, and reference book for this survey, I have the honor to report as follows:—

Leaving Moss Vale the line passes for the first 4 miles through open country, the flats being swampy, and the earthwork is light, except at the Moss Vale end; the next 4 miles (to 93 miles 40 chains) is through ridgy country, the earthworks being heavier. By keeping more to the south, between 91 miles and 92 miles, a more regular section would be obtained, but the length would be increased too much. There is a wide detour between 92 miles and 94 miles, necessitated by the high ridge along which the Yarrunga Road runs.

A line of the same length as the one surveyed could be obtained by keeping to the south, as shown by the dotted red line on plan. The line surveyed was adopted in the first instance, as the gradients on the southern alternative are very steep. Both lines would have been surveyed, but so much time was lost through bad weather that the survey of the alternative was abandoned for the present. In making the permanent survey it would be well to survey the alternative route, and to adopt it if satisfactory, as it brings the railway nearer to the Yarrunga residents and saves cutting off the frontage of the sections at 92 miles 40 chains.

The

The line from 94 miles presents no great difficulties, except at 98 miles 50 chains, where it is necessary to go through a very heavy rock cutting. The line should have gone round the hill at this point, but the alignment would be bad, and would have to cross a gully 60 or 80 feet deep. The summit level from this cause is only 66 feet below the summit of the previous survey *via* Burrawang, instead of 80 or 90 feet as anticipated.

From Moss Vale to 93½ miles the formation is sandstone and shale, the sandstone being of moderate hardness and suitable for ballast. From 93½ miles to Robertson the rock is an excellent basalt (hyphenic), except at the water reserve at Wild's Meadows and at 97 miles 40 chains, where sandstone and shale appear—the former of fair quality at the reserve. The distribution of the stone renders it unnecessary to specify any particular quarries on the plan.

Except at the summit level, and on the basalt spur at 97 miles 40 chains, cuttings from 94 miles onwards will come upon rock at a depth of 10 or 12 feet.

Bricks are obtainable at Moss Vale and at about 93 miles, though the clay is not of first-class quality. Timber is obtainable between 90 miles and 92 miles, but is all in private hands.

The most permanent water supply is at the water reserve at Wild's Meadows, but good water is obtainable from 90 miles onwards, and at Moss Vale.

Station accommodation would be required at 90 miles, 93 miles, 94½ miles, and at Robertson and platforms at 88 miles 50 chains and 97 miles 30 chains.

It may be necessary to repeat that I have studied thoroughly the country from Kangaloon, southwards, and the general route surveyed is the only one suitable for the requirements of the district, and the one from which a branch to the top of Barrengarry Mountain can be made.

I have, &c.,

WM. REID BELL.

The trial survey from Moss Vale to Robertson, with a survey of a branch to Barrengarry Mountain, was made after the completion of the Bowral and Robertson trial survey. The sections of both trial surveys have been graded and the earthwork quantities computed. The Moss Vale and Robertson route passes through the best district and gives the lightest average of cost per mile. There is but little difference in the lengths of the two lines, each one being between 14 and 15 miles, but the through distance to Robertson *via* Moss Vale will be about 5 miles greater than if the line was constructed from Bowral. The proposed branch to Barrengarry Mount is about 6 miles in length, and the section is an extremely easy one.—H.P., 19/8/84.

No. 55.

Mr. W. R. Bell to The Engineer-in-Chief.

N.S.W. Railway Department—Moss Vale to Robertson Trial Survey.

Report on Trial Survey of Branch Line from Wild's Meadows to top of Barrengarry Mountain.

Sir,

8 August, 1884.

I have the honor to report on the above survey as follows:—

This branch line leaves the main survey on the water reserve at Wild's Meadows, 95 miles 48·79 links from Sydney, and skirting the east side of Wild's Meadows, passes about 70 chains to the east of the Fitzroy Waterfalls; thence it goes through Crown land and crosses the Shoalhaven Road, where the road to Burrawang branches off; it terminates on a selection belonging to Fox, of Moss Vale, on the roadside, a few chains north of the tree marked 4 miles 27·76 links, at the head of the Barrengarry Mountain.

It could be shortened about 7 chains by going down the centre of the meadow, but the ground there is not so solid; the lower end is subject to floods, owing to rocky bars in the Meadows or Waterfall Creek in the neighbourhood of the falls, and the line as adopted runs close to spurs, whence good ballast would easily be obtainable. Where the line crosses the swamps the ground for a great part has been drained and is fairly firm, although it consists chiefly of peat. After leaving the swamps it passes through barren country, and the cuttings would reach the sandstone at a depth of from 1 to 3 feet.

Water can in all seasons be obtained from the Meadow Creek, but there is no permanent supply at the top of the mountain.

On the Crown land between the Meadow and the top of the mountain fencing and sleeper timber is found, and a plentiful supply of timber for all purposes can be obtained from Kangaroo Valley.

Blue metal is found on the spurs along the east side of the Meadow, and sandstone more or less suitable for building near the terminus of the line.

Bricks could be made near the upper end of the Meadow.

I have, &c.,

WM. REID BELL.

Mr. Palmer, for report.—W.H.Q., 12/8/84.

No. 56.

The Assistant Engineer for Trial Surveys to The Engineer-in-Chief.

Trial Survey—Bowral to Robertson.

MR. WILKINS went to this district at the end of last October to examine the country previous to making a trial survey. His report on what he considered the best route for survey was sent in to this office on the 2nd of November, and instructions were at once sent to him to proceed with a trial survey from Bowral to Robertson *via* Burrawang. The survey was completed and the plan and section were forwarded to this office about the middle of last January. Since that date other trial surveys have been made from Moss Vale to Robertson, with a branch to Barrengarry Mountain, and quantities have been computed in this office from all the sections of the surveys made, so that comparative estimates may be made when required. On the 1st of December, 1883, Mr. Wilkins reported as follows:—"Leaving the Southern Railway, near Bowral, the trial line traverses undulating downs until reaching the Wingecarribee Stream, at 2 miles 30 chains, marshy ground prevailing on the southern side of that river for half-a-mile; thence to

to the end of the present work (7 miles), a very easy line of country, only requiring light cuttings and embankments. Before adopting the above line for survey the alternative plan of keeping on the north bank of the river was examined, so as to defer crossing for 3 miles and avoid all marshy ground; but it was found that the line would thereby be lengthened 1 mile, besides having a worse section and many curves. There now remains about one-half, or 7 miles, of this survey to be completed."

The rest of Mr. Wilkins' monthly reports merely refer to the date he expected to complete the trial survey. H.P., 28/8/84.

No. 57.

Petition.

To the Honorable the Minister for Works,—

THE Petition of the undersigned freeholders, selectors, and electors, residents of the districts of Kangaloon, East Kangaloon, Burrawang, Robertson, and the Pheasant Ground, praying that you will cause to be placed on the Estimates a sum of money for the construction of a line of railway from Bowral to Robertson.

Your petitioners are of opinion that many Honorable Members voted against this item under the impression that the majority of the inhabitants of the districts were in favour of the Moss Vale route.

Your petitioners took no action in the matter before the vote was submitted to Parliament (although the subject had been discussed here), because they were quite content to leave the matter, as to route, to the decision of the Ministry, in whom they had the fullest confidence, and because, further, they considered that much valuable time of the Minister had been taken up and his patience sorely tried by the number of depositions upon railway and other multifarious subjects continually being submitted to him.

Your petitioners are in favour of the junction with Bowral, because it is the nearest route to the metropolis, the market that purchases our produce and supplies us with the various necessaries we require, but consider a better route can be found than that surveyed by Mr. Surveyor Wilkinson.

Your petitioners desire to bring under your notice the large and valuable tract of land adjoining the Kangaloon and Yarrawa Districts, known as the Wingecaribbee Swamp, which, if subdivided and sold, would go a long way, if not entirely pay the cost of the railway in question, and would be a weighty reason in favour of the Bowral route, because of the great addition of settlers it would give to Kangaloon, every one of whom would be best served by the Bowral route.

Your petitioners pray you to cause the item (*via* Bowral) £126,000 to be again placed before the Parliament; and we trust that Honorable Members, when they are made fully aware that we shall be best served by this route, will give us their favourable consideration; and your petitioners, as in duty bound, shall ever pray.

[Here follow 230 signatures.]

Place with other papers upon the same subject. Acknowledge receipt, and inform Mr. Garrett, M.P., that the matter shall have due consideration.—F.A.W., 28/11/84.

No. 58.

The Commissioner for Railways to T. Garrett, Esq., M.P.

Sir,

Department of Public Works, Railway Branch, Sydney, 2 December, 1884.

I have the honor to acknowledge the receipt of a Petition, bearing your endorsement, from residents of Kangaloon, Burrawang, &c., praying for the construction of a line of railway from Bowral to Robertson, and to inform you, by direction of Mr. Secretary Wright, that the matter shall receive due attention.

I have, &c.,

CHAS. A. GOODCHAP,
Commissioner for Railways,
(*per* D.V.)

No. 59.

F. T. Humphery, Esq., M.P., to The Secretary for Public Works.

Dear Sir,

Sydney, 9 August, 1886.

I have been desired to ascertain if it will be consistent, with the convenience of the Honorable the Minister for Works, to receive a deputation from Kangaroo Valley on Friday morning next upon the subject of the construction of a tramway or light railway from the Southern Railway system to the top of Barrengarry Mountain.

Kindly let me know and oblige,—

Yours, &c.,

F. T. HUMPHERY.

Deputation appointed for Friday, 13 August, at 11.30.—J.R., 10/8/86.

Deputation for construction of Tramway or Light Railway from the Southern Line to top of Barrengarry Mountain.

Department of Public Works, Sydney, 13 August, 1886.

THE deputation from Kangaroo Valley, &c., accompanied by Messrs. Kidd, Humphery, and Tarrant, Ms. P., waited upon me to-day with reference to the above matter, and asked that, in the first railway proposals, the Government submitted an extension from the Southern Railway to Wild's Meadows and Barrengarry Mountain might be included. It was pointed out that the late Stuart Government in their proposals had included such a line, but owing to some petty jealousy the proposal had been defeated. The desirability of the railway had, however, been affirmed by that Government, and they asked that it might again be submitted, when they believed it would be passed by the House. The line, it was represented, would be a remunerative one, as it tapped a fertile and well settled district; large quantities of produce would be carried from it, and also coal, while a large tourist traffic would pass to it.

With regard to the point of junction, they were quite satisfied to leave that to the officers of the Department.

I informed them that I had the papers by me in this matter, and remembered the discussion in the House, although I was not personally acquainted with the district.

I thought it extremely doubtful that any railway policy would be submitted to the House this Session, as the House would be fully engaged with the measures, of which notice had already been given, but I would be pleased at a convenient opportunity to submit the question of this extension to my colleagues for their consideration.

It was stated that Mr. Surveyor Kennedy had made a survey of this line, but had not been asked for a report. I promised in reply to their request to obtain a report from Mr. Kennedy relative to this survey.

W.J.L.

Engineer-in-Chief, B.C. Mr. Palmer.—W.H.Q., 20/8/86.

The surveyors employed in this district were Messrs. Ball and Wilkins (not Kennedy). Trial surveys have been made from Bowral, and from Moss Vale to Robertson; and a branch line (6 miles) has been surveyed from the Moss Vale and Robertson line to the top of Barrengarry Mountain. Various reports and answers to questions have been given; among others I find estimate of Bowral to Robertson (15 miles), £126,192, and from Moss Vale to Robertson (14½ miles), £106,770; also a report that the section from the Moss Vale and Robertson line to Barrengarry Mountain is an extremely easy one.—H.P., 24/8/86.

Under Secretary.—W.H.Q., 25/8/86. A line for a tramway was explored by Mr. Halligan, of the Existing Lines Branch. It is possible that Mr. Halligan's exploration (mistaken for Kennedy) is the survey referred to.—Ch.A.G., 5/9/86. Ask Dr. Tarrant if this can be the surveyor referred to.—W.J.L., 10/9/86.

No. 60.

The Commissioner for Railways to Dr. Tarrant, M.P.

Sir,

Department of Railways, Sydney, 24 September, 1886.

Referring to the deputation which waited upon the Secretary for Public Works on 13th ultimo, relative to the construction of a light line of railway from some point to be determined on the Southern Line to Wild's Meadows and Barrengarry Mountain, and to the statement made that Mr. Surveyor Kennedy had made a survey of this line, but had not been asked for a report on the subject, I have the honor to inform you, that, upon inquiry, I find Mr. Kennedy was not engaged in this district.

I may state, however, that a line was explored by Mr. Halligan, but not surveyed.

I shall be glad if you will inform me if Mr. Halligan is the surveyor referred to.

I have, &c.,

CHAS. A. GOODCHAP,
Commissioner for Railways,
(per D.V.)

Dear Sir,

207, Macquarie-street, Sydney, 24 September, 1886.

In reply to your letter, 86-14,902, I beg to inform you that, when I mentioned at the deputation the name of Mr. Surveyor Kennedy, I intended to have mentioned Mr. Surveyor Wilkins, as I think he was the gentleman who made the survey of the line from Bowral to Robertson, after having inspected all the different proposed routes. It appears that he was not called to report as to the best route to be adopted by the Department, although Mr. Bell, who subsequently surveyed the line from Moss Vale to Robertson, was requested to do so.

My object in asking for Mr. Wilkins' report is, that he being an experienced officer in the Department, and having examined all the different routes, would be able to satisfactorily report as to the best one.

I am, &c.,

Ch. A. Goodchap, Esq., Commissioner for Railways.

H. J. TARRANT.

Engineer-in-Chief.—Ch.A.G., 27/9/86. Mr. Palmer.—W.H.Q., 29/9/86.

Mr. Wilkins is now away in another part of the Colony, and I doubt whether any report he could furnish would have any great value. There are at present in this office plans and sections of all the routes of trial survey made in the district, giving all the information required to enable a decision to be arrived at as to which would be the best line to construct.—H.P., 29/9/86. Engineer-in-Chief.

Under Secretary.—J.W., 30/9/86. Railways.—J.R., 1/10/86. For Minister's information. Shall Dr. Tarrant be informed?—Ch.A.G., 5/10/86. Yes; and submit surveys of various routes.—W.J.L., 9/10/86.

No. 61.

The Commissioner for Railways to Dr. Tarrant, M.P.

Sir,

Department of Railways, Sydney, 13 October, 1886.

I have the honor to acknowledge your letter of the 24th ultimo, explaining with reference to the deputation which waited upon the Minister relative to the construction of a light railway from the Southern Line to the top of Barrengarry Mountain, that Mr. Wilkins was the officer who made the survey of the line from Bowral to Robertson, and suggesting that he, having inspected all the different proposed routes, would be able to report as to the best one.

In reply, I am directed by Mr. Secretary Lyne, to inform you that Mr. Wilkins is now away in a distant part of the Colony, and it is questionable whether any report he could furnish would have any great value; but there are in the Engineer-in-Chief's Branch plans and sections of all the routes of trial surveys made in the district referred to, giving all the information required to enable a decision to be arrived at as to which would be the best line to construct. These data will shortly be submitted for consideration.

I have, &c.,

CHAS. A. GOODCHAP,
Commissioner for Railways,
(per D.V.)

Sir,

Sir,

207, Macquarie-street, Sydney, 16 October, 1886.

In reply to your letter, 13th October, my object in asking that Mr. Wilkins should be called upon for a report is that he was first sent to examine the country between the Great Southern Line and Robertson and survey the line which he considered most suitable, when he decided upon the route Bowral to Robertson; subsequently another surveyor (Mr. Bell) was instructed to do the same, and he recommended and surveyed a line, Moss Vale to Robertson. Now, my grievance is that Mr. Wilkins was not called upon to make any report in writing but that Mr. Bell was asked for one, which he furnished, and with which many of the residents are dissatisfied. Although, as is stated in your letter, Mr. Wilkins is in a distant part of the Colony, I think he is sufficiently acquainted with the district that he could by reference to his book report upon the different routes without visiting the place, and therefore, I trust, Mr. Lyne will ask him to do so.

I think a light line of railway, at a cost of not more than £3,000 a mile, would be sufficient.

Yours, &c.,

Commissioner for Railways, Sydney.

HARMAN J. TARRANT.

Engineer-in-Chief.—CH. A. G., 20/10/86. Mr. Palmer.—W. H. Q., 22/10/86. On receipt of this letter I instructed Mr. Wilkins to furnish a report, which I now forward herewith.—H. P., 16/11/86. Engineer-in-Chief.

Proposed Railway, Bowral to Robertson.—Report.

Sir,

Railway Survey Camp, Brunswick, 5 November, 1886.

In reply to memorandum E6-254, I have the honor to report on the above line, surveyed November, 1883—January, 1884.

The route was recommended to you for trial survey on account of the easy nature of the country prevailing for two-thirds of the distance, the proximity of the line to the towns of Kangaloon and Burrawang, and the junction with the Southern Railway, being about 9 miles nearer to Sydney than the alternative proposal *via* Moss Vale.

The branch leaves the main line of railway about half-a-mile south of the Bowral Station, and traverses undulating downs until reaching the Wingecarribee Stream at 2 miles 30 chains. The swamp through which this creek runs is about 40 chains in width, but the position of the flood-level shows that an embankment may be formed across it to the site for the bridge without danger from unduly confining flood-waters. A favourable line of country follows to the crossing of the Kangaloon Road (7 miles), and the Moss Vale—Robertson Road (about 8 miles), light cuttings and embankments only being required. Easy gradients are obtained until approaching the town of Burrawang (10 miles), which is situated on elevated ground. In order to reach the only ground suitable for a station, a heavy cutting will be required near the township through the main road, where an overhead bridge must be provided for the ordinary traffic. From Burrawang to Robertson (10 miles to 14 miles) the trial line follows the general direction of the road connecting those places, and the earthworks on this length will be heavy owing to the mountainous nature of the country.

The works will comprise, in addition to the earthworks and the Wingecarribee Bridge already adverted to, a few small culverts at watercourses.

Timber, principally messmate, may be obtained with facility near Burrawang for railway and fencing purposes. The manufacture of bricks is largely carried on near Bowral, where clay suitable for that purpose may be obtained in any quantity required. Material for ballast can also be obtained within a short distance of the line.

A sufficient quantity of water for locomotive purposes would be supplied by the creek near Burrawang. At other places where stoppages are likely to be made sinking would have to be resorted to.

The country through which this line has been taken is of a fertile character, capable of a high state of cultivation. At the time of the survey, however, the parts occupied in small holdings at the Burrawang and Robertson end were used for dairy farms only, and the remainder, with the exception of a market garden near Bowral, for sheep and cattle runs.

The total length of this branch line a little exceeded 14 miles. The station site at the Robertson terminus would probably be on the Government reserves in that township. The permanent line could be staked parallel to the main street, which would afford the most favourable direction for the continuation of the line beyond the town for future requirements.

I have, &c.,

The Engineer-in-Chief for Railways.

G. L. WILKINS.

No. 62.

Dr. Tarrant, M.P., to The Commissioner for Railways.

Sir,

207, Macquarie-street, Sydney, 18 October, 1886.

In addition to what I stated in my letter of the 16th October, in reply to your statement, "there are in the Engineer-in-Chief's Branch plans and sections of all the routes of trial surveys, &c., giving all the information required to enable a decision being arrived at as to which would be the best line to construct," I desire to say that the plans do not give "all the information required," and that the papers are incomplete without Mr. Wilkins' report, if any consideration is to be given to Mr. Bell's.

Yours, &c.,

HARMAN J. TARRANT.

No. 63.

T. Garrett, Esq., M.P., to The Secretary for Public Works.

Sir,

19 May, 1887.

I have the honor to forward you enclosed a letter from Mr. Thomas Blencowe, a resident formerly of Wild's Meadows, in favour of the construction of a line of railway from the Southern Line, through Robertson to Barrengarry, or Kangaroo Valley more properly speaking, which I hope will not escape your consideration when the subject of the proposed line is brought before you.

Yours, &c.,

THOMAS GARRETT.

[Enclosure.]

[Enclosure.]

Hon. Thos. Garrett, Sydney,—
Dear Sir,

Wild's Meadows, 18 May, 1887.

I notice by the papers that your Government intend to bring before the House a comprehensive system of railways during the present Session. If so, I hope as our representative you will include the one from the Southern Railway to Barrengarry and Robertson. This line was one of the first branch lines proposed many years ago, and was favourably entertained by the past Ministers, including Hon. J. Lackey, Mr. Wright, Dibbs, and Mr. Lyne, who unhesitatingly pronounced it as one of the most promising remunerative lines of any proposed. Petitions have been presented at different times by the farmers and residents, and a number of deputations have waited on Ministers setting forth their claims to a railway. Indeed the money has been placed on the Estimates for the construction of a railway; but was not constructed, owing to different opinions as to route. Several lines have been surveyed, and the people are willing to leave the matter of choice to the Government.

If the present Ministry require any further information than already set forth the people here are ready to furnish the same. Also a good deal of information could be obtained from Moss Vale and Bowral Stations. I have no doubt five-sixths of the traffic is from these districts. As you are aware the produce is chiefly produce at present, and as I am engaged in that pursuit, I presume most of the farmers in the district are able to send to market about the same quantities of produce, more or less, as I can myself. In looking over my books I find that I have sent to Sydney market—450 cases of fruit, 40 cases of eggs, 5 coops of fowls, 60 pigs (in pork and bacon), 150 kegs of butter. Now, if there was a railway, I could in a short time send away 1,000 cases of fruit, and if instead of butter the milk would be 100 gallons per day, I estimate that I could place on a railway per annum—160 tons milk, 25 tons fruit and sundries—in all 185 tons. Now you will say why do you not send this amount now. The answer is—that milk and fruit are perishable goods and require quick transit. The roads are a quagmire after rain, and therefore impracticable. I had 1,000 cases of fruit this year left to rot on the ground from this cause.

I am, &c.,

THOMAS BLENCOWE.

The matter has previously had consideration, and Minister would like to see papers.—H.M.L.,
19/5/87.

No. 64.

T. Garrett, Esq., M.P., to The Secretary for Public Works.

Hon. T. Garrett, M.P.—Deputation. Branch line of railway from Southern Line to Wingecarribee District.

Dear Sutherland,

25 July, 1887.

Some of my people want to see you to-morrow week as a deputation about a branch railway from the Southern Line out to Wingecarribee Districts. Will you see them at half-past 2 o'clock on that day.

Yours, &c.,

THOS. GARRETT.

Railways.—J.R., B.C., 29/7/87.

No. 65.

Minute by The Secretary for Public Works.

Railway to Wingecarribee District.

Public Works, Sydney, 6 August, 1887.

A DEPUTATION introduced by the Honorable Mr. Garrett, M.P., waited upon me to-day with reference to the necessity for a railway from the Southern Railway to the Wingecarribee District. Messrs. McCourt, M.P., and F. Martin, M.P., accompanied the deputation. It was pointed out that the district referred to was a very fertile one, and was well settled; a considerable traffic would be given to any railway in the shape of farm and dairy produce as soon as it was built, and in addition, it would be used for the carriage of minerals. They believed the line could be constructed at comparatively as low cost, and that it could be made remunerative. The line had been proposed by a previous Government, viz., by that led by Sir A. Stuart in 1884, but owing to the opposition and owing to the disputes locally as to the point of direction the line had been thrown out. Those interested had now sunk all differences, and were quite prepared to accept any line the Government might propose, but they asked that the question of the junction might be carefully considered, an unbiased survey being made and a route chosen which would be best in the interests of the district and the Colony. I informed them that I was well acquainted with the district, and was aware that if the people interested had agreed upon one line coming to one station, Parliament would have passed the vote when it was before the House. When they were so strongly divided amongst themselves, they could not expect the Government to be wholehearted, and I was now glad to hear they had sunk their differences, and were prepared to accept any line the Government might suggest, if it were determined to submit one. I promised to obtain full information in the matter, and to get reports from the Traffic and Engineering Branches of the Department, and when I was in possession of the information, I would then consider whether I would be justified in submitting the line for the approval of the Cabinet.

J.S.

The Engineer-in-Chief first.—A.R. (for Commissioner), B.C., 9/8/87.

Two trial surveys have been made from the Great Southern Railway to Robertson, viz.:—From Bowral to Robertson, 15 miles—estimated cost, £126,192; and from Moss Vale to Robertson, 14½ miles—estimated cost, £106,770—exclusive of cost of land and compensation in each case.—J.W. (*pro* W.H.Q.); 17/8/87.

For the Ministers information.—J.W. (*pro* W.H.Q.), 17/8/87. Under Secretary, B.C. Railways.—J.R., B.C., 17/8/87. A.R., 19/8/87. I do not think the Traffic Manager has yet reported upon this proposal. Will he kindly do so now.—A.R., B.C., 19/8/87. Report enclosed.—W.V.R., 6/9/87.

No. 66.

Proposed Railway, Moss Vale to Robertson.

THE whole of the districts Yarranga, Burrawang, Wild's Meadows, and Robertson, comprise an area of about 325 square miles of very rich country pretty thickly populated, in holdings of from 40 to 320 acres selected since 1861, a large portion of which is now clear and used for grazing, agriculture, and fruit-growing; the said holdings have risen in value from £1 to £20 per acre,—a strong evidence of the progress these districts have made.

The

The districts enumerated are situated at a distance from 10 to 15 miles from Moss Vale Station, and during wet and wintry weather the roads are heavy and difficult to travel over; the freights in consequence are high.

The population of the districts immediately interested in the Moss Vale route are estimated at between six and seven thousand souls, having the usual complement of public schools, churches, post and telegraph offices, mechanics' institutes, and schools of art, and other evidences of progress and affluence.

The capabilities are in a manner unlimited, and could be extended to almost any length were it not for the want of a cheap and expeditious mode of transit. The districts have not made the progress they could have done if facilities had been given at an early stage.

The township of Robertson lies on an elevated plateau near the eastern edge of the southern tableland, about 14 or 15 miles from Moss Vale, and at an elevation of over 2,000 feet above the sea-level. The climate is healthy and bracing; the settlers around are engaged principally in dairy farming and the rearing of stock. Towards the sea-coast the country becomes rugged, and in many places steep and precipitous, so that the only available outlet for their produce is towards either Moss Vale or Bowral.

Robertson is approached from Moss Vale by the Burrawang and Kangaloon Ranges, between which lie the Wingecarribee Swamp and the Bong Bong River. The ranges are covered with extensive tracks of rich chocolate soil, eminently adapted for dairy farming, and this good land extends 3 or 4 miles past Robertson.

On the Burrawang Range and about 10 miles from Moss Vale lies the township of Burrawang; situated close by is the source of the Wingecarribee Creek, a tributary of the Wollondilly River. The adjoining country is undulating and fertile, and the land is settled upon and used for dairy farming and grazing. About three quarters of a mile to southwards is the head of Wild's Meadows, which is now occupied by dairy farmers, and about 3 miles further on is Barrengarry Mountain, a road from this leading into Kangaroo Valley, with a fall of about 1,500 feet.

There are two modes of exit from Kangaroo Valley by which produce is brought out, viz., one by Barrengarry Mountain to Moss Vale, about 20 miles; and the other over the mountains to Broughton's Creek, about 16 miles. By the latter route great loss and deterioration is sustained by shipping in small steamers to Shoalhaven, and then transshipping into coasting steamers for Sydney.

The two routes mentioned, viz., one *via* Bowral, Kangaloon, and Robertson, and the route *via* Moss Vale, Yarrunga, Burrawang, Wild's Meadows to Robertson, have each their advocates, who set forth their rival claims.

From the extent of the country opened up, population, and above all, cost of construction, I am of opinion that the Moss Vale route is the preferable one of the two, as trade will always seek the nearest, cheapest, and best route, and as by far the greater amount of traffic passes through Moss Vale it clearly demonstrates that this is the best point of connection.

The argument laid down by some of the Bowral advocates that the Bowral route should be preferred because it cuts off 6 miles of distance between Robertson and Sydney should not be entertained for a moment, because by this the Department is asked to construct 14 miles of railway, but would, virtually get only 8 miles additional freight.

I have compiled from information supplied by Moss Vale and Bowral a return showing the probable revenue to be derived by the construction of this line, and append the same hereto:—

Return of Traffic passing through Bowral and Moss Vale from the districts of Yarrunga, Burrawang, Wild's Meadows, Robertson, and East and West Kangaloon:—

<i>Via Bowral.</i>										
East Kangaloon	tons. 800
West Kangaloon	600
										— 1,400 tons.
Pigs	800
Cattle	110
Approximate number of passengers	300
<i>Via Moss Vale.</i>										
Yarrunga, Wild's Meadows, Burrawang, and Robertson	1,331 tons.
Pigs	500
Passengers	360

If this line was made *via* Moss Vale we would get all the East Kangaloon traffic in addition to the other places mentioned, and it would stand thus:—

East Kangaloon	...	...	...	...	...	...	...	...	...	tons. 800
Yarrunga, Wild's Meadows, Burrawang, and Robertson	...	...	...	...	...	...	...	...	...	1,331
										— 2,131 tons.
Pigs (say)	...	...	...	...	...	...	...	...	...	1,200
Cattle	...	...	...	...	...	...	...	...	...	200
Passengers	...	...	...	...	...	...	...	...	...	630

Take the whole distance at 14 miles, and that the bulk of the traffic consists of special A and 1st class goods, it may be summarised thus:—

	£	s.	d.
1st class goods, 1,000 tons, at 6s.	300	0	0
A class goods, 1,131 tons, at 2s.	113	0	0
Pigs, 1,200, <i>i.e.</i> , 40 trucks, at 6d. per mile	14	0	0
Cattle, 200, <i>i.e.</i> , 20 trucks, at 6d. per mile	7	0	0
Passengers, 210, 1st class, at 1s. 5d.	14	17	6
„ 420, 2nd class, at 11d.	19	15	0
	468	12	6
To allow for discrepancies, add 25 per cent.	117	3	2
	£585	15	8

Actual

Actual working expenses, wages only :—

	£	s.	d.
1 Station-master (say)	200	0	0
1 Porter	109	10	0
1 Guard	140	17	0
1 Engine-driver	219	0	0
1 Fireman	140	0	0
1 Cleaner	78	0	0
10 Permanent-way men	1,173	5	0
	<hr/>		
	£2,060	12	0
Thus leaving a loss of	1,474	16	4
Then 5 per cent. on £100,000 capital	5,000	0	0
	<hr/>		
Total loss of	£6,474	16	4

A. CRAWFORD, 6/9/87.

Traffic Manager.

No. 67.

The Engineer-in-Chief to The Secretary for Public Works.

Proposed Railway from Great Southern Line to Robertson.

Engineer-in-Chief's Office, Sydney, 18 August, 1887.

I FORWARD herewith, for the Minister's information, a copy of a report, dated 10th of October, 1884, on this line.

J.W. (*per* W.H.Q.), 18/8/87.

[Enclosure.]

"It was reported, with reference to the Bowral and Robertson survey, that starting from the Southern Railway, about 20 chains south of the Bowral Station, the section would be a fairly easy one for a distance of 8 miles; thence the approach to Burrawang would require a 1 in 40 grade, and that the works between Burrawang and Robertson, for a distance of $4\frac{1}{2}$ miles, would be heavy.

"The report on the Moss Vale and Robertson survey, or rather on that portion between Moss Vale and Burrawang (the portion thence to Robertson being common to both routes), deals chiefly with the nature of the soil, &c., which is said to be better than on the Bowral route, and it also points to the fact that a line by this route (Moss Vale) would benefit a greater number of settlers than would be the case on the other route.

"Referring generally to the two routes, it has been ascertained that a line from Moss Vale would pass through the best district, and would give the lightest average of cost per mile, that there would be but little difference in the lengths of the two routes, each being between 14 and 15 miles in length; but that the through distance from Sydney to Robertson *via* Moss Vale would be about 5 miles longer than *via* Bowral."

Railways.—J.R., B.C., 18/8/87. In a week.—A.R., 22/8/87. It will be well for the traffic officer, who is reporting on the proposal, to see this—perhaps Traffic Manager.—A.R., 22/8/87. Papers returned herewith.—W.V.R., 6/9/87. Secretary. For Minister's information. See report upon probable traffic.—CH.A.G., 10/9/87. Inform Hon. Mr. Garrett and Mr. McCourt of estimated traffic, &c.—J.S., 22/9/87.

I hardly like limiting the statement of traffic to these figures. Add that, even allowing that the prospect of a railway would, by the time the line is completed, induce production which would treble the present ascertained traffic, which is an anticipation very much probably in excess of the result which would be realised, the outlay would not seem to be justifiable on economic grounds.—CH.A.G., 24/9/87.
Hon. T. Garrett and Mr. McCourt, Ms.P., 27/9/87.

No. 68.

The Commissioner for Railways to W. McCourt, Esq., M.P.

Branch Railway to Robertson.

Sir,

Department of Railways, 26 September, 1887.

With reference to the representations made to the Honorable the Minister for Public Works in August last by a deputation, of which you formed a member, as to the desirableness of constructing a railway from the Great Southern Railway to Robertson, I have the honor, by direction of Mr. Secretary Sutherland, to inform you that the reports received show that while the probable revenue from such a railway would only amount to about £585 per annum on present traffic, the actual working expenses (wages only) would be £2,060 a year, and, adding to this 5 per cent. on the estimated capital cost (£100,000) £5,000, the total approximate annual loss upon the line would be £6,475. I am to add that even allowing the prospect of a railway would, by the time the line is completed, induce productions which would treble the present ascertained traffic, which is an anticipation very probable much in excess of the result which would be realized, the outlay would not seem to be justified on economic grounds.

I have, &c.,

CHAS. A. GOODCHAP.

On receiving the above communication a public meeting took place at Robertson, when a Committee was appointed to collect evidence, to ascertain the present and prospective traffic in support of our claims to a railway, and to appoint a deputation to wait on the Minister for Works and lay before him the result of our investigations. The following evidence has been supplied to the Committee from the storekeepers, farmers, carriers, publicans, and others from various parts of the district:—

Yarrunga Saw-mills.—Messrs. Serry, Hayter, & Co., timber merchants, furnish one year's supply from Moss Vale to other stations of timber, 103,648 feet; weight, 311 tons; cost from mills to Moss Vale by teams, £155 10s.; by rail from Moss Vale to other stations not ascertained.

C.

C. Tildsley, storekeeper, Robertson.—Statement from January, 1886, to January, 1887, from Moss Vale to Sydney, 3,200 kegs butter; cost by road out, £160; by rail out, £290; on hides, pigs, fowls, eggs, &c., by road, £48 6s. 8d.; by rail, £191. From Sydney to Moss Vale, goods, 300 tons; cost by rail, £288 1s. 6d.; by road, £225.

C. Alcorn, Kangaloon, storekeeper.—From 1st October, 1886, to 1st October, 1887, to Bowral, 2,150 kegs butter; goods from Bowral, 85 tons.

Messrs. Moule and Turwin, carriers, Wild's Meadows.—Estimated quantity taken out per week 96 kegs butter at present, or 3,200 per year; goods, 120 tons.

F. Wright, Kangaloon Valley, carrier.—Taken out per week about 100 kegs butter; or 4,000 per year from Moss Vale; goods, 220 tons.

George Schladdt, Robertson, hotel proprietor.—Goods received and despatched to and from Moss Vale in ten months, 77 tons.

James Graham, Robertson, hotel.—Goods to and from Moss Vale for the past twelve months is 90 tons.

John Graham, Robertson, carrier.—To Moss Vale, 30 kegs butter per week; and goods, 4½ tons average per week.

F. Faulkes, butcher, Yarrunga.—About 70 tons of pork and bacon to Moss Vale.

F. Baxter, Yarrunga.—60 tons of bacon and pork to Moss Vale.

T. Blencowe, Wild's Meadows, farmer.—To Moss Vale in twelve months, 150 kegs butter and 500 cases fruit. If railway was made could put on 150 tons of milk and 100 tons of fruit and vegetables.

Mr. Acres' "Commercial Hotel," Burrawang.—Goods received from Moss Vale Station in twelve months, 20 tons.

Barrett Bros., storekeepers, Burrawang.—Goods from Moss Vale per annum, 260 tons. If railway was made and mill going could send over 1,000 tons.

G. Bartlett, storekeeper, Yarrunga.—Goods in and out 10 and 40 tons respectively.

Mr. Mackie, storekeeper, Wild's Meadows.—Goods in and out 100 tons per annum.

Mr. Bridge, Burrawang, butcher.—Goods in and out 15 tons.

Statement.

Robertson—C. Tildsley	...	...	...	300 and 3,200 kegs butter.
Yarrunga—Seery, Hayter, and Co.	...	...	...	311
Kangaloon—Alcorn	...	...	...	85 2,150 "
Wild's Meadows—Moule & Turwin	...	...	...	120 3,200 "
Kangaloon Valley—F. Wright	...	...	...	220 4,000 "
Robertson—G. Schladdt	...	...	...	77
Do James Graham	...	...	...	90
Do Jno. Graham	...	...	...	225 1,500 "
Yarrunga—F. Faulkes	...	...	...	70
Burrawang—Barrett Bros.	...	...	...	1,260
Wild's Meadows—F. Mackie	...	...	...	100
Burrawang—W. Acres	...	...	...	20
Yarrunga—James Baxter	...	...	...	80
Wild's Meadows—Thos. Blencowe	...	...	...	150 fruit cases.
				2,958 14,200

If railway was constructed the following would be the estimate:—Miscellaneous, at present, 14,200 tons of milk; passenger traffic, 6,000 per annum; 4,958 goods; passenger, 18,000; number of dairy cows, 7,000; vegetables, 3,000 tons; calves sacrificed annually, 6,000; fruit, 1,000 cases; potatoes (formerly grown), 1,000 tons.

Mr. John Kidd, the late Member for Camden, stated at Burrawang that, had the tram-line now laid to Camden been laid from Moss Vale through your rich and fertile district, as it should have been, but for underhand influence, it would be a positive proof of the best-paying branch in the Colony.

The Honorable John Lackey stated he knew of no branch line in the Colony that would prove so remunerative as this. I speak from experience, as I have a thorough knowledge of your district.

Mr. O'Hara, an Inspector of conditional purchases, stated: "I have travelled over 200 miles in the Northern Districts, and I declare I have seen more grass at Wild's Meadows than in all the country I have recently travelled over. Your district is, without a doubt, the most fertile in New South Wales."

Mr. Harris, of Sydney, says: "I have recently gone over the garden of Victoria, the Gippsland District, and the other day on my return I was through your district, which is quite equal in fertility and richness to anything I saw here."

A gentleman two years ago made a journey through Victoria, South Australia, and Western Australia, and on his return made a trip to the Darling River, and on arrival here said: "Your district is a Paradise. There is nothing like it in Australia. The only green grass from the time I left till I returned again I saw in your district."

Dr. Maddern, of Moss Vale, on his return from Tasmania, states: "You do not know the value of your own district. From my experience of fruit-growing there, the climate and soil of the Moss Vale District is better adapted for producing the same varieties of fruit as are grown there, and this district alone could supply Sydney market with all the fruit required."

This district is, without doubt, from its elevation and abundant rainfall, its superior climate, fertile soil, and dense population, one of the best in Australia, and needs but a railway to make it attractive and develop its resources. As proof of the value of land for farm purposes, if any is offered for sale in the market, it realises from £20 to £40 per acre readily.

No. 69.

W. McCourt, Esq., M.P., to The Commissioner for Railways.

Sir,

5 October, 1887.

Having received an official letter, giving probable earnings and expenditure of proposed railway to Robertson, would you be so kind as to have sent to me a full statement of how the Estimates were arrived at.

I should feel obliged if this statement could be forwarded to me at Bowral by Saturday next.

Yours, &c.,

W. McCOURT.

Attend to this.—C.R.A.G., 6/10/87. Letter sent to Mr. McCourt, with copy of statement on two last papers of Mr. Crawford's report.—D.C.M.L., 6/10/87.

Sir,

Department of Railways, 6 October, 1887.

In reply to your letter of yesterday's date, asking for particulars of probable earnings and expenditure of proposed railway to Robertson, I have the honor to enclose herein a statement giving the information required.

I have, &c.,

CHAS. A. GOODCHAP.

W. McCourt, Esq., M.P.

No. 70.

W. McCourt, Esq., M.P., to The Secretary for Public Works.

Sir,

17 October, 1887.

I have been requested by the residents of Robertson to ask you if you would kindly receive a deputation with reference to railway to Robertson on Friday next, 21st. I should feel obliged if deputation could be received at 12 o'clock or after that hour.

Yours, &c.,

W. McCOURT.

Friday, 21st instant, at 12 o'clock. Inform.—J.R., 19/10/87. Railways.—J.R., B.C., 19/10/87.

Sir,

Department of Public Works, Sydney, 19 October, 1887.

In reply to your letter of the 17th instant, I am directed to inform you that the Secretary for Public Works will receive the deputation from residents of Robertson, on the subject of constructing a line of railway from Great Southern Line to Robertson, on Friday, the 21st instant, at 12 o'clock noon.

I have, &c.,

JOHN RAE.

W. McCourt, Esq., M.P.

No. 71.

Minute by the Secretary for Public Works.

Railway to Robertson.

21 October, 1887.

A DEPUTATION from Robertson, introduced by Mr. McCourt, waited upon me to day in connection with the request for a railway to Robertson.

They had previously waited upon me, when I promised the matter would have inquiry, and the question had been considered by the traffic authorities, who submitted statistics showing the probable traffic and revenue that would be derived from such a line.

The result showed that the probable earnings would be £585 per annum, and the working expenses and interest £7,060, leaving a net loss of £6,475. The object of the deputation was to prove these figures, as they said, altogether inaccurate and absurd, and they allege they must have been prepared by some one who was totally ignorant of the resources of the district and its productions and settlement. Taking the first item—passengers—the traffic officers calculated the traffic will be £630 for the year; they (the residents) estimate the traffic, including residents and visitors, at £18,000 per annum, and a large disproportion exists in every item of traffic. A committee of gentlemen interested in the matter has prepared returns of the traffic, which may be expected, and the probable revenue, which tends to show the line will be a paying one. Their statement is enclosed.

I informed them that I thought it my duty to give them an opportunity of seeing the figures prepared by the Railway Department, so that they might point out any error that might be made. The figures they submitted certainly differed greatly from those made up by the traffic officers, and I promised that reliable officers should be sent through the district to collect evidence, and they could then have an opportunity of verifying their statement, if they could do so they would do a great deal for their district. In this matter I wanted nothing but truth, and the more correct the figures obtained the better it would be for all parties.

JOHN SUTHERLAND.

Will the Traffic Manager be so good as to carry out the Commissioner's directions, and furnish early report.—A.R., B.C., 25/10/87. Please arrange to visit this district, and let me have a report showing as fully as possible the traffic that would be carried.—W.V.R., 27/10/87. Inspector Crawford.

As Mr. Crawford has already reported upon this matter it will be better that the great disparity between his figures and those of the petitioners should be examined by some other officer. It has been arranged for Mr. Harper to do it, and I shall be glad if he can visit the district on Thursday next, the 10th instant. Inform Mr. McCourt to-day that he will do so, as I understand he will put Mr. Harper in the way of collecting information.—D.K., 5/11/87.

Re

Re Railway to Robertson.

Inspector Crawford,—

LET me have your reply please, to my letter of the 25th ultimo hereon, as early as possible.

2 November, 1887.

W. V. READ,
(*per* J.D.W.)*Re* Railway to Robertson.

Inspector Crawford,—

PLEASE see paper attached and let me have a further report upon the matter.

25 October, 1887.

W. V. READ,
(*per* A.S.)

Railway to Robertson.

I CAN quite understand the charges of lamentable incapacity or wilful negligence heaped upon me. It is usually the case, when any pet theory is not accepted, the unfortunate individual who dares to place plain figures is at once charged with everything except honesty of purpose.

I based my report on the actual traffic received from the districts named. The returns were compiled by the station-masters at Moss Vale and Bowral from their books. I have no reason whatever to doubt their accuracy.

To show what reliance can be placed on Rauson and Tuston's attempt at figures.

The total quantity of butter shipped from Moss Vale Station averages 11 tons 18 cwt. per week, but all this butter does not come from the districts concerned in this railway.

Still, take the actual quantity of butter sent from Moss Vale, 572 tons 10 cwt., at 6s. for 14 miles, only gives £171 15s. per annum.

As for the passenger traffic, everyone knows that a farming population is not a travelling population.

The timber trade from this district cannot compete either in price or quality with timber nearer the larger centres of population.

The stone traffic is visionary and the milk traffic is ridiculously over-estimated. The supply at present is very much greater than the demand, and if we get milk, we shall not get butter, cheese, or bacon.

It is certainly a most extraordinary fact that hay and chaff are shipped from Tarago to Moss Vale for consumption. Yet hay and chaff is put forward as a probable source of revenue, grown in the district.

Goods Superintendent.

ALEX. CRAWFORD, 4/11/87.

Forwarded to Mr. Harper, who has other papers on this subject.—W. V. READ (*per* E.B.), 7/11/87.

No. 72.

Minute by Mr. Traffic Manager Read.

Proposed Railway to Robertson.

Department of Railways, Sydney, 4 November, 1887.

ALL papers herewith. I have told Mr. McCourt that you will visit the district on Thursday next, the 10th instant, and have asked him to give you all the assistance he can in the way of collecting information.

Please let me have your early report upon the matter.

W. V. READ.

Goods Superintendent.

Railway,—Moss Vale to Robertson.

By appointment with Mr. McCourt, M.P., I visited Moss Vale on Wednesday last for the purpose of meeting the local committee who are interested in the construction of the above line of railway, in accordance with their wish, I accompanied them through the districts it is proposed to serve by this line, and was afforded every opportunity of judging of its extent and resources. The general impression left on my mind by this experience is, that for richness of soil, variety of scenery, and salubrity of climate, it stands unequalled in this Colony, if not in Australia, and one is forced to admit that it must have a great future before it when a denser population looks for new centres of production, and the tourist and health-seeker appreciate its advantages. At present it is given up exclusively to dairy farming, if some half-dozen orchards bearing the finest fruit be excepted. The soil of the whole district is capable of growing almost anything to perfection, with the exception notably of wheat, for the successful cultivation of which the climate is too humid.

The holdings are all comparatively small, and the result is that a large population is scattered throughout the district, and it is estimated that Robertson, East Kangaloon, and Pheasant Ground contain 3,000 persons, and Wild's Meadows, Burrawang, Yarrunga, and Kangaroo Valley is populated by a similar number.

Were the railway constructed, the residents of the former settlements would be served by a station at Robertson, distant 14½ miles from Moss Vale, and of the latter, by a station at Wild's Meadows, 11 miles from the main Southern Lines.

After seeing the district, I can readily understand the extravagant estimate formed by the settlers of the traffic it might develop, and the most biassed would concede, that it is capable of great improvement. The scenery of the district, including as it does the two waterfalls, Fitzroy and Belmore, also gives assurance that its passenger traffic, apart from its population, would be far greater than that estimated by Inspector Crawford. Whilst at the Fitzroy Falls, I casually asked the caretaker to what extent they were visited, and he informed me that he had counted as many as 540 people on a holiday, the great bulk of whom were visitors to the district.

However,

However, the chief object of my visit I considered to be to afford the committee an opportunity of proving the present traffic of their districts, and I suggested, with a view to this being done to their entire satisfaction, that we should go through twelve months invoices, way-bills, &c., at Moss Vale and Bowral Stations, and that they should pick out each consignment sent from or to the localities to be served by the railway. The suggestion was gladly accepted, and a gentleman from each of the places referred to selected to co-operate. They were afforded every latitude consistent with my duty to the Department, and the work was thoroughly done, occupying three days, and although the result was most decidedly against them, they readily admitted that they had been met by every consideration at the hands of the Department, and that the figures were unchallengeable. As already stated, there would be two principle stations, viz., Robertson (15 miles) and Wild's Meadows (11 miles) from Moss Vale, and for the purpose of accuracy, the traffic falling in at each was taken separately, and for a similar reason, it was taken out in classes. As most of the trade came from or went to Sydney, the mileage rate has been worked out as between 86 and 97 miles, and 86 and 101 miles. From November, 1886, to October, 1887, was selected by the committee as being the most favourable year, and the following is the statement during that period of the

GOODS TRAFFIC.

		<i>To Robertson.</i>				<i>From Robertson.</i>					
		£ s. d.				£ s. d.					
Special Class A.	321 tons, at 1s. 3d.	20	1	3	17 tons, at 1s. 3d.	1	1	3			
1.	26 "	5s.	6	10	0	4	"	5s.	1	0	0
2.	72 "	6s. 3d.	22	10	0	353	"	6s. 3d.	110	6	3
3.	127 "	8s. 5d.	55	8	11						
		<hr/>				<hr/>					
		546 tons.	£102	10	2	374 tons.	£112	7	6		

Timber.

		<i>To Wild's Meadows.</i>				<i>From Wild's Meadows.</i>					
		£ s. d.				£ s. d.					
Special A.	511 tons, at 11d.	23	8	5	*27 tons, at 11d.	1	4	9			
1.	22 "	3s. 8d.	4	0	8	85	"	3s. 8d.	15	11	8
2.	63 "	4s. 7d.	14	8	9	627	"	4s. 7d.	143	13	9
3.	149 "	6s. 5d.	47	16	1						
		<hr/>				<hr/>					
		845 tons.	£89	13	11	739 tons.	£160	10	2		

15 miles.

The traffic to and from Robertson includes the following tonnage sent *via* Bowral :—

<i>To Robertson.</i>		<i>From Robertson.</i>	
Special A.	74 tons	17 tons.	
Class 1st.	9 "		
" 2nd.	17 "	149 "	
" 3rd.	25 "		

The total goods traffic therefore carried to and from Bowral and Moss Vale for these districts amounted to 2,504 tons, and its value would be £465 1s. 9d.

LIVE STOCK TRAFFIC.

During the same period we carried to and from these stations stock traffic belonging to these districts as follows :—

* 15 miles.

		£ s. d.		
1,552 cattle and calves, 86 trucks, 8d. per mile*	...	43	0	0
6,281 sheep	62 "	31	0	0
2,273 pigs	79 "	29	12	6
186 horses	24 "	12	0	0

Total value carried by rail from Robertson ... £115 12 6

I have assumed for the above purposes that 18 cattle and calves, or 100 sheep, or 8 horses represented a truck, and 30 pigs half-truck, and with this the committee were perfectly satisfied. Coming now to

PARCELS TRAFFIC,

which may be estimated at £20, we have the whole of the at present known value of the traffic, which, summarized, is :—

		£ s. d.		
From goods	...	465	1	9
Live stock	...	115	12	6
Parcels	...	20	0	0
		<hr/>		
Total	...	£600	14	3

The committee claim, and with some degree of reason, that this could be largely increased were better facilities given to transport their trade to market. At present their roads are the reverse of good, and the high rate of carriage, and distance from the railway, is a great obstacle to those who feel disposed to cultivate fruit and vegetables, and there is no doubt the natural advantages of the soil and climate would constitute a strong inducement to carry on these industries were the railway at hand. They also claim that extensive deposits of coal and shale within 2 or 3 miles of the terminus; but, as I pointed out to them the fact of other extensive deposits of these minerals being worked nearer their markets, must render this a very problematical item of traffic. Similarly, with regard to the estimated quantity of milk, the difficulty would be not in producing, but in finding consumers, and I find from inquiries I have made

in Sydney, that the supply is fully equal to, if not in excess of, the demand, and that several dairy farmers who are half the distance from Sydney are turning their attention to converting their milk into butter. I do not think we should, for many years to come, have any very extensive traffic in this article, and it is not a factor worth reckoning.

I may mention that many of the people of these districts purchase their supplies in Moss Vale, and as this is the result of their business bringing them to that town, as the only means of reaching the railway, a certain proportion should be added to the goods the proposed line would carry. Even, however, assuming that all these causes doubled the traffic, we should still have but a revenue of £1,202 for goods traffic.

The passenger traffic is, of course, a matter of pure speculation; but I am satisfied that the original estimate is far too low. With a population of 6,000, the greater proportion in comparatively comfortable circumstances, it would be fair to assume that at least one half would pass over the line once per year, particularly as the Land Court and Police Courts are at Moss Vale, and one of the most successful agricultural shows in the Southern Districts is annually held in that town. This assumption is also fully justified by the passenger traffic on the Camden tramway, where the population and district is in many respects similar. Then again, it must certainly be admitted that the scenery, when once known, would attract many visitors, and I am strongly disposed to think that at least 4,000 or 5,000 people per annum would use the line. Taking the latter number, and dividing them in proportion of 3,500 2nd class fares, 1,500 1st class fares, and assuming that the whole are carried to Robertson, a distance of 15 miles, at ordinary return fares for that distance, the value of the traffic would be:—

	£	s.	d.
1,500 1st class fares, @ 4/6	337	10	0
3,500 2nd class " @ 3/2	554	3	4

	891	13	4
Add mail allowance, 15 miles, @ £12	180	0	0

	£1,071	13	4

I have, of course, in allowing a double goods traffic, and the above passenger traffic, left a most liberal margin in favour of the supporters of the railway, and it may be fairly taken as the maximum earnings of the line for some years after its construction, and its most ardent advocates cannot claim otherwise. Summarized, the traffic would stand:—

	£	s.	d.
Present goods, live stock, &c., doubled	1,201	8	6
Estimated passenger traffic	1,071	3	4

	£2,272	11	10

which, if other running expenses were added to Inspector Crawford's estimate, would barely cover working cost.

My impression is that, all things being considered, the time has not yet arrived when the construction of a railway to Robertson would be other than an addition to the list of non-paying lines.

JNO. HARPER, 26/11/87.

Traffic Manager.

It is quite evident that, taking a sanguine view of the traffic, the traffic upon the proposed line would not, for many years, yield more revenue than would cover working expenses, if as much, so that the interest upon the capital would have to be borne by the country.—W.V.R., 30/11/87. Commissioner.

Moss Vale and Robertson Railway.

THE further report of the probable traffic likely to be derived from this line is now to hand. Please make summary of the figures given in Mr. Crawford's report, and show in juxtaposition those in the latter one furnished by Mr. Harper.

D.C.M'L., 22/12/87.

Revenue.

Summary of prospective revenue to be derived from the proposed line as per the reports furnished by Messrs. Harper and Crawford respectively:—

Description of Traffic.	Mr. Harper's Figures.		Mr. Crawford's Figures.	
	£	s. d.	£	s. d.
Passenger traffic, &c.	1,071	3 4	34	12 6
Goods, live stock, &c.	1,201	8 6	434	0 0
To allow for discrepancies add 25 per cent.			117	3 2
Total	£ 2,272	11 10	585	15 8

Expenses.

The expense of operating the line is estimated (exclusive of running expenses) at £2,060 12s., add interest at 4 per cent. on estimated cost of construction, which is put down at £106,000; total, £6,300 12s.

G.A.S., 30/12/87.

No. 73.

Minute by The Commissioner for Railways.

THERE is not much difference between Mr. Crawford's and Mr. Harper's estimate of the goods traffic. Mr. Crawford estimated on the basis of the present traffic, that the goods traffic would be £551, and Mr. Harper, after going through the invoices of goods for the most favourable twelve months the committee could select, found it to be £601. He has doubled the estimate, on the ground that the railway would increase the traffic, and he has put down for passenger traffic a sum which is based not upon the present travelling, but on an anticipated amount of travelling which will be induced by the picturesque beauty of the district which the railway will pass.

If these somewhat fanciful sources of revenue are developed, the gross earnings will be £2,273, an amount which falls short by £4,000 of the sum required for making the line a self-supporting one.

For Minister.

Inform.—J.S., 4/1/88.

CH.A.G., 3/1/88.

No. 74.

The Commissioner for Railways to W. McCourt, Esq., M.P.

Sir,

Department of Railways, 10 January, 1888.

Referring to the deputation which you introduced to Mr. Secretary Sutherland, on the 21st October last, on the subject of the proposed railway from Moss Vale to Robertson and to the circumstance of the accuracy of the statistics previously collected having been challenged, also to the Minister's reply, that an officer of the Department would be detached to confer with those interested with a view of arriving at a true estimate of the prospective traffic, I have the honor, by direction of the Minister, to inform you that an officer has (as you are doubtless aware) visited the district to confer with the local committee, who are interested in the construction of the line, and that an examination of the invoices of the goods, live stock, &c., traffic for the most favourable twelve months, with a reasonable increase for new traffic that would be developed from the revenue derivable from the districts to be served by the line, would be £1,202, while the passenger traffic, which is based not on the present travelling, but on an anticipated amount of travelling the line will create, is estimated at £1,071, or together £2,272, an amount which falls short by £4,000 per annum of the sum required for making the line a self-supporting one.

I have, &c.,

CHAS. A. GOODCHAP.

No. 75.

W. McCourt, Esq., M.P., to The Secretary for Public Works.

Sir,

Bowral, 12 January, 1888.

Would you kindly oblige by forwarding to me at Bowral a copy of Mr. Harper's report on the probable income and expenditure of proposed railway to Robertson.

Yours, &c.,

W. McCOURT.

Please forward, 14/1/88.

Sir,

Department of Railways, Sydney, 24 January, 1888.

I have the honor, by direction of Mr. Secretary Sutherland, to forward herein for your information a copy of the Goods Superintendent's report upon the proposed railway, Moss Vale to Robertson, as requested in your letter of the 12th instant.

I have, &c.,

D. VERNON,

(*pro* Commissioner for Railways).

W. McCourt, Esq., Bowral.

No. 76.

J. Williams, Esq., to The Secretary for Public Works.

Sir,

Bob's Range, Oaks, 17 January, 1888.

I am writing to you concerning the proposed new line of railway to be constructed, as I hear that some of the farmers are agitating to have it run through the Oaks, but I think the new route will be the best, that is, to cross Monkey Creek and enter Burrawang at Bend Creek, as it will open up a lot of land that would never be populated otherwise; besides going through a lot of coal country, which, if worked, would give work to a great many who need it. The timber for the railway can be found close to the line, whereas, if it runs through the Oaks, it will only benefit a few farmers, and give very little work to any; besides it will take the traffic from the Camden tramway, which only runs 12 miles from the Oaks. I forgot to mention that there could be a good trade done with timber all along the line, if it runs through the forest into Bend Creek.

I have, &c.,

JOHN WILLIAMS.

No. 77.

W. McCourt, Esq., M.P., to The Secretary for Public Works.

Sir,

Bowral, 13 February, 1888.

I trust the proposed railway to Robertson will not be overlooked when you are considering railway policy to be submitted to Parliament. Am glad Government have decided to construct light and cheap branch lines, which is just the sort of line to suit the Robertson traffic. I feel sure if a line costing £40,000 or £50,000 is constructed to Robertson, it will produce a paying revenue.

Yours, &c.,

W. McCOURT.

No. 78.

No. 78.

W. McCourt, Esq., M.P., to The Secretary for Public Works.

Sir,

Sydney, 27 June, 1888.

I have been requested by the Wild's Meadows and Yarrunga Farmers' Union to ask you to kindly receive a deputation on Friday, 6th July, at 12:30, on the subject of construction of light line of railway from Moss Vale to Robertson. An early answer addressed to Bowral will oblige,—

Yours, &c.,

W. McCOURT.

Appoint Friday, 6th proximo, at 12:30 p.m. Mr. McCourt informed.

No. 79.

Memo. by The Secretary for Lands to The Secretary for Public Works.

In forwarding this to the Honorable the Minister for Works, Mr. G. desires its statements to be taken into careful consideration by Mr. Sutherland.

T.G., 7/7/88.

Sir,

Sydney, 6 July, 1888.

As representing the deputation which you introduced to-day, with reference to the construction of a light line of railway from the Southern Line to Robertson, we wish to draw your attention to the fact that when this line was occupying the notice of the Government some time ago, an officer, Mr. Surveyor Bell, was sent, not to survey any line, but to report as to the best route, such line should take in the interests of the people. His report was wholly in favour of a line from Moss Vale to Robertson *via* Wild's Meadows, as suiting the great bulk of the people, and which the great bulk of the people, as you know, entirely concur with. This line was afterwards surveyed by Mr. Bell. We are drawing your attention to this, as you in introducing our deputation to-day stated, as we think inadvertently, that we were asking for the line from Bowral to Robertson, and which statement might lead to further delay in this matter. The plans of one line are as complete as those of the other, and if our railway is to be considered by the Government this time, we trust that you will see that the line in the peoples' interests, and the Government officer's line (*vide* Mr. Bell's report) will receive that consideration which it so justly deserves.

We have, &c.,

THOMAS BLENCOWE.

WILLIAM MOSES.

J. T. HAYTER.

ROBERT M. GRAHAM.

The Hon. Thos. Garrett, Minister for Lands, Sydney.

No. 80.

Minute by The Secretary for Public Works.

Railway to Robertson.

Department of Public Works, Sydney, 6 July, 1888.

A LARGE and representative deputation waited upon me this morning, with reference to the construction of a railway from the Great Southern Line to Robertson. The deputation was accompanied by the Honorable Thomas Garrett, Messrs. Martin, McCourt, Colls, Waddell, and Stokes, M.S.P.

Mr. Garrett introduced the deputation, and stated that this matter had previously been considered.

The proposition they now wished to make was that the Government should propose a light branch line to Robertson. They would be perfectly satisfied with a light line, and it had been demonstrated by inquiry that such a line would pay, not only the working expenses, but also the interest upon the capital expended. He was aware of the opinion I entertained with reference to the construction of light lines of railway, and believed that this was a district to which a light line might fairly be extended. He trusted that this line would be referred to the Public Works Committee that had recently been appointed, and he had no doubt that they would be able to make out such a case as would lead the committee to approve of the proposal.

Mr. McCourt as one of the Members of the District, stated that he supported the proposal of this line of railway, and stated that he thought they were justly entitled to such a line in view of the population and the production of the district; he believed that the line would pay as well as any that had been submitted by the Government. The estimates that had previously been submitted had been made up on the basis of our main lines, but he thought a light and cheap line of railway, costing not more than £4,000 or £5,000 at the outside, should be adopted, making the total cost about £70,000; he was convinced that taking the traffic as revealed from the business done at Moss Vale, Bowral, and Mittagong which were three of the best paying stations on the Southern Line, that this line would pay handsomely. He, therefore, asked that this line might be submitted for the approval of Parliament, and he did not fear the result of any inquiry.

Mr. Blencowe pointed out that the products of the district were such as required quick transit to market. They did not require a heavy and costly line of railway, but he would be quite satisfied with a light line. He pointed out that the district was one of the most fertile in the Colony, and the soil was proved to be remarkably rich, capable of growing most luxuriantly all kinds of grass, fruits, and vegetables, although it was rather too humid for the successful cultivation of wheat. The population of the district was from 12,000 to 15,000 persons, and he found, according to the statistics for 1886, that the total traffic at Bowral was £13,552, at Moss Vale, £22,155, the largest portion of which would be affected by the proposed line of railway.

An officer of the Department had been in the district, and had borne testimony to the great fertility of the place, and its suitability of sustaining a large population, and admitted that if a railway were made it would give a great impetus to production and settlement.

Mr.

Mr. Harper had made an estimate of the probable traffic, but he (Mr. Blencowe) was satisfied that he had greatly underestimated the probable traffic. For instance, he had made no allowance for milk, which he was satisfied would form a considerable item. Mr. Harper had put down the traffic at 11d. and 1s. 3d. per ton. At present they paid 15s. to 20s., and if an average of 8s. per ton were taken, at least £1,000 more than Mr. Harper's estimate would be obtained, and he believed the line could be made to pay at least 3 per cent. on a capital of £70,000, which was equal to the rate paid by the Great Southern Railway, while the Northern Line paid less than 3 per cent. He believed if a light line were made it would be one of the best paying lines in the Colony.

In reply, I stated that they asked me to submit their proposals at once to the Parliamentary Public Works Committee, but I could submit nothing to that committee without the plans and books of reference and other necessary information.

Mr. Garrett: I think you will find that these have all been prepared some time ago on the ordinary scale.

I stated that I was not aware the Parliamentary plans were ready, if so it would materially expedite the matter. It was not of much moment as to the kind of plans proposed, that could be amended very easily to meet any altered conditions in the way of making the line a light one. I had to see Mr. Whitton in the afternoon with the schedule of the lines proposed, and I would consult him in the matter and have information ready to submit to Cabinet on Monday. Mr. Garrett was aware I was in favour of light railways, and in fact it seemed to me useless if we adopted a system of light railways for these branch lines we would have to do without these feeding lines altogether.

I thought as a light line this branch might be made to pay, but not as a heavy one.

If the plans were complete I would lay them before the Cabinet on Monday.

Will Mr. Whitton please say if plans and book of reference are ready.

JOHN SUTHERLAND, 7/7/88.

1888.

LEGISLATIVE ASSEMBLY.

NEW SOUTH WALES.

MUSWELLBROOK-CASSILIS RAILWAY LINE.

(CORRESPONDENCE, &c., RESPECTING.)

Ordered by the Legislative Assembly to be printed, 25 October, 1888.

RETURN to an *Order* made by the Honorable the Legislative Assembly of New South Wales, dated 14th June, 1888, That there be laid upon the Table of this House,—

“ A copy of all plans, specifications, reports, documents, and other papers
“ connected with the Muswellbrook-Cassilis Railway line.”

(Mr. Lakeman, for Mr. Fitzgerald.)

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No. 1.

Petition.

[Presented by Mr. Bell, M.L.C., Mr. M'Laughlin, M.P., and Messrs. Clive, M'Intyre, Parking, and others, 10/11/82.]

To the Honorable John Lackey, Minister for Works, &c., for the Colony of New South Wales.

The Petition of the undersigned residents of Scone, and of settlers on the route of the proposed railway from Scone to Merriwa and Cassilis, in public meeting assembled,—

RESPECTFULLY SHOWETH,—

That your petitioners unanimously assert that, in the construction of a branch line of railway from Merriwa and Cassilis, to join the Great Northern Line, the most direct and least expensive route would be that to Scone, from which place to Merriwa the distance is 16 miles shorter than that from Muswellbrook, *via* Denman.

That your petitioners are confident that the line they advocate would accommodate a larger present population than that *via* Denman, and that moreover there is every prospect—on account of the superior country through which the line now advocated would pass—of settlement increasing at a greater ratio on that route than on that of the line proposed from Muswellbrook.

That your petitioners would call attention to the fact that, in the opinion of professional surveyors and engineers, the difficulties of the intervening country on the respective routes are infinitely less by the route now proposed than on the proposed line *via* Denman, and would further notice that a saving of expense of at least £30,000 or £40,000 would be effected in erecting a bridge across the Hunter, necessitated if the latter route were adopted.

That your petitioners firmly believe that the population and industry—grazing and agricultural—distributed along the country between Scone and Merriwa would be a very important element in the traffic which, by the facilities of a line such as this advocated, would be constantly and greatly augmented.

That your petitioners would finally ask that the foregoing facts may be taken into serious consideration, and would pray that before any decision be come to in favour of any other route, a trial survey may be ordered of the route *via* Scone.

And your petitioners will ever pray, &c., &c., &c.

A. BELL,
Chairman.

Scone, 14th October, 1882.

Acknowledge receipt. Railways.—J.R., B.C., 14/11/82. Ackgd., 14/11/82. The Engineer-in-Chief.—D.V. (*pro* Commr.), 15/11/82. I agree with the petitioners, and think it would be advisable to start the line from Scone instead of Muswellbrook; but, before deciding, surveys should be made.—J.W., 17/11/82. End of year, 17/11/82. No funds available for trial surveys at present.—W.H.Q., 3/1/83. End of March.

No. 2.

Petition.

Messrs. Hungerford, McLaughlin, M's.P.—Petition from the district of Muswellbrook, Denman, and Merriwa, for the construction of a branch line of railway to connect Denman and Cassilis with the Great Northern Line at Muswellbrook.

Railways.—J.R., B.C., 13/11/82. J.W., 17/11/82.

[Presented by Mr. Hungerford, M.P., Mr. Bettington, Mr. White, and Mr. M'Laughlin, M.P.,
10th November, 1882.]

To the Honorable the Minister for Works.

The Petition of the undersigned, representing the towns and adjacent districts of Muswellbrook, Denman, and Merriwa, in public meetings assembled,—

RESPECTFULLY SHEWETH,—

That at monster meetings of the residents of the several localities named opposite the signatures hereunto appended, it was resolved unanimously that the construction of a branch line of railway to connect the towns of Denman, Merriwa, and Cassilis with the Great Northern line at Muswellbrook, is highly desirable, the route indicated being the natural course of traffic from the last-named town and the best available junction to the main trunk line for the towns and districts lying north-west of Muswellbrook.

That a railway line has already been surveyed from Muswellbrook to Mudgee, which, with very slight deviations, will answer all the purposes required.

That the country through which the line—as surveyed—would pass, presents no engineering difficulties, is of the richest description, yields under cultivation immense crops of cereals of the finest quality, and is admirably adapted to grazing, which under the present mode of traffic is the only remunerative pursuit.

That the population and statistics of the localities interested shew that the line hereby advocated would be at least self-supporting; the lands through which it would pass being so suitable for agriculture, an immense impetus would be given to that industry which at present is languishing because an extensive market for its produce is practically inaccessible.

That the method of conveying goods by dray to and from the railway at Muswellbrook is inadequate for the existing traffic.

That should this line be at once proceeded with, the necessity for making expensive mountainous roads over the range of various points to feed the Mudgee-Wallerawang line would be obviated, as that traffic, to be carried on these roads, would be secured by the proposed line from Muswellbrook to Cassilis and westward.

Your Petitioners, therefore, pray your earnest consideration of the foregoing facts, and ask that you will be pleased to cause a sufficient sum of money to be placed upon the Estimates to carry out the said railway.

And your Petitioners, as in duty bound, will ever humbly pray, &c.

S. J. DOWEL, Mayor and Chairman,
For and on behalf of meeting held at Muswellbrook, on Monday, 25th September, 1882.

JAS. B. BETTINGTON, Chairman,
For and on behalf of meeting held at Merriwa, on Saturday, 30th September, 1882.

EDWD. WHITE, Chairman,
For and on behalf of a meeting held at Denman, on Saturday, 16th September, 1882.

FREDK. WM. MORRIS, Chairman,
For and on behalf of a meeting held at Hall's Creek, on Friday, 22nd September, 1882.

No. 3.

H. Stokes, Esq., to The Hon. A. Stuart.

Newcastle, 13 April, 1883.

Re proposed Railway between Muswellbrook and Cassilis.

My dear Mr. Stuart,

The enclosed letter has been handed to me by Mr. Edward Parnell, a gentleman who has resided in this district for many years, and who is the owner of large properties in Newcastle and Jerry's Plains.

He wishes me to represent to you that a more profitable railway can be constructed between Singleton and Cassilis, via Jerry's Plains, than between Muswellbrook and Cassilis.

If you will kindly read his letter, and do what you think right in the matter, you will confer a favour upon me.

Yours, &c.,

HENRY STOKES.

Railways.—B.C. 17/4/83. Forward to Engineer-in-Chief.—B.C. 21/4/83. Mr. Palmer to sec.—
W.H.Q. 24/4/83. Seen, H.P. 24/4/83. E-in-C. 25/4/83.

[Enclosure.]

[Enclosure.]

Dear Stokes,

Newcastle, 12 April, 1883.

In the *S. M. Herald* I noticed that a question had been asked the Colonial Secretary, by Mr. Olliffe, for M'Elhone, respecting the Scone or Muswellbrook Railway to Cassilis, and the answer given was to the effect that these lines should be surveyed for the purpose of determining which of the two should be adopted.

Now I believe if the Government were made aware of all the circumstances they would accept neither line, and I will endeavour to show you why, in the hopes that you will use what influence you possess in endeavouring to prevent a waste of some public money. This I need hardly say, is I believe a duty incumbent upon every Australian, and one I believe you feel, and this must be my apology for troubling you on this subject.

Now some time back, Mr. Gould, the member for Singleton, asked Mr. Copeland if he intended constructing a line between Singleton to Cassilis, via Jerry's Plains. He said he did not because the Engineer-in-Chief had protested against it, for the reason that it would be 80 miles from Singleton to Cassilis by that route, (I am speaking from memory), whereas the line to connect Cassilis by Scone with the Great Northern Railway would be only 50 miles, or from Muswellbrook only 60 miles, therefore one of these two lines would be adopted. Now I presume Mr. Copeland, or the Engineer-in-Chief know little of the country round about Cassilis, Scone, Muswellbrook, Merriwa, Denman, Jerry's Plains, and Singleton, or they would not come to the conclusion that, because the line is longer between Singleton, via Jerry's Plains to Cassilis, than it is between Cassilis and Scone or Muswellbrook, that it must necessarily be more expensive.

These gentlemen are perhaps not aware that about 24 years ago, a line was marked somewhere about Singleton and continued to, or nearly to Cassilis by a person named Rowland, a surveyor of high character, he being one of the twelve, Sir William Denison was instrumental in bringing to the Colony for the special purpose of surveying and reporting upon the best lines for general railway purposes. And I heard Mr. Rowland say, the Jerry's Plains line was the best he ever surveyed; and one presenting few, if any engineering difficulties.

I contend therefore, that this last-mentioned line would be the best, because either of the other lines would be more costly, as there are high ranges to cross in both cases, and in one the Hunter to bridge. And if these were effected, the result would be a much longer line, as it is 50 miles from Cassilis to Scone, and 46 from Scone to Singleton, making that distance 96 miles, and from Cassilis to Muswellbrook 60 miles, and from thence to Singleton 31 miles making this line 91 miles. So that in coming from Cassilis to Singleton through Scone it would be 96 miles, or from Cassilis through Muswellbrook it would be 91 miles, now as it is only 80 miles from Singleton to Cassilis via Jerry's Plains, there would be a saving of haulage by this last named route of 16 miles in the one case and 11 in the other.

'Tis true there are in the Scone route 46 miles already available, and 30 in the Muswellbrook line, despite this advantage I contend, and hundreds agree with me, that the line from Singleton through Jerry's Plains, Denman, and Merriwa to Cassilis would be the cheapest, as there are no high mountains to cut through, or Rivers to cross, except the Wolombi Brook, and the Goulburn which is a mere tributary of the Hunter, and the best as a "Feeder" because it passes through five times as much valuable country as the other lines, and possessed by ten times as many proprietors, and last but not least passes through a great deal of Government land (between Singleton and Jerry's Plains) and would thereby enhance the value of the national estate, as the unalienated land alluded to is covered with a forest of very valuable ironbark and other trees,

Now to make this matter lucid I have been guilty of great repetition, which I trust you will excuse.

Believe me to be,

Yours, &c.,

EDW. PARNELL.

No. 4.

Memo. from Mr. O'Keefe to J. M'Laughlin, Esq., M.P.

Dear Sir,

July 23, 1883.

Your letter to hand last night. The Committee are in great anxiety about the survey of our line not being proceeded with *at once, as promised*. I am requested to enquire from you if it is necessary to send a deputation to the Minister for Works, or can you get this promise fulfilled. There have been two surveyors sent to a line which was promised since ours, viz., Mudgee to Coonamble, and a promise has been given to survey a line, Werris Creek to Dubbo, which would shut us out completely. Gather what information possible, and let us know at once to appease anxiety of the people. I want to call the Committee together but have no information to lay before them.

Inform Mr. M'Laughlin that survey from Muswellbrook to Cassilis will be made.—F.A.W., 28/7/83. Mr. Whitton, B.C., 31/7/83.—J.R. Mr. Palmer.—W.H.Q., 1/10/83. The trial survey from Muswellbrook to Cassilis, *via* Merriwa, has already been commenced by Mr. Burrowes.—H.P., 1/10/83.

No. 5.

Memo. by The Secretary for Public Works.

Re Survey of line, Muswellbrook to Cassilis.

MR. JOHN McELHONE, M.P., has written to me asking that a survey might be made for a tramway or railway to Cassilis. I have written to Mr. McElhone promising that as soon as surveyors are available a survey would be made from Muswellbrook to Cassilis which I consider the best route to adopt.

F.A.W., 14/7/83.

Railways.—B.C., 14/7/83.
1/8/83. Noted.—H.P., 2/8/83.

Engineer-in-Chief.—B.C., 19/7/83.

Mr. Palmer.—W.H.Q.,

No. 6.

N. F. Asser, Esq., to The Secretary for Public Works.

Sir,

Scone, 20 February, 1883.

Being one of the deputation that waited upon the late Minister for Works *re* the railway from Scone to Cassilis, I consider it would not be acting in justice to myself and inhabitants of this district not to apprise you of the fact that a petition is being got up by the people of Muswellbrook urging their route, and collectors are getting this petition signed by all and whom they can. The collectors of these names have a contract for such names as they get, and are paid for such at the rate of 7s. per dozen, or 7d. for every name this collector gets. I hope you will take this into consideration when the petition is presented, as I am informed numbers of signatures have been obtained to this petition who are neither interested in one spot or the other, but have signed it on account of the pressure brought to bear by these paid collectors of names.

I have, &c.,

N. F. ASSER.

Railways.—B.C., 22/2/83.

No. 7.

No. 7.

Mr. Surveyor Burrowes to The Engineer-in-Chief for Railways.

Sir,

Railway Survey Camp, Muswellbrook, September 7, 1883.

I have the honor herewith to inform you that after due and careful examination of the country west of Muswellbrook, as far as Pike's Gap (Wybong Creek) I find that it is thoroughly impregnable for a line of railway, the mountains and gorges being very steep and broken, and, the way that I now propose to run my line is down the Hunter River for about seven miles, on the south bank. By doing this I avoid all mountainous country, and am on good open country, and then cross the river and strike due west on a good open flat to Wybong Creek, the only gap in the range that a line can be taken through, but, by keeping about $2\frac{1}{2}$ miles to the south, I avoid the range altogether, where the range terminates on the Goulburn. I then have good level country the whole way.

I have, &c.,

CHARLES A. BURROWES,

Railway Survey, Muswellbrook.

Mr. Palmer.—W.H.Q., 7/9/83.

Seen.—H.P., 7/9/83.

No. 8.

J. P. Abbott, Esq., M.P., to The Secretary for Public Works.

Sir,

6 and 7, Wentworth Court, Sydney, October 13, 1883.

I have the honor to enclose to you a letter from Mr. N. F. Asser, of Scone, in reference to a trial survey of the line from Merriwa to the Great Northern. I would urge that before any decision is arrived at, that a survey should be made between Scone and Merriwa, and that the owners of land on that route, as also upon the one from Muswellbrook to Merriwa, should be asked to sign a document, agreeing to give the land required free. I am quite sure the bulk of the owners will do so.

I have, &c.,

J. P. ABBOTT.

Inform Mr. Abbott that as the trial survey now being made from Muswellbrook to Cassilis is being made *via* Merriwa, I cannot see any reason for an additional survey; but that if surveyor can be spared from other work the line may be surveyed in time.—F.A.W., 19/10/83.

Mr. Whitton.—J.R., B.C., 23/10/83.

Mr. Palmer.—W.H.Q., 26/10/83.

Noted.—H.P.,

26/10/83.

[Enclosure.]

Honorable J. P. Abbott, M.P.,—

Scone, 11 October, 1883.

Dear Sir,

I had intended seeing you when you went through yesterday, but could not get up to station in time. Last year I made one of a deputation that waited upon the late Minister for Works, the Honorable J. Lackey, *re* a survey for a Railway from Scone to Merriwa, &c., which Mr. Lackey promised, that a trial survey should be made from here as well as Muswellbrook. The survey is at present being made from Muswellbrook, and we in this district believe that the line taken from Scone would serve a greater number of people than via the Brook and Denman, and be cheaper, and Donald Macintyre, Esq., who was also one of the deputation, offered the land required going through his property on the Scone route. So far as I can learn a practicable route cannot be had direct from Muswellbrook, and it would have to be taken to Piercefield before crossing the river, which will take a very expensive bridge. If you will kindly lay this matter before the Minister for Works you will oblige yours respectfully,

N. F. ASSER.

Sir John Robertson and R. H. Levien promised to see Mr. Wright about this matter, but I thought more the better.

No. 9.

John McElhone, Esq., M.P., to The Secretary for Public Works.

Sir,

Sydney, 15 October, 1883.

I have the honor to enclose you petition from the inhabitants of Denman, praying that the railway survey from Muswellbrook to Cassilis may be taken or made by Denman, and have the honor to request that you will be pleased to give instructions to have the survey made via Denman. It is the centre of a large district, and a large quantity of wheat, wine, &c., is produced on the Goulburn River close by Denman, and its natural outlet is at Denman. Trusting that you will grant the request of the petitioners.

I have, &c.,

JOHN McELHONE.

Inform that I cannot consent to a line surveyed to Denman hence to Cassilis, as it would be too much of a round, Denman being very much out of the direct line.—F.A.W., 17/10/83. J. McElhone, Esq., M.P., 18/10/83. Railways.—J.R., B.C., 19/10/83.

[Enclosures.]

Dear Sir,

Denman, 10 October, 1883.

We had a meeting in reference to the subject of the enclosed Petition a few days [ago] at Denman. The following motions were unanimously carried:—

"That Mr. James Gillies be elected Hon. Secretary."

"That Messrs. J. Gillies and W. C. Brecht be authorized to draw up a draft Petition."

"That Messrs W. C. Brecht, M. Doyle, J. H. Saunders, W. Day, H. Stent, and G. Ross, be appointed a Committee to collect signatures and carry out the purposes of the meeting."

We now confidently put the matter into the hands of you and Mr. McLaughlin, knowing from past experience that you will do all in your power to forward our interests. We beg to request that you will use all possible despatch, as the Railway Surveyor has now reached the point where the line will turn towards or turn away from Denman, and he is waiting instructions as to which way he should run it.

Yours faithfully,

JAMES GILLIES

John McElhone, Esq., M.L.A., Sydney.

(Pro. Committee and other signers.)

To

To the Honorable the Minister for Works, Sydney

The Petition of the undersigned inhabitants of Denman and the surrounding district,—

Respectfully sheweth:—

That having anxiously watched several years for the construction of a line of railway to connect our township and district with the Great Northern Railway, it is with regret and surprise that we learn that it is contemplated to run the line which is now being surveyed from Muswellbrook to Cassilis at a distance of over 3 miles from Denman.

That Denman is the natural centre and outlet of about 200 square miles of rich agricultural and pastoral land and wheat growing and wine culture are extensively carried on in the district, and large quantities of these commodities and also great numbers of fat stock are annually sent away.

That the neighbourhood of Denman has a population of over 800, and the township contains three substantial Church buildings, School of Arts, Stores, Hotels, Flour and Saw Mills, a Court-house and Police Quarters, Post and Telegraph Office, and a Public School attended by 100 children, besides the usual private dwellings; and there is every reasonable prospect of a large increase in the settlement and population of the neighbourhood, as there is available a good deal of Crown Lands which is being rapidly appropriated and settled on (as can be ascertained by reference to the Lands Office), as well as a large area of town allotments, Government property, the value of which by bringing the railway near to them would be enhanced to an extent that would nearly if not quite compensate for any extra cost that might be incurred in slightly deviating the line to suit the conveniences of the people.

That all these interests would be most prejudicially affected, our properties depreciated in value, and we would be put to most serious loss and inconvenience if the line were to run at such a distance from the township.

We therefore regard the matter with utmost concern and anxiety, and beg humbly to submit that, as the ground is quite level and no engineering difficulties in the way, a fact which the engineer surveying the line, after having carefully inspected it fully admits, we have good grounds for requesting that the line be brought through the township.

We trust that you will take these premises into favourable consideration, and your petitioners, as in duty bound, will ever pray.

Name.	Occupation.	Address.	Name.	Occupation.	Address.
John H. Saunders	Storekeeper	Denman.	Henry Rose	Farmer	Denman.
George Brown	Stockman	Merton, Denman.	John Leaming	Labourer	Denman.
Daniel Taylor	Gardiner	Merton, "	Richard Scott	Labourer	Wybong, Denman
Walter Cousins	Farmer and Grazier.	Greenwood Park, Den-	Henry Parkinson	Teacher	Denman.
Thos. A. Hewitt	Grazier and Farmer.	" Ferndale," Denman.	Robert Ward	Butcher	Denman.
G. H. Hewitt	Farmer	Engaddie, "	James Frazer	Drover	Denman.
F. J. Hewitt	Farmer	Ferndale, "	Thomas Elliott	Drover	Denman.
H. A. Stent	Grazier and Farmer.	Bureen, "	Richard Pendleton	Drover	Denman.
A. Frazer	Farmer	Goulburn River, "	Apsley Hewitt	Selector	Denman.
Henry Frazer	Farmer	Goulburn River, "	John Bogan	Groom	Denman.
Arthur Frazer	Drover	Denman, "	George Rye	Stonemason	Denman.
William Dobby	Farmer	Denman, "	Adam Brindle	Carpenter	Denman.
John Rose	Farmer	Goulburn River, "	James Brindle	Groom	Denman.
Henry Rose	Farmer	Goulburn River, "	Henry Spohr	Carpenter	Denman.
Humphrey Rose	Farmer	Goulburn River, "	Robert Rose	Stockman	Martindale, Denman.
Reuben Rose	Fencer	Goulburn River, "	C. M. Mills	Clerk in Holy Orders.	Denman.
John T. Harris	Farmer	Martindale Creek, "	D. Herps	Drover	Denman.
Jacob Nelson	Sawyer	Martindale Creek, "	Andrew Mackenzie	Freeselector	Hall's Creek, Denman.
Frank Mills	Sawyer	Martindale Creek, "	James Gillies	Teacher	Denman.
George Henry Wells	Farmer	Martindale Creek, "	Stephen Booth	Farmer	Denman.
Thomas John Wells	Farmer	Martindale Creek, "	John Booth	Farmer	Denman.
William Wells	Farmer	Martindale Creek, "	John Smith	Farmer	Denman.
Edward Medhurst	Farmer	Martindale Creek, "	John Baker, senr.	Labourer	Denman.
George T. Medhurst	Farmer	Martindale Creek, "	John Baker, junr.	Labourer	Denman.
Faben Medhurst	Farmer	Martindale Creek, "	Samuel Jennison	Blacksmith	Denman.
W. Ingram	Carrier	Goulburn River, "	Francis Mathieson	Blacksmith	Denman.
W. G. Kellwell	Selector	Horseshoe, "	Edwin Trowbridge	Stockman	Denman.
Michael Doyle	Hotelkeeper	Denman.	Stephen Munn	Landholder	Denman.
Isaac Gallimore	Drover	Denman.	George N. Munn	Householder	Denman.
Thomas A. Doyle	Butcher	Denman.	T. L. Coughlan	Telegraph operator.	Denman.
Robert Allen	Gardener	Denman.	E. Kibble	Freeholder	Denman.
James Lommon	Butcher	Denman.	John A. Mason	Drover	Denman.
Timothy Ryan	Gardener	Denman.	Elijah Budden	Saddler	Denman.
John Mills	Farmer	Connard Farm, Denman	Charles Jones	Storekeeper	Denman.
John Hughes	Miner	Connard Farm, "	Walter Leon Medhurst	Freeselector	Denman.
Charles Castledine	Farmer	Doyle's Creek, "	George Woodhouse	Gardener	Martindale, Denman.
William Killin	Farmer	Doyle's Creek, "	Joseph Ham	Selector	Hall's Creek, Denman.
John Killin	Farmer	Doyle's Creek, "	George Capping	Mills	Denman.
Samuel Killin	Farmer	Doyle's Creek, "	William Alinson		Denman.
Benjamin Hardy	Farmer	Doyle's Creek, "	Charles Nagle	Farmer	Denman.
James Bennett	Farmer	Doyle's Creek, "	John Nagle	Wine grower	Denman.
James Bennett	Farmer	Doyle's Creek, "	Harry Fleming	Groom	Denman.
James Bennett	Farmer	Doyle's Creek, "	William Day	Hotelkeeper	Denman.
Christian Neilson	Farmer	Doyle's Creek, "	A. King	Labourer	Denman.
Daniel Barry	Farmer	Doyle's Creek, "	B. J. Nater	Contractor	Denman.
Thunter Barry	Farmer	Doyle's Creek, "	M. G. Hanrahan	Butcher	Denman.
James W. Barry	Farmer	Doyle's Creek, "	Geo. A. Saunders	Miller	Denman.
Rosser Barry	Farmer	Doyle's Creek, "	H. M'Connell	Super.	Woodlands, Denman.
Christopher O'Hara	Farmer	Doyle's Creek, "	John Barclay	Storekeeper	Denman.
Daniel O'Hara	Farmer	Doyle's Creek, "	Owen Huden	Contractor	Denman.
James O'Hara	Farmer	Doyle's Creek, "	Peter Cleary	Stonemason	Denman.
Johnas O'Hara	Farmer	Doyle's Creek, "	Albert T. Churchland	Bricklayer	Denman.
James Foster	Farmer	Doyle's Creek, "	Daniel M'Ara	Carpenter	Denman.
Joseph Castledine	Farmer	Doyle's Creek, "	W. C. Shilling	Brickmaker	Denman.
Edward Castledine	Carpenter	Doyle's Creek, "	G. Allen	Brickmaker	Denman.
J. A. Castledine	Farmer	Doyle's Creek, "	T. Allen	Carrier	
John Castledine	Farmer	Doyle's Creek, "	R. Courtney	Labourer	Denman.
Jesop Cox	Farmer	Doyle's Creek, "	Robert A. M'Kenzie	Drover	Woburn, Denman.
Daniel Allen	Farmer	Doyle's Creek, "	James Ham	Labourer	Hall's Creek, Denman.
Mathew Allen	Farmer	Doyle's Creek, "	T. W. Merry	Drover	Giant's Creek, "
C. W. Powell	Mason	Denman.	W. H. Sandels	Labourer	Jain's Creek, "
William Mills	Farmer	Connard Farm, "	Henry Modinger	Winegrower	Giant's Creek, "
Michael Ragan	Farmer	Doyle's Creek, "	John Hornery, senr.	Farmer	Giant's Creek, "
Daniel Murphy	Farmer	Doyle's Creek, "	John Hornery, junr.	Farmer	Giant's Creek, "
P. Becker	Labourer	Denman.	W. H. Parker	Stockman	Giant's Creek, "
Alexr. Wyllie	Carpenter	Denman.	William Parker	Drover	Giant's Creek, "
William Geo. Marsh	Carpenter	Denman.	George Parker	Stockman	Giant's Creek, "
George Munro	Drover	Denman.	W. J. Parker	Drover	Giant's Creek, "
Alex. Munro	Drover	Denman.			

Name.	Occupation.	Address.	Name	Occupation.	Address.
A. R. Parker.....	Drover.....	Giant's Creek, Denman.	Daniel Murphy.....	Farmer.....	Doyle's Creek, Denman
Henry Parker	Farmer.....	Giant's Creek, ,,	Charles Margin.....	Stockkeeper	Denman.
Reyran Hennessey ...	Farmer.....	Giant's Creek, ,,	William Pool.....	Farmer.....	Denman.
William Maxwell.....	Drover.....	Goulburn River, ,,	Joseph Hilton	Selector ...	Denman.
William Lawenoff.....	Farmer.....	Hall's Creek, ,,	Hilton Harrison	Bootmaker.	Denman.
John Ham	Farmer.....	Hall's Creek, ,,	Thomas J. Purvis.....	Selector ...	Denman.
James Ham	Farmer.....	Hall's Creek, ,,	Alex. Graham, sen. ...	Farmer.....	Richmond, Denman.
Alfred Ham	Farmer.....	Hall's Creek, ,,	William H. Purvis, jun	Farmer.....	Denman.
William H. Purvis ...	Farmer and vigneron.	Denman.	A. Graham	Grazier.....	Richmond Grove, Den- man.
W. L. C. Brecht	Vigneron ...	Lower Goulburn, ,,	Arch. Graham	Farmer.....	River Side, Denman.
E. Brindle	Labourer ...	Denman.	T. Graham	Farmer.....	Richmon Grove, Den- man.
T. Beuschel	Farmer.....	Denman.	H. Brecht	Vigneron ...	Rosemount, Denman.
George Oxford	Stonemason	Denman.	Anthony Bush	Vigneron ...	Denman.
Thomas Oxford.....	Stonemason	Denman.	Jacob Bush	Vigneron ...	Rosemount, Denman.
Henry Oxford, sen. ...	Stonemason	Denman.			
Henry Oxford, jun....	Stonemason	Denman.			

No. 10.

J. McElhone, Esq., M.P., to The Secretary for Public Works.

Sir,

Sydney, 22 October, 1883.

I have the honor to acknowledge receipt of letter of 18th instant, advising me that Denman is considerably out of the direct line—Mudgee to Cassilis—and the Secretary for Public Works is unable to comply with my request to survey a railway line to Denman.

I have the honor to inform you that I did not mention the Mudgee line to Cassilis, as there is no such line.

The petitioners requested that the trial survey of a line from Muswellbrook to Cassilis Line might be made *via* Denman.

As the surveyors are close to Denman, and it would cost very little to make the survey asked for, I have again the honor to request that you will be pleased to order that a survey may be made *via* Denman to Cassilis.

And I would point out to you that a trial survey which cost a lot of money was made *via* Port Hacking to Woollongong, and which I believe would not have been made if one of your colleagues had not owned a large area of land through which this survey went.

Such being the case, and as it is unusual to refuse to grant a survey of a few miles to Denman, which will cost very little to make, I hope you will reconsider your decision, and order a trial survey to be made to Denman of the line being surveyed from Muswellbrook to Cassilis.

I also requested that you would be pleased to give instructions to continue the trial survey from Cassilis to Coolah, as Coolah is the centre of a large wool-producing district. As the latter must have escaped your notice I trust the survey will be continued from Cassilis to Coolah.

Yours, &c.,
J. McELHONE.

The Hon. F. Wright, Minister for Works.

Inform of mistake and state that when survey now being made between Muswellbrook and Cassilis is complete I will, in deference to your repeated request, have a survey made of a route which will include Denman, but that I cannot promise a survey from Cassilis to Coolah.—F.A.W., 24/10/83.

John McElhone, Esq., M.P., 24/10/83.

Railways.—J.R., B.C., 26/10/83. Engineer-in-Chief (*pro* Commissioner).—G.B., B.C., 31/10/83.

Mr. Palmer.—W.H.Q., 2/11/83. H.P., 3/11/83.

No. 11.

J. McElhone, Esq., M.P., to The Secretary for Public Works.

Sir,

Sydney, 23 February, 1884.

I have the honor to forward you letter received by me from Mr. E. O'Keeffe, Secretary of the Merriwa Railway Committee, in reference to the trial survey from Muswellbrook to Merriwa being stopped at or near Giant's Creek.

I will feel obliged if you will cause me to be advised as to the cause of the stopping of the above trial survey if it is stopped, and if so, when it is likely that it will be again gone on with.

Yours, &c.,
J. McELHONE.

[Enclosure.]

Dear Sir,

Merriwa, 20 February, 1884.

In compliance with a resolution passed to-night at a meeting of the Merriwa Railway Committee.

I am directed to inform you that the survey of our railway line, Muswellbrook to Merriwa, has been suspended. The survey has reached Giant's Creek, about 30 miles from Muswellbrook (rumour says through scarcity of water), but such an excuse, if put forward, is not feasible; there being a sufficient supply of good water all along the route.

The Committee requests that you will be good enough to ascertain from the Minister the real cause of this stoppage, and urge the continuance of this survey without delay.

I am, &c.,
EDWARD O'KEEFFE,
Hon. Secretary, Merriwa Railway Committee.

P.S.—The people are in a ferment over this stoppage, which they fear is an attempt to shelve our railway.—E.O.K.

John McElhone, Esq., M.P.

Mr. Whitton for report.—F.A.W., 26/2/84. J.R., B.C., 27/2/84. Mr. Palmer.—W.H.Q., 1/3/84.

This survey was stopped through the surveyor who was engaged upon it having reported that there was a total absence of water along the whole route of survey between Giant's Creek and Merriwa, after having

having been specially instructed to examine the country throughout and to ascertain whether there was any portion of the survey that might be taken up. Another surveyor may be sent to continue the survey immediately after the district has been visited by a sufficient fall of rain.—H.P., 3/3/84.

Under Secretary, B.C., 5/3/84. P.W.O., 6/3/84. Inform.—F.A.W., 7/3/84. John McElhone, Esq., M.P., 10/3/84. Mr. Whitton, B.C., 10/3/84.—J.R.

No. 12.

J. M'Laughlin, Esq., M.P., to The Secretary for Public Works.

Dear Sir,

Temple Court, King-street, Sydney, 25 February, 1884.

Herewith I enclose you a letter received by me from the Hon. Secretary of the Merriwa Railway Committee; kindly peruse same and let me know the present position of the survey referred to.

I am, &c.,

JNO. M'LAUGHLIN.

[Enclosure.]

Dear Sir,

Merriwa, 20 February, 1884.

In compliance with a resolution passed to-night at a meeting of the Merriwa Railway Committee, I am directed to inform you that the survey of our railway-line from Muswellbrook to Merriwa, has been suspended (rumour says through scarcity of water), but such an excuse, if put forward, is not feasible, there being a sufficient supply of good water convenient all along the route. The survey work has reached Giant's Creek, about 30 miles from Muswellbrook, and now stopped.

The Committee request that you will be good enough to ascertain from the Minister the real cause of this stoppage of the survey, and to urge the continuance of the work without delay.

I am, &c.,

EDWARD O'KEEFE,

Hon. Secretary, Merriwa Railway Committee.

John M'Laughlin, Esq., M.P.

Place with letters from Mr. McElhone and send on to Mr. Whitton for report.—F.A.W., 26/2/84.

No. 13.

Mr. Surveyor Burrowes to The Engineer-in-Chief.

Sir,

Railway Survey Camp, Hall's Creek, *via* Denman, 15 January, 1884.

I have the honor to inform you that, owing to the severe drought in this district, the water is fast failing, and I am now reduced to one small hole on the township reserve at Hall's Creek, there being no other waters available. Giant's Creek is dry, as well as Hall's Creek, with the exception of this hole, and as travelling stock are coming along this road in great numbers and dying in hundreds along the road, and in the waterhole that we get our water from we have had to drag a couple of dead bullocks out of, the water cannot last but a few days longer without rain, and the nearest water is the Hunter and Goulburn, about 20 and 10 miles away. Please instruct me further. If we get rain it will be all right here, but if none I am at a loss as to know what to do. All the farmers have to leave their farms and go on to water, and the country here, in general, is in a deplorable state.

I have, &c.,

CHARLES A. BURROWES,

Railway Surveyor.

Mr. Palmer.—J.W., 17/1/84.

Mr. Burrowes instructed to report whether, in the event of a continuance of the drought, there are other points along the route of this trial survey (say) at Merriwa or Cassilis where there is a sufficiency of water to enable him to take up the survey and work back to meet the portion already surveyed.—H.P., 17/1/84. End of month.

No. 14.

The Assistant Engineer for Trial Surveys to Mr. Surveyor Burrowes.

17 January, 1884.

With reference to your report dated the 15th instant, as to the scarcity of water at Hall's Creek, where you are now engaged on the Muswellbrook and Cassilis trial survey, you should ascertain and report without delay whether there are other points along the route of this trial line (say) at Merriwa or Cassilis where you could obtain water in sufficient quantities to enable you to carry out your work, and from which you could survey to meet the portion already surveyed. This course should not be adopted unless you are compelled to do so, and as it has been raining here to-day, I trust your supply has been augmented.

HERBERT PALMER.

No. 15.

Mr. Surveyor Burrowes to The Engineer-in-Chief.

Sir,

Merriwa, 19 January, 1884.

Mr. Palmer's letter to hand, No. 84-17, on receipt of which I left for Merriwa and Cassilis to see if a point could be taken up where I could connect my work with my present working, and after carefully inspecting round Merriwa find that there is no water here or between here and my line. The country is simply in a deplorable condition, and my men are suffering from the very bad water, one man having to leave me and go to the hospital. The water is simply putrid, and from what I learn at present there is little or no water between here and Cassilis, but will report to you by Tuesday's mail.

Yesterday was a very cloudy day here, but to-day is as usual, dry, hot winds again. I had to sink a hole for water, but obtained none, and have had to drag dead cattle out of the hole we are now using.

In the event of not getting water between here and Cassilis, I might mention that it would be advisable to strike my camp and leave it at Hall's Creek until such time as we get rain, and discharge my men. They are sinking in the Hunter River for water at the present time at Muswellbrook and other places, and the Goulburn River is quite salt.

If we do not get water I fear that we will have serious illnesses in camp through such water. Will write further on inspection between here and Cassilis.

I have, &c.,

CHARLES A. BURROWES.

Mr. Palmer.—W.H.Q., 22/1/84. H.P., 23/1/84.

No. 16.

The Assistant Engineer for Trial Surveys to Mr. Surveyor Burrowes.

25 January, 1884.

As it appears from your reports that the trial survey from Muswellbrook to Cassilis cannot be continued at present in a satisfactory manner, through the scarcity of water in the district, you may break up your party and return to Sydney. As it is uncertain at what time this survey will be again taken up, you should either bring your equipment to Sydney or leave it stored, so that you might have it forwarded to Sydney without difficulty when required. You will be allowed to bring to Sydney those of your party only that you took up with you.

HERBERT PALMER.

No. 17.

Telegram from Mr. Surveyor Burrowes to The Engineer-in-Chief.

Merriwa.

Am leaving for Merriwa and Cassilis *re* water. No rain. Country deplorable. Will write Monday's mail. Have sunk for water, but none.

CHAS. A. BURROWES.

Railway Department.

Mr. Palmer.—W.H.Q., 21/1/84. Seen.—H.P., 21/1/84.

No. 18.

Mr. Surveyor Whitlock to The Assistant Engineer for Trial Surveys.

Sir,

Post Office, Giant's Creek, 16 May, 1884.

I have run a curve roughly at the Muswellbrook station, but to stake it out will take some time, owing to obstructions, &c.; therefore I went on to the above place, and am running the line as you directed; then I will proceed with the main work onward, back, and also forward, so as to try and raise the gradient and get clear away. I can at any time drive down to Muswellbrook and complete that part of the work, but perhaps the curve as it is now set out may be improved so as to keep off the banks of the river. Will you allow me to try to do so, or propose a way to deviate the creek. Address Giant's Creek for the present.

I have, &c.,

J. S. WHITLOCK.

Instructions sent to Mr. Whitlock.—H.P., 19/5/84. Put by.

No. 19.

The Assistant Engineer for Trial Surveys to Mr. Surveyor Whitlock.

19 May, 1884.

You must procure, without delay, the additional information at Muswellbrook, where the trial survey to Cassilis leaves the Northern Railway, as I instructed you before leaving the office, viz., to stake a traverse to suit approximately the curve I laid down on the plan, and level the same; also to take the few necessary cross levels to show whether the floods from the Hunter River will prevent any portion of the line, as surveyed by Mr. Burrowes, being adopted.

HERBERT PALMER.

No. 20.

The Assistant Engineer for Trial Surveys to Mr. Surveyor Whitlock.

19 May, 1884.

UNDER separate cover I have forwarded the parish maps and reference sheets as requested. There is no report of Mr. Burrowes that could be of any use to you. You must examine the country from the termination of that surveyor's plan and section to Merriwa, and after completing the survey to that point, can examine the remaining length to Cassilis, before continuing the survey beyond Merriwa.

HERBERT PALMER.

No. 21.

Mr. Surveyor Whitlock to The Engineer-in-Chief.

Sir,

Survey Camp, Gungull, Muswellbrook, 9 June, 1884.

In reply to instructions, 9th May, 1884, No. 84-105, which I will carry out, Mr. Burrowes' reports will be of no use to me, and I need not have asked for them, except under orders to do so. There will be no difficulty in defining the route into Merriwa, the starting point having been determined by Mr.

Mr. Burrowes, where he left off work, and traced out the line, the direction of which goes up the Giant's Creek Valley, which takes the line over a ghaat or gap from Giant's to Hall's Creek, similar to the one at the 19th mile or near Pyke's Gap. I have tried some deviations and cross sections. The line over this gap, as per section enclosed, can be much improved. I will report on the line to Merriwa as early as possible, as per instructions to examine the country. To save time and expense, perhaps (if you deem it advisable) it may be as well to employ some one for a day or two who knows the country well, to accompany me, to go over the ground, before I lay out the proposed line of railway, and probably by so doing, I might get the best line at once, as it is a rough country beyond Gungal.

The line having been fixed by Mr. Burrowes to go through the ghauts or gaps at the 19 and 27 miles, you may not have any objection, there being also another gap (via the Wappengai), which will necessarily (under any circumstances) have to be crossed, a distance of 7 miles, before reaching Merriwa.

On the contrary, should you wish to consider a line, via Denman, keeping level country, avoiding altogether the gaps at the 19 and 27 miles, as this is not in my work, and no time allowed for it, I shall, however, avoid reporting in any official diary on such matters, except in carrying out instructions received from time to time. As per instructions, No. 84-104, the 25-chain curve, as marked on my sketch tracing to suit approximately the ground, crosses the Sydney St. (Denman's Road), some distance from the present railway level crossing, and would destroy some good houses and one large hotel. The junction or points would also leave the rails at the south end of the Muswellbrook platform (which may be objectionable). The levels are nearly the same as over the original line. The highest flood levels of River Hunter reached about 3 feet below the present level of the railway, crossing the Public Road north of the railway station, and came over the road about 6 chains below the crossing (Denman's side of the same). There is no fear of floods preventing any portion of the line, as surveyed by Mr. Burrowes, being adopted, as the line where it crosses the Public Road bridge, is out of flood level. This flood level will apply along the line by the River Hunter. The floods have never gone over the Public Road bridge. Muswellbrook Creek might be much improved by diverting the stream to let out the back water. The present curve, a 15-chain radius, goes off north of the railway station.

By reducing the radius of curve leading from the Muswellbrook Railway Station, if you wish and deem it advisable, to 12-chain radius, a longer lead can be obtained for the points from the station, and perhaps you may approve of the line being nearer the present railway level crossing, or nearly into the same, and also to run the line about half a chain further off the river, and join the original line further on by a curve. It might probably be so arranged as not to interfere with the present Public Road bridge crossing the creek at the railway level crossing.

There may be curves of 12 chain radius on other portions of the line near stations. Perhaps it may be deemed advisable to adopt a smaller curve than 15 chains, looking at the advantages to be gained, and the line can be kept parallel to the river bank.

Absence from my camp for some days on the line towards the 20th mile, delayed me sending this information, and I was anxious to send levels of the gap at the 27th mile.

Under instructions, I have inspected and tried some deviations at the ghaat or gap, 19th mile, to try and improve the original line. These all give a grade of 1 in 40, and on the summit, 20 chains of tunnel with 100 feet above it, too deep for open cutting. Under no circumstances can the original line be improved at that point. It is confined to a small area in crossing the gap, and runs nearly on the square from valley to valley; by trying to creep up the sides of the hills could only be done by taking a long circuit and returning on the other side to the same point.

At Pyke's Gap, some distance off where the mail coach goes on the Public Road, the gap at the 19th mile is much easier and a better line, so that it cannot be improved at that point. The direction of the line onwards has been fixed by Mr. Burrowes (via Giant's Creek), which I am trying to improve at the gap, by going a considerable distance back, and creeping up the sides of the hills to reach the summit, or by diverging into another gap a little further down towards Gungal, and so try and get it nearer the township.

I have, &c.,

JOHN S. WHITLOCK.

Mr. Palmer.—W.H.Q., 12/6/84. Seen.—H.P., 13/6/84. I presume Mr. Whitlock has had all necessary instructions for the direction of this line.—J.W., 20/6/84. Mr. Palmer. I went carefully through plans of this district with Mr. Whitlock before he left, and gave him all necessary instructions.—H.P., 20/6/84.

No. 22.

The Assistant Engineer for Trial Surveys to Mr. Surveyor Whitlock.

13 June, 1884.

PLEASE forward at the end of the present month a tracing of reduction (to the county map scale of 2 miles to an inch) of the plan of your trial survey completed to that date, from the end of Mr. Burrowes' work towards Cassilis, and at the end of each succeeding month send in a similar tracing, shewing the monthly progress made with this survey until completion to Cassilis.

HERBERT PALMER.

No. 23.

Mr. Surveyor Whitlock to The Engineer-in-Chief.

Sir,

Wappengai, Gungal P.O., via Muswellbrook, 30 June, 1884.

I have the honor to state that, under instructions, I beg to forward a tracing of a reduction (to the county map scale—2 miles to an inch) of the survey plan complete to date. I commenced to run the centre line and take the permanent levels from the end of Mr. Burrowes' work, viz., the 21st mile, B.M. 22, datum, 542.64 ft., 1 chain east of line.

A similar tracing, showing the monthly progress made with the survey until completion to Cassilis will be furnished hereafter, as per your instructions, No. 84-124.

I shall proceed to inspect the route to Cassilis on the completion of work to Merriwa, about the end of next month, as per instructions, No. 84-105.

Two

Two Gaps or High Hills have been crossed, similar to the one at the 19th mile, viz., from Giants to Hall's Creek, at 28½ miles, and the other to get to the Worondi Creek, about 33 miles, marked on tracing.

Gradients, probably averaging 1 in 60-50; width of Hall's Creek average 1½ chain, with drainage area, say 20 miles by 4 miles.

I estimate that in the distance from the 21st to 33rd mile, four 6-foot and three 12-foot openings will be wanted for drainage to the creeks, and these may answer for cattle passes and occupation roads. 3 road crossings will, necessarily be required at the 26th, 28½, and 32nd miles.

Drainage area to small openings is only limited in all cases. Hills surrounding and ground undulating, &c., to the creeks.

Good building stone and lime is to be found, also an average supply of timber in the above locality. Supply of water, very limited.

I will furnish a report from the 33rd mile on to the Wappingai Gap in July report hence to Merriwa. This gap appears to be the most difficult one to cross. Gradients may be expected from 1 to 35 to 40.

It may be desirable to run more than one trial line over it to find the best crossing, also to take some cross sections to the Worondi Creek.

I believe after passing Merriwa the country is more favourable—less undulating; consequently not so tedious in selecting the route.

I estimate it may take at least four months to complete the length to Cassilis.

Supplies cannot be had nearer than Muswellbrook, and this only for daily cash payments.

The district from the 25th mile to the 35th mile is very rough and undulating, and beyond it to Merriwa. I have, &c.,

JOHN S. WHITLOCK.

Copy of sections of gaps will follow.—J.S.W.

No. 24.

Report of Line from Muswellbrook towards Cassilis, distance 25 miles 34 chains.

Railway Survey Department, 26 February, 1884.

The Engineer-in-Chief, Railway Department, Sydney,—

Sir,

I have the honor to report as follows, respecting my trial survey from Muswellbrook towards Cassilis:—

Bridges.—The first is over Muswellbrook Creek, on a 15-chain radius, at the approach to the Muswellbrook railway-station, and can be spanned without much difficulty, as the banks on both sides are very high. No. 2 is over the Hunter River, at Pearcefield, distance from Muswellbrook, 9 miles 50 chains. The foundation to this is really first-class, being a fine ledge of rocks extending over the river at an angle of 10 degrees. There is here, on the right bank, a very heavy seam of first-class coal, and showing itself in many places, and this has been tested and found equivalent to Newcastle coal. The banks on the river here are also very high, and the approaches good. No. 3 will be over the Wybong Creek, distance from Muswellbrook 16 miles 47 chains. This also is on a ledge of rocks, with good high banks; and this creek has never been known to overflow its banks. No. 4. The fourth is Giant's Creek, a small creek some 22 miles from Muswellbrook, and is not of any importance, being only a little over 1 chain wide, and as this creek has never flooded I think there will be no difficulty in having a very light structure here.

Culverts.—The culverts are not numerous, and only pertain to water ruts and very small gullies, a shown on general plan, many of which by training water courses can be avoided altogether.

Ballast.—This line is well supplied with first-class blue metal, and after the Wybong Creek is crossed metal of the very best description is attainable all along the line, and extra large quantities may be had anywhere, and especially at the foot of the range on the Stock Reserve, distance 22 miles from Muswellbrook.

Timber.—The timber is of a first-class description, being stout iron-bark, and different descriptions of gums, and also Cyprus pine of a large sort. The timber is in every way adapted for sleepers, piles, and railway construction in general, and the pine of a large enough description to be utilised in railway buildings, stations, &c.

Water.—Permanent water is only found in the Hunter River and the Wybong; but the Wybong has run dry this year, a thing which has never been known before.

Tunnels.—There are no tunnels of any description, and, with the exception of one or two places, is comparatively level.

Cuttings.—There are only two cuttings of any importance, which will be seen on my section—that on the main range, Pike's Gap; and one distant about four miles from the Hunter River.

Forming.—For the first 14 miles, with the exception of a small rise at Eden Glassie, distant from Muswellbrook about 4 miles, it will be all forming; and from the small cutting required at Eden Glassie there will not be found much bank to utilise in the formation. The rest of the line, excepting that shown, will be undulating country.

The Soils from Muswellbrook to a point 14 miles from Muswellbrook will be found to be a light loamy clay for a depth of about two feet; then will be found a sort of gravelly clay, with chalk stone suitable for forming.

Bricks.—At a distance of two miles and nine miles will be found, a short distance from the line, some splendid clay, suitable in every way for first-class bricks. Bricks of a very good description have been made at both these places.

CHARLES A. BURROWEES,

Railway Surveyor.

Mr. Palmer for report.—W.H.Q., 12/8/84.

The section of this portion of the proposed Muswellbrook and Cassilis Railway is a fairly easy one, with the exception of about 4 miles—viz., about 2 miles on each side of Pike's Gap. Here, according to the section of trial survey, there will be a tunnel, 23 chains in length, with very heavy cuttings on either side and grades of 1 in 40 for the greater part of the length. The bridges over the Muscle Creek and the River Hunter will also add considerably to the cost of the line.—H.P., 11/9/82.

No. 25.

This is not correct. There will be a tunnel required through Pike's Gap, 23 chains in length.—H.P., 11/9/84.

No. 25.

Mr. O'Keeffe to Mr. Surveyor Whitlock.

Dear Sir,

Merriwa, 4 August, 1884.

I am directed to inform you that at a public meeting, held at the School of Arts this evening, a resolution was carried by a majority of nearly three to one in favour of the junction of Venacher and M'Kenzie Streets being the best site for the Railway Station at Merriwa, this being most convenient for the townspeople, and clean in all seasons.

I may here remark that the Chairman (Mr. Bettington), in expressing concurrence with the meeting, stated that the site adopted was identical with that which you recommend.

I am, &c.,

EDWARD O'KEEFFE,

Hon. Secretary Merriwa Railway Committee.

Mr. Palmer.—W.H.Q., 4 Sept., 1884. Seen.—H.P., 4/9/84.

No. 26.

Mr. Surveyor Whitlock to The Engineer-in-Chief.

Merriwa, 6 August, 1884.

Report on the proposed trial line of railway, Muswellbrook to Merriwa, hence Cassilis, ending July, 1884.

HAVING previously remarked upon the line from the 21st mile (where Mr. Burrowes left off the work) as far as the Wappengai Gap, I now forward a general summary of the main features of the line from Muswellbrook to Merriwa, viz. :—

- No. 1. Gap at 19 miles.
2. Gap crossing from Giant's to Hall's Creek, at 28 miles.
3. Gap near the public road, at 33 miles.
4. Gap Wappengai, crossing the Worondi Creek, 37½ miles.

Owing to difficulty in crossing the last-named place, it was necessary to abandon about 2 miles of the line previously set out, before approaching the valley and summit, and take the line further on to meet a gully (which I afterwards found), and run it up, for an easier approach over the Wappengai Gap—hence a better gradient into Merriwa. Gradients in this length will be about 1 in 40. Building and limestone plentiful, also good and suitable timber for general work, but not for pile-driving and girder bridges; water is very scarce in these districts.

Bridges of importance—

- One crossing the Hunter River, about 9½ miles from Muswellbrook.
 - One crossing the Wybong Creek, at 16½ miles.
 - One viaduct, at 34½ miles, crossing a deep gully.
 - One viaduct, at 37 miles, crossing Worondi Creek, and valley approaching the Wappengai Gap.
- Length of each, about 4 to 5 chains. A similar one required over the Merriwa Creek.

Earthwork of an easy nature, as previously remarked. The deep cuttings composed of soft rock.

Railway Stations—

Permanent one required, about 29 miles, for passenger and goods traffic, to accommodate Giant and Halls valleys, and the public road, near Gungah, of some importance on the route. A station or platform may also be wanted at 21 and 35½ miles.

I have completed the survey as far as the 41st mile, and fixed the entrance into and leaving the town (crossing the river on the square), and for a few miles leading to Cassilis; as also I have settled upon the site for the station at the town of Merriwa. I shall at once proceed to inspect the country forward to Cassilis, as per instructions, 84/105. In the meantime the men will be engaged clearing the line and removing camp.

It was necessary to employ a guide for a few days to accompany me and point out the different gullies and valleys, crossing the Wappengai Gap, and hence into Merriwa, and in like manner it may be desirable to have some one for a few days over the ground to Cassilis. I understand that the country is very undulating, crossing from valley to valley, all the way more or less.

A tracing of a reduction to the county map—scale, 2 miles to an inch—of the trial survey plan forwarded of work completed as per instructions, 84/124.

Drainage area of the Worondi Creek is limited to a few miles; this I could not ascertain. There is no danger from floods in the creeks to bridges or railway embankments, as the fall in the creeks is rapid, and the water does not exceed the banks.

Mr. Palmer.—W.H.Q., 11 Aug., 1884. Mr. Whitlock instructed to send in without delay the plan and section of his portion of the survey as far as Merriwa.—H.P., 11/8/84.

No. 27.

The Assistant Engineer for Trial Surveys to Mr. Surveyor Whitlock.

11 August, 1884.

THE trial survey between Muswellbrook and Merriwa having been completed, you will be good enough to forward without delay the plan and section of the lengths surveyed by you, and if not ready to send in on receipt of this memo. please reply by what date it will be forwarded.

HERBERT PALMER.

No. 28.

No. 28.

Mr. Surveyor Whitlock to The Engineer-in-Chief.

Sir, P.O., Merriwa, Muswellbrook, 15 August, 1884.
 I have the honor to reply to your memo. No. 84-152, posted in Sydney on the 12th instant, reached me on the 15th. Telegram to hand. I will endeavor to dispatch plan and section of my work early part of next week. There is no mail from Merriwa on a Tuesday; will, if possible, send it on Wednesday, so as to reach Sydney on Thursday.
 I have, &c.,
 JOHN S. WHITLOCK.

Mr. Palmer.—W.H.Q., 18/8/84.

Tracings received.—H.P., 23/8/84.

No. 29.

Mr. Surveyor Whitlock to The Engineer-in-Chief.

Railway Survey Camp, Merriwa, 20 August, 1884.
 Trial survey, Muswellbrook to Cassilis.
 Sir,
 I have the honor to forward tracing of plan and section and list, showing length of lines; bearings, &c., as per memo. 84-152.

I required a little more information to make the survey complete as far as Merriwa. Perhaps you will fix the ruling gradient on the Wappengai I in 24 into Merriwa. The gradients at gaps 28 and 33 miles will not now have to be considered as per my previous reports. Probably as good, if not better, gradients may be had crossing the Wappengai and much shorter route into Merriwa by keeping a little further south-west of the present line, leaving it at about 32 miles. If cost of line is guided by gradients it may be desirable to run a trial line. This would terminate at the same point at Merriwa, leaving it again onwards to Cassilis. Unless I get instructions, I do not wish to spend the time at present to try it.

The station ground at Merriwa could be as per pencil on section, in case a better line cannot be had on the north side of the town. Probably advisable to try it, in case of your decision as to cost of line, gradients, and gauge, &c.

Building and lime stone, and a good supply of timber for general purposes in the district may be had; water very scarce. See previous reports.
 I have, &c.,
 JOHN S. WHITLOCK.

Mr. Palmer.—J.W., 23/8/84. The section forwarded by Mr. Whitlock is useless for railway purposes, taking into consideration that 1 in 40 is the steepest grade allowed—a fact that Mr. Whitlock must be aware of. I think, under the circumstances, it will be useless to allow Mr. Whitlock to continue this work, and have to recommend his being recalled.—H.P., 25/8/84. The Engineer-in-Chief. Approved.—J.W., 26/8/84. Mr. Palmer. Another surveyor must be sent to this district. Perhaps Mr. Edwards had better go there instead of returning to Sydney.—J.W., 26/8/84. Mr. Palmer. Mr. Whitlock recalled, and Mr. Edwards instructed to complete the trial survey to Cassilis.—H.P., 27/8/84.

NORTHERN Lines.—Trial survey.—Muswellbrook to Cassilis.—List of positions, showing length of lines and bearings.

Length of lines.			Total.		Bearings.		Length of lines.			Total.		Bearings.	
					Right.	Left.						Right.	Left.
m.	chs.	lks.	m.	chs.	lks.		m.	chs.	lks.	m.	chs.	lks.	
25	00	00	End of Mr. Burrowes' line.			315°	54	46½	33	40	32½		299° 26"
	08	52½	25	08	52½	327°	56	06½	34	16	39	311° 30"	284°
	33	96	25	42	48½	313°	21	38	34	37	77	312° 30"	
	77	44½	26	39	92½	340° 26"	41	70½	34	79	47½	327°	
	107	34½	27	67	27½	322° 16"	31	22½	35	30	70½	09° 30"	
	23	67½	28	10	95	296° 34"	58	88½	36	9	09		335° 30"
	8	04	28	18	99	280°	18	93	36	28	02	340°	
	46	86	28	65	85	265° 30"	19	57½	36	47	59½		285° 30"
	36	88	29	22	73	315°	25	19½	36	72	79½		268°
	32	15½	29	54	88½	335°	246	46½	39	79	25½		246° 30"
	29	59½	30	04	48	06°	34	90½	40	34	15½		
	42	36½	30	46	84½	301°	73	93½	41	28	09	266° 30"	
	21	01	30	67	85½	323° 09"	89	38	42	37	47		
	102	29½	32	10	15	330° 30"							
	55	71	32	65	86	310°	42	37	47				

JOHN S. WHITLOCK,
 20 August, 1884.

15

No. 30.

The Assistant Engineer for Trial Surveys to Mr. Surveyor Whitlock.

27 August, 1884.

THE tracings of the plan and section lately forwarded by you of the trial survey you have made into Merriwa being useless, as regards any proposals that may be made for making a line of railway into the town of Merriwa, the Engineer-in-Chief has decided that you may break up your party and return to Sydney without delay.

HERBERT PALMER.

No. 31.

The Assistant Engineer for Trial Surveys to Mr. Surveyor Edwardes.

27 August, 1884.

ON the completion of the field-work of your present trial survey to Coonabarabran, you may proceed with your party to Merriwa, to complete the unfinished portion of the Muswellbrook and Cassilis trial survey. Report by what date you will be at Merriwa, and I will forward to you then all necessary field plans, instructions, &c.

HERBERT PALMER.

No. 32.

The Assistant Engineer for Trial Surveys to Mr. Surveyor Edwardes.

27 August, 1884.

WITH reference to the plan and section, field-books, reference and report of your present trial survey to Coonabarabran, you should forward them to this office with as little delay as possible, but you are not to allow the completion of this work to interfere with the earliest possible commencement of your next field-work on the Muswellbrook and Cassilis trial survey.

HERBERT PALMER.

No. 33.

Mr. Surveyor Whitlock to The Engineer-in-Chief.

Railway Survey Camp, Boggabri, Bow, Merriwa, 1 September, 1884.

Sir,

I have the honor to acknowledge receipt of your memo. 84-174, on my return from inspecting the country beyond Boggabri towards Colloroy and Cassilis. I beg to forward the working plan and section, and to state there is only 16 miles more to complete the work as far as Cassilis. This I am fully able to finish (out-of-door work), but not the plotting early in October. As I have traced out the line roughly, and settled upon the direction, so there would be no delay to complete, if you think desirable, and the men are now in proper training. I have also my full camp equipment, four horses and carts, and a good supply of horse-feed and stores for the men, in hand. On the contrary, and I get no further instructions, shall dispose of several things, and the stores, &c., to the best advantage (not worth transit), and, as per your orders, proceed to Sydney, after settling the monthly account ending August. I deemed it desirable to mention the short distance yet to complete to Cassilis, which may have not been taken into consideration. In the meantime, I shall be making every preparation to move camp, and the men to prepare, &c., for the march. I will leave all my out-door work complete, in case at any future time it is desirable to continue it or add to it in any form. Should a tracing of the county map be required, showing the proposed line as far as I have inspected and settled for it, I can forward it without delay.

I have been pushing on the work as fast as I could possibly do during the three months from the 21st mile to the 47th, or 26 miles. The line was very rough, and somewhat difficult to locate, with long journeys to my camp, and the short days; besides, I was for some time unable to get out of camp from a scalded foot, but which is now quite better, and the wound healed and sound for active duty again.

I have, &c.,

JOHN S. WHITLOCK.

N.B.—Reference to plan forwarded.

Mr. Palmer.—W.H.Q.—4/9/84. Plans and section received, and Mr. Whitlock instructed to carry out the instructions that were sent to him on the 27th ultimo.—H.P., 4/9/84.

No. 34.

Mr. Surveyor Whitlock to The Engineer-in-Chief.

Railway Survey Camp, Boggabri, Merriwa, September 1, 1884.

Sir,

I have the honor to forward the usual monthly tracing of trial survey, as per Memo. 84/124.

The centre line set out (and marked every 2-chain pegs by a ring) is over the best ground I could select in the direction of the course of the line selected. Plan shows fences and boundary lines pegs that could be found. On leaving Sydney I understood that Mr. Burrowes' plan would be a sufficient guide for me as to work required, although it showed no curves or radius: these I have put on my plan; his section had no heights or flood levels on it, which I have carefully defined at all important points, and fixed radius of curves with sufficient lengths of tangents to suit the ground in every case, and the levels on the same ground will be similar as those shown on the section at the same position; the length of tangents and curves, as also angles at intersection, can be had from bearings shown on plan and list forwarded previously, and a correct length of line ascertained round curves; these I have not fully staked out until something more definite was agreed as to route; as if an alteration was made the work would be wasted and time lost; radius of curves are given on plan; the detail survey can also be extended if route is decided from pegs and marks well defined on the ground; pegs have been left at these places, painted, and trees marked.

I

I have checked all levels, fixed BM at every mile and mile posts, painted the $\frac{1}{4}$ ' and $\frac{1}{2}$ -mile pegs and trees near the line, and in the usual way marked all intersection pegs by a ring and pegs round the same, and also every 2-chain pegs, as described to me on a former occasion; large mile posts have been fixed, and the distances noted.

The tracing of plan and section previously sent was merely to show the location of *the line and surface* of the ground, as I expected from the telegram and memo. to forward these urgently, it would suffice for general information as to gradients and route. The working plan and section were in an unfinished state in pencil, and I did not wish to cut the roll of paper at the time, expecting the work to go as far as Cassilis, only a short distance; the remaining paper being insufficient, I had not plotted up the work, as I could only do this when not at out-door work or in the evenings, and it is generally left until return to the Sydney office; more detail can be put on plans if desirable at a future time, on return to Sydney. The line I have selected is the best one the country will give in the general direction of the course I made for, but there are other parts that might be tried if desirable, but probably with no better result as to gradients and cost of line.

I have, &c.,

JOHN S. WHITLOCK.

Mr. Palmer.—W.H.Q., 4/9/84. Tracing received.—H.P., 4/9/84.

No. 35.

The Assistant Engineer for Trial Surveys to Mr. Surveyor Edwardes.

September 9, 1884.

UNDER separate cover I have forwarded to you a tracing from county map of the district between Muswellbrook and Cassilis, showing the route of the trial survey made between Muswellbrook and Merriwa, also tracing of the plan and section of the trial survey made by Mr. Whitlock into Merriwa. A portion of the section near 31-miles requires cross-levelling, and the latter portion of the section into Merriwa must be abandoned as useless. I have made notes on the section for your guidance, and I wish you to proceed with the least possible delay with a new trial survey from the point where you may select to leave this trial line, thence to Merriwa and Cassilis.

HERBERT PALMER.

No. 36.

Telegram from Mr. Surveyor Edwardes to The Engineer-in-Chief.

Merriwa.

AWAITING your further instructions, Merriwa-Cassilis trial survey.

CHAS. A. EDWARDES,
Railway Surveyor.

Mr. Palmer.—W.H.Q., 10/9/84. Instructions were sent yesterday.—H.P., 10/9/84.

No. 37.

The Assistant Engineer for Trial Surveys to Mr. Surveyor Whitlock.

25 September, 1884.

ON the 27th of last month I wrote to you instructing you to break up your party and return without delay to this office. As you only reported yourself to-day, you will be good enough to report why you failed to carry out these instructions, and how you have been occupied from the date on which you received these instructions.

HERBERT PALMER.

No. 38.

Mr. Surveyor Whitlock to The Engineer-in-Chief.

Sir,

Sydney, 27 September, 1884.

In forwarding the chainman's pay-sheet and my diary of work for September, I have the honor to state that I finished up my work as soon as I possibly could do without delay. Although I was desirous of going to Armidale, as per my request, I could not do so when I found the time would not allow it; therefore I shall have to ask your permission to go, if necessary. I concluded that the work I had done was not sufficiently complete to enable you to decide as to the line to be adopted; and as I had to begin the work where Mr. Burrowes left off, and to continue it from that surveyor's work to Merriwa hence Cassilis, the course being fixed, I could not deviate from that point where he left off. I got the best line that the country would afford, and knowing that no better gradients may be had into Merriwa, I considered it my duty to the work to finish it properly in case any further reference should be made to it. I might have been called to account for neglect, hence I considered a little time spent in this way would not be looked upon as a delay. If, however, I have not acted properly and with judgment in this respect (as is usual in such cases to complete one's work properly), I beg you will overlook it on this occasion, and in any case I must abide your decision on the matter. I have not been absent from the work, nor yet neglected my duties, which you can at any time ascertain, and as per my diary enclosed.

I had also a scalded foot, and much indisposed for over a month, besides having other troubles. I left some of the work incomplete on the outside survey and cross sections, which I could at any time complete, and merely at first run the centre line and levels to ascertain the route and section; and at the time of receiving instructions to stop the work, I had temporary camps for the purpose of finishing the work, as I could not walk long distances; and this was the reason I did not complete the outside work when the plans were sent in, as requested.

I was obliged to continue on the work, so as to show a monthly return, as per tracing asked for, otherwise I could not have carried out the instructions had I merely tried portions to find out the rate of gradient, and I was not aware that a gradient of 1 in 40 was required, or whether for a light line or tramway, but I merely continued the work on from the end of Mr. Burrowes' line.

Now that I have returned to Sydney, it is my firm decision to return to England as soon as I can get away; but at present, having some urgent business to settle, I shall have to remain until such is settled; but I cannot remain away any longer from my family. This also may explain to you my wish, after having had instructions to finish the work, of my anxiety to return; and with this object I am disposing of my things. I had to sell my horses and carts and tents, and what I could dispose of, at Merriwa and Muswellbrook. This also delayed me a day or two; besides, when I received the instructions to leave, being so sudden, I could not at once have proceeded. The men had a lot of stores on hand, and I had to get money to settle their accounts; but the chief thing was that I did not wish to leave the work incomplete on no account. In any case I shall be much out of pocket from the great expense of horse-feed and other expenses for so short a period. When I received the instructions I had about 1 ton stock of horse-feed. Besides it rained in succession for about five days shortly after I received the orders to break up camp.

I might have finished up the work better as I went along; but I could not have shown so much work at the end of each month, nor had the centre line and levels through the country, and see what section and grades it gave; besides I had a scalded foot for over a month, and had to leave the outside work where there was much walking required—this can be proved by my foot at the present time—and in other respects I was not in good health from other causes, and a desire to get to England, and shall therefore have to leave Sydney as soon as I can arrange my business.

I finished up my work as soon as I could do. I was never absent from my duties at any time, except going into Merriwa on two occasions to settle some accounts and my own affairs. As soon as I received funds I settled all the accounts for the men and my own.

I continued the work where Mr. Burrowes left off, and took that direction, but the route proved to give a gradient of less than 1 in 40. I had no orders to go back on his work, or I might have branched off before coming to the Hunter River (*via* nearer Denman); but I thought that I carried out the instructions fully, and it was not my duty to suggest or in any way alter the route Mr. Burrowes had commenced, as it might have received your previous sanction, and besides I was informed that his reports were not required by me; so, under all these circumstances, I acted in the best way I could to get a line run through to Merriwa.

I might have left my work incomplete, but I had not been used to do so on any former occasion, and I thought it would not be in accordance with proper business rules. I had also some of my things, as stated, to dispose of, and to get up money to settle the men's accounts before I left the district, as the people wanted everything settled before I left the district. The settlers would not render me any assistance when I first went to the district, owing to Mr. Burrowes having deceived them in his payments—he received considerable sums and goods without payment.

I have, &c.,

JOHN S. WHITLOCK.

No. 39.

Mr. W. H. Quodling to The Assistant Engineer for Trial Surveys.

T. S. Muswellbrook to Cassilis.

PLEASE say if Mr. Whitlock's further report on this trial survey has yet been furnished in accordance with previous instructions—

W.H.Q.

I have not pressed Mr. Whitlock for any further report on the survey made by him in this District. The plan and section of the trial survey made by him, showed that he had selected an impracticable route in the neighbourhood of Merriwa, which was the cause of his being recalled. The survey is now in the hands of Mr. Edwardes who will I believe find a satisfactory route—H.P., 10/10/84.

No. 40.

The Hon. J. P. Abbott, Esq., M.P., to The Secretary for Public Works.

Sir,

1 November, 1884.

I have the honor to inform you that it has been stated to me upon a very good authority, that the survey of the line for the Railway from Muswellbrook to Cassilis has not been made so as to bring it much nearer to Denman than it is now proposed to be, that by a slight deviation it can be brought within one mile of the town, and if this is the case I hope everything that can be will be done before it is definitely determined that Denman shall be left as far away from the line as is now proposed. I understand that a Mr. Burrowes made the survey, and that in consequence of his blunders part of the line near Hall's Creek is now being re-surveyed, and, in connection with his survey I am informed that he has taken the line over a high gap on the right bank of the Wybong Creek, which could have been altogether avoided, without any deviation, by a survey nearer to Denman.

I have &c.,

J. P. ABBOTT.

I should like Mr. Whitton to give this matter his best attention.—F.A.W., 4/11/84. Mr. Palmer.—W.H.Q., 7/11/84.

A deviation is to be surveyed which will bring the line near to Denman, in accordance with instructions already received before the through route for this extension is decided upon. The high gap mentioned in Mr. Abbott's letter will certainly be avoided as there is no necessity to take the line in that direction. It is only within the last month or two that it has been possible to make a proper start on this trial survey. It was originally commenced at a time when a large number of surveys were ordered and when many new surveyors had to be employed, and since the commencement of the survey it has had to be discontinued on two separate occasions on account of the withdrawal of the surveyors for incompetency.—H.P., 8/11/84.

Under Secretary.—J.W., *per* W.H.Q., B.C., 12/11/84. Forward to Mines.—F.A.W., 14/11/84. The Under Secretary for Mines.—J.R., B.C., 14/11/84. I shall be glad if the information here contained is sent to me in the usual way as a reply to my letter for I want to send it on to those who are interested.—J. P. ABBOTT, 15/11/84. The Under Secretary, Public Works.—G.H., for U.S., B.C., 17/11/84. The Hon. J. P. Abbott, M.P.—18/11/84. Engineer-in-Chief for Railways.—J.R., B.C., 18/11/84.

Dear Sir,

Rosemount, Denman, 24 November, 1884.

I notice by the *Upper Hunter Standard* that through your influence, part of our request, viz., a survey of the railway line nearer to Denman is already granted.

A numerously attended public meeting was held at Denman on last Saturday, the 22nd instant, when it was unanimously decided to petition Government to have the railway constructed to within a convenient distance of Denman, for it appears that to where the proposed Denman Station was to be erected could not be reached in less than 5 or 6 miles from Denman.

Messrs. J. H. Saunders and myself were elected to form a deputation to wait on the Honorable the Minister for Works, to present the petition, and to urge upon him the justice of our request.

I have now to ask if you will further favour us by attending with the deputation, and also to ask you if on or about the 12th proximo would be a suitable time.

In the meantime we will have the petition signed by all the residents of the district.

I remain, &c.,

W. L. C. BRECHT.

Hon. J. P. Abbott, Esq., Minister for Mines, Sydney.

Will you kindly inform Mr. Brecht that you will receive him as requested.—J. P. ABBOTT, 2/12/84. Will Mr. Rae inform this gentleman that the deputation can be received on Friday the 12th, at 11 o'clock.—F.A.W., 2/12/84. Mr. W. L. C. Brecht, 3/12/84.

Mr. Whitton for the information necessary to enable the Minister to reply.—J.R., B.C., 4/12/84. Please to forward all necessary information for the Minister.—J.W., 9/12/84. Mr. Palmer.

P.W.O., 11/12/84. The trial survey from Muswellbrook to Cassilis has been completed as far as Merriwa. This survey passes about 4 miles to the north of Denman, and a survey of a deviation to pass as nearly as possible to Denman was ordered some time ago. I instructed the surveyor on completing the survey at Merriwa to return to Denman to survey this deviation before continuing the survey to Cassilis, and from his last report I believe he is at the present time engaged on this survey or travelling to the neighbourhood.—H.P., 10/12/84.

The Engineer-in-Chief. Under Secretary.—J.W., 10/12/84.

No. 41.

Deputation *re* bringing line nearer to Denman.

That survey of railway route, Cassilis to Muswellbrook be brought nearer to Denman.—11 o'clock. Mr. L. C. Brecht.

Department of Public Works, Sydney, 11th December, 1884.

The deputation, Messrs. McLaughlin and Honorable J. P. Abbott, M.S.P., with Messrs. Campbell, Brecht, Hungerford, and Saunders waited upon me to day to ask that the proposed railway, Muswellbrook to Cassilis, might be brought nearer to Denman than was shown in the original survey. The petition enclosed was submitted in favour of the wish expressed by deputation. Mr. Hungerford pointed out also that generally a better route could be obtained than was now fixed by surveyors. I informed the deputation that I had already given instructions for the survey to be made, so as to bring the line as near as practicable to the town of Denman, and read Mr. Palmer's minute to show what had been done. With regard to Mr. Hungerford's remarks, I asked him to submit in writing the route he proposed, and I would have the matter referred to the Engineer-in-Chief, with the view to the surveyor meeting Mr. Hungerford on the ground.

F.A.W.,
12/12/84.

Mr. Palmer.—W.H.Q., 18/12/84. I have instructed Mr. Edwardes, who is now making the trial survey of a deviation to bring the line nearer to Denman, to communicate with Messrs. Hungerford and O'Brecht, and request them to point out to him the route they wish to be surveyed.—H.P., 23/12/84.

Mr. Whitton.—J.R., B.C., 12/12/84.

Denman, 22 November, 1884.

To the Honorable the Minister for Works, Sydney,—

The Petition of the inhabitants of Denman and surrounding districts—

HUMBLY SHOWETH,—

1. That we view with deep concern and anxiety the prospect of the projected railway line from Muswellbrook to Cassilis being constructed at a distance of several miles from Denman.
2. That, if the railway were constructed along the line as at present surveyed, great inconvenience would be occasioned from the station being so far distant from the town.
3. That this would necessitate the opening and construction at heavy expense of a road from the town to the station through private property.
4. That were the station at such a distance as is at present proposed, a great portion of the traffic to and from the district would consequently be diverted from the railway.
5. That the fact of the site of Denman being chosen as the most central and suitable for the traffic and convenience of the district, the hotel and ample paddock accommodation there available, the passing of one of the principal stock roads of the Colony through the town, the large amount of public and private capital expended in laying out the town and erecting buildings, the large area of Government land in the township and vicinity, the considerable population settled in the neighbourhood of Denman and surrounding districts are, we respectfully submit, facts and circumstances which justify our petitioners in requesting to have the line constructed within a convenient distance of this town.
6. That the disadvantage of a deviation from a direct course (if any be required) would be more than counterbalanced by the following advantages, viz., there would be fewer difficulties in the way; it would.

would save the expense of opening and making a road through private property from Denman to the station, it would render the railway more serviceable, and bring it nearer to a very large area of country containing some of the richest and most fertile land on the Upper Hunter, there is available an excellent site for a station on Crown lands adjoining the main road about a mile north from the town, this would be sufficiently near to meet our wants, thence the line would pass almost entirely through Crown lands to Sandy Hollow, distant 9 miles in a direct line towards Merriwa, and would run through large reserve at the junction of the Goulburn and Wybong Rivers, whereas the line, as at present marked out, runs through private land and over more difficult country for that distance.

7. That the road from Muswellbrook to Merriwa *via* Merton and Denman, has been the main traffic and mail route for the last forty years, ever since the district was first settled.

Therefore we, your petitioners, humbly request that you may be pleased to take the foregoing premises into your favourable consideration, and to take steps to have the railway carried along the line, which will suit the convenience of the public and meet the traffic requirements of our district.

And your petitioners, as in duty bound, will ever pray.

W. T. O'Brecht, Denman
 Edwd. Mill, Martindale
 John H. Saunders, Denman
 Henry Spohr, Denman
 Arthur Peacock, Muswellbrook
 George Ross, Denman
 John Smith, Denman
 H. Luther, Ferry Creek, Wybong
 Henry Brecht, Denman
 Wm. H. Purvis, sen., Oakdale
 Wm. H. Purvis, jun., Oakdale
 Jas. Frazer, Denman
 his
 John x Baker, Denman
 mark
 Witness—H. H. Connell
 Oliver Silcocks, Denman
 John Leeming, Denman
 William Day, Denman
 F. J. Hewitt, Denman
 A. H. Hewitt, Denman
 Thos. Hungerford, Baerami, Denman
 C. Simpson, Baerami River
 R. N. Hungerford, Baerami River
 H. Simpson, Baerami River
 Fredk. Wm. Morris, Baerami River
 Arthur Tindale, Goulburn River
 John Buchanan, jun., Goulburn River
 Thomas L. Sullivan, Baerami Creek
 Joseph C. Thompson, Widden Creek
 F. R. Hungerford, Baerami
 James Peberdy, Gungah
 Thos. A. Hewitt, Ferndale
 George Daniels, Denman
 Frederick H. Spohr, Denman
 Nicholas Bush, Denman
 Henry Frazer, Denman
 Sydney Winsor, Denman
 James Smith, Denman
 James Jones, Denman
 George T. Medhurst, Martindale
 Walter L. Medhurst, Martindale
 John T. Harris, Martindale
 William Wells, Martindale
 George H. Wells, Martindale
 Thomas Wells, Martindale
 Arthur Shaw, Denman
 Victor Alexis de Trerara, M.D., Denman
 David Herps, Denman
 J. D. Kibble, Denman
 E. Kibble, Denman
 H. Simpson, Kerrabec
 W. Dobby, Denman
 A. Munro, Denman
 G. Munro, Denman
 J. T. Lucky, Cassilis
 R. F. Chapman, Pickering
 J. Daley, Pickering
 Geo. H. Edwards, Denman
 R. R. Lavender, Denman
 J. Donovan, Denman
 Beale & Company W. Maitland
 William Maxwell, Goulburn River
 Kergan Hennessy, Giant's Creek

John Bogan, Rockville, Denman
 E. J. Bogan, Rockville, Denman
 A. Goodwin, Denman
 J. Smith, Denman
 John H. Holt, W. B. Cn., Goulburn River
 William Buchanan, Goulburn River
 Robert M'Kenzie, Denman
 A. M'Kenzie, Denman
 Jas. Pascoe, Denman
 W. Pascoe, Denman
 J. Frith, Denman
 John Hornery, Denman
 A. M'Kenzie, Gungah
 William Hornery, Giant's Creek
 Joseph Nebauer, Gungah
 Jacob Nebauer, Gungah
 William Pankin, Giant's Creek
 Henry Parker, Giant's Creek
 Robert Allen, Doyle's Creek
 Michael Ragen, Doyle's Creek
 Henry Beuge, Doyle's Creek
 W. Eveleigh, Doyle's Creek
 Benjamin Hardy, Doyle's Creek
 John Dowling, Woodlands
 C. O'Hara, Doyle's Creek
 James Newton, Doyle's Creek
 James Foster, Doyle's Creek
 Thomas Ellis, Oak Range
 Jesse W. Baxter, Appletree Flat
 Charles Neilson, Appletree Flat
 Jno. Graham, Goulburn River
 John Nagle, Denman
 George Oxford, Denman
 George Morris, Denman
 Charles Nagle, Denman
 Anthony Bush, Denman
 A. H. Hilton, Denman
 W. H. Gates, Denman
 A. Graham, Denman
 S. Booth, Denman
 John Morrison, Denman
 James Gillies, Denman
 W. S. O. Brecht, Rosemount, Denman
 Thos. Elliot, Denman
 Owen Hudson, Denman
 G. H. Hewitt, Denman
 Hilton Harrison, Denman
 W. G. Marsh, Denman
 John Booth, Denman
 C. M. Mills, Denman
 Jas. Frazer, Mossville
 A. Frazer, Mossville
 Jacob Nelson, Denman
 Albert Frazer, Mossville
 Hugh McConnell, Woodlands
 Daniel Murphy, Doyle's Creek
 David O'Hara, Doyle's Creek
 Thomas O'Hara, Doyle's Creek
 Daniel Allen, Doyle's Creek
 Daniel Barry, Doyle's Creek
 Roscoe Barry, Doyle's Creek
 Hunter Barry, Doyle's Creek
 James Barry, Doyle's Creek
 J. T. Castledine, Doyle's Creek

Joseph Castledine, Doyle's Creek
 John Castledine, Doyle's Creek
 Charles Castledine, Doyle's Creek
 William Gilbert, Doyle's Creek
 E. Castledine, Doyle's Creek
 J. Bennett, Doyle's Creek
 W. Bennett, Doyle's Creek
 William Killin, Doyle's Creek
 Mathew Allen, Doyle's Creek
 Purves Graham, Denman
 Adam Brindle, Denman
 Evan Brindle, Denman
 Thos. A. Doyle, Denman
 M. Doyle, Denman
 William Dawson, Denman
 John Gallimore, Denman
 Harry Fleming, Denman
 John Barclay, Denman
 John O'Neill, Denman
 Robert O'Neill, Denman
 James Greer, Denman
 William O'Neill, Denman
 A. P. Saunders, Denman
 B. Pendleton, Denman
 William Mills, Denman
 John Mills, Denman
 Humphrey Rose, Denman
 Henry Rose, Denman
 John Rose, Denman
 Reuben Rose, Denman
 George Mills, Denman
 George Brown, Denman
 Thos. Hewitt, Denman
 Robert Gillimore, Denman
 John Neagle, Denman
 Saml. Jennison, Denman
 F. Mathieson, Denman
 S. Munn, Denman
 G. Munn, Denman
 W. Gosper, Denman
 J. A. Mason, Denman
 Charles Joner, Denman
 R. Ward, Denman
 J. Brindle, Denman
 J. Baker, Denman
 B. T. Baxter, Denman
 M. Murphy, Denman
 Isaac Thompson, Denman
 F. Feeney, Denman
 A. Fraser, Denman
 C. Barling, Denman
 M. Hanrahan, Denman
 J. Cooper, Denman
 John A. Ross, Denman
 D. Cooper, Denman
 H. Dunning, Denman
 William Denney, Denman
 Henry Stent, Goulburn, Denman
 Albert Parker, Denman
 James Cavanough, Giant's Creek
 James Ham, senior, Hall's Creek
 Albert Ham, Hall's Creek

Joseph Ham, Hall's Creek
 Jacob Gorgeler, Goulburn River
 George Critchley, Goulburn River
 John Gagler, Goulburn River
 William Tolpp, Goulburn River
 Henry Myers, Goulburn River
 Charles Modengen, Giant's Creek
 Henry Modengen, Giant's Creek
 James Ham, junior, Denman
 John Busch, Denman
 John T. Rees, Muswellbrook
 Robert J. Luscombe, Muswellbrook
 E. E. Sunkins, Muswellbrook
 David Stewart, Muswellbrook
 Henry Cox, Muswellbrook
 W. E. Holler, Muswellbrook
 E. A. Stewart, Muswellbrook
 T. J. Purvis, Muswellbrook
 Geo. F. St. Clare, Muswellbrook
 Geo. Dobbie, Muswellbrook
 J. D. Barclay, Muswellbrook
 Carl Brecht, Muswellbrook
 Ernest Chas. Brecht, Muswellbrook
 P. James Foley, Muswellbrook
 S. J. Dowell, Muswellbrook
 E. Spencer, Muswellbrook
 W. Vick, Muswellbrook
 W. H. Smith, Muswellbrook
 W. Clendinning, Muswellbrook
 H. Winna, Muswellbrook
 P. Lagoon, Muswellbrook
 S. Harris, Muswellbrook
 R. Nicol, Muswellbrook
 James Green, Muswellbrook
 Edward Telfer, Muswellbrook
 Robert Stewart, Muswellbrook
 A. Palithorpe, Muswellbrook
 James F. Spence, Muswellbrook
 Alexr. Clendinning, Muswellbrook
 John Yarves, Muswellbrook
 F. W. Daires, Muswellbrook
 Wm. Clarke, Muswellbrook
 W. Shilling, Muswellbrook
 H. Armitage, Muswellbrook
 Edwd. G. Gordon, Muswellbrook
 Thomas Lawson, Muswellbrook
 G. G. Proudfoot, Muswellbrook
 James Lang, Muswellbrook
 A. Buchanan, Muswellbrook
 C. Peachey, Muswellbrook
 H. R. Watts, Muswellbrook
 W. J. Gardner, Muswellbrook
 R. W. Cafe, Muswellbrook
 A. Southcombe, Muswellbrook
 G. H. Skinner, Muswellbrook
 W. Davison, Muswellbrook
 A. Bussell, Muswellbrook
 George Gunter, Muswellbrook
 J. Stafford, Muswellbrook
 A. Whiteman, Muswellbrook
 Alex. Whiteman, Muswellbrook
 A. A. Roberts, Muswellbrook.

No. 42.

Messrs. Thos. Hungerford and W. T. O'Brecht to The Secretary for Public Works.

Sir,

Sydney, 12 December, 1884.

We have the honor to call your attention to the proposed amendment of the survey of the railway line from Muswellbrook to Merriwa, in that portion of it which extends from the Hunter River to near the confluence of the Wibong Creek with the Goulburn River; and to state that, in our opinion, the route chosen through Pike's Gap is not only not much the shortest but necessitates much more severe gradients than would be experienced by a line passing a point much nearer Denman, and so meet the desires of a large number of inhabitants of the Denman district.

We, the undersigned, would be happy to assist any exploration in connection with this line; and have the honor to remain your obedient servants,

THOS. HUNGERFORD.
 W. T. O'BRECHT.

P.S.—We shall be happy to meet the surveyor in charge of the line, or any other officer at Denman, at anytime.

W. T. O'B.
 Acknowledge,

21

Acknowledge, and ask Mr. Whitton to instruct his surveyor.—F.A.W., 16/12/84. Engineer-in-Chief for Railways.—B.C., 18/12/84. Mr. Palmer.—W.H.Q., 19/12/84.

The route suggested is, I believe, the one now being surveyed, but I have instructed Mr. Edwardes to request these gentleman to show him where they wish the survey to be made, and to report as to its practicability or otherwise.—H.P., 23/12/84.

No. 43.

The Assistant Engineer for Trial Surveys to Mr. Surveyor Edwardes.

23 December, 1884.

A COMMUNICATION has been received from Messrs. Thomas Hungerford and W. T. O'Brecht, in which they state their willingness to accompany any surveyor of this Department over what they consider a better route for a portion of the Musclebrook and Cassilis survey, in the neighbourhood of Denman, than has been chosen so far. I have not the address of these gentlemen, but I have no doubt you can ascertain in Denman how they may be communicated with; and I wish you to do so, and request them to show you over the route suggested, after which you are to report as to its practicability or otherwise.

HERBERT PALMER.

No. 44.

Mr. Licensed-Surveyor Worth to The Engineer-in-Chief.

Sir,

Merriwa, 4 February, 1885.

About fifteen months ago I lent to Mr. Burrowes, who was making a trial survey of a line of railway from Musclebrook to Cassilis, several parish maps, and a rough plan of a road in parish Yarraman, joining the main road from Denman to Merriwa to Sandy Hollow, close to the Goulburn River.

The parish maps are Brogheda, Wybong, Yarraman, and Worondi; the road survey was forwarded to Mr. Burrowes shortly after survey, and before a tracing could be procurable from the Survey Department. If any notations are made upon the parish maps, new ones can be sent, but I would prefer my own copy of road map, as I am under the impression I planned it upon the back of a map of another road survey; however, in this case a correct tracing of both roads would serve my purpose sufficiently.

I have, &c.,

CHARLES WORTH, L.S.

Mr. Palmer.—W.H.Q., 6/2/85.

Returned to Mr. Worth.—H.P., 7/2/85.

No. 45.

Mr. Surveyor Edwardes to The Engineer-in-Chief.

Sir,

Railway Survey Camp, Cassilis, 23 April, 1885.

Having now the survey from Musclebrook to Cassilis, within a few miles of the latter town, I hope to be able to complete the fieldwork in connection with same in about ten days from date.

I have, therefore, the honor to request that I may be furnished with your fresh instructions.

I have, &c.,

CHAS. A. EDWARDES.

Mr. Deane.—W.H.Q., 25/4/85.

Instruction sent, 85/106.—H.D., 28/4/85.

No. 46.

The Acting Assistant Engineer for Trial Surveys to Mr. Surveyor Edwardes.

April 27, 1885.

WHEN you have finished the fieldwork of the line you are now engaged upon you will please return to this office, without delay, bringing all books and plans, but leaving your equipment so that you can send for it should it not be necessary for you to return to the district.

H. DEANE.

No. 47.

Memo. from The Acting Assistant Engineer for Trial Surveys to The Engineer-in-Chief.

Department of Public Works, Railway Branch, Engineer-in-Chief's Office, Sydney, 22 July, 1885.

Musclebrook to Cassilis.

I FORWARD herewith tracing showing the position of the trial line between the above places, for transmission to the Surveyor-General, with a view to having the usual railway reserves proclaimed.

Of the two routes shown opposite the town of Merriwa, that passing through Merriwa would probably be adopted for permanent staking; but as there is some uncertainty about it, I presume that the reserves could be made to include both lines.

H. DEANE.

No. 48.

Mr. Surveyor Edwardes to The Engineer-in-Chief.

Sir,

Railway Survey Camp, Merriwa, 25 July, 1885.

I have the honor to herewith forward you under separate cover, plan and section of proposed deviation of the Muswellbrook to Cassilis trial line—for lower crossing of the Koui River.

This deviation commencing at 58 miles 33.00 chains, terminates at 62 miles 72.13 chains, being 10.31 chains longer than the original line.

A

A 14 chain curve I have used in order to get a level grade at crossing, the latter being 25 feet above flood level, is the lowest I could obtain.

The approximate grades I have shown in pencil on section. The cross levels I have taken in view of a further improvement of the line. I have, &c.,

Mr. Deane.—W.H.Q., 28/7. Noted.—H.D.

CHAS. A. EDWARDES.

No. 49.

Mr. Surveyor Edwardes to The Engineer-in-Chief.

Sir,

Railway Survey Camp, Muswellbrook, 25 August, 1885.

Upon examining the country for proposed alteration of trial line Muswellbrook to Cassilis, viz., crossing the Hunter River at Muswellbrook, and thence along west bank to junction with former line at about 11 miles, I find that such a line would, at river crossing, pass through about 2 miles of flooded country, as shown on section herewith. From point B, as shown on parish map, a line (dotted blue) can be obtained by skirting the ridges to a junction with former line, at point C, such line being about $1\frac{1}{4}$ mile longer.

In view of such increased distance, and flood at river crossing being about as great as that on original line, together with severance of private property from river frontage that would occur by such a route, I am of opinion that a line, as shown in pencil on plan, with 10 chain curve at crossing of Muscle Creek, would be the most practicable.

In order to show detail of survey more clearly, I have drawn plan to a large scale.

I would request that I may be forthwith furnished with your instructions as to the desirability of a further survey of this portion of the line.

I have, &c.,

CHAS. A. EDWARDES.

Plan, section, and parish map herewith under separate cover.

Mr. Deane.—W.H.Q., 28/8/85. Instructions sent, 85-198.—H.D., 31/8/85.

No. 50.

The Acting Assistant Engineer for Trial Surveys to Mr. Surveyor Edwardes.

28 August, 1885.

Muswellbrook to Cassilis.

In reply to your letter of the 26th instant, the line crossing the river at Muswellbrook is not a favourable one, the position shown by you in pencil is no doubt better, and may therefore be staked out.

H. DEANE.

No. 51.

Telegram from Mr. Surveyor Edwardes to The Engineer-in-Chief.

Muswellbrook.

HAVE completed deviation on trial line. Await your further instructions.

CHAS. A. EDWARDES.

Mr. Palmer. Surveyors should always report beforehand, so that instructions can be sent and prevent any loss of time.—J.W.; 9/9/85. Mr. Edwardes instructed to return to Sydney. I will caution him on his return with reference to the above.—H.P., 11/9/85.

No. 52.

Telegram from Mr. Surveyor Edwardes to The Engineer-in-Chief.

Muswellbrook.

AM still awaiting your fresh instructions. Further work already wired for and requested in journal.

CHAS. A. EDWARDES.

Mr. Palmer.—W.H.Q., 11/9/85. Mr. Edwardes instructed to break up his party and return to Sydney.—H.P., 11/9/85.

No. 53.

Mr. Surveyor Edwardes to The Engineer-in-Chief.

Sir,

Railway Survey Camp, Muswellbrook, 10 September, 1885.

I beg to forward you, under separate cover, plan and section showing alteration of part of trial survey, Musclebrook to Cassilis, viz., between 67 miles and 72 miles.

Deviation, No. 1, A B, made in order to obtain better crossings of Borambil and Two-mile Hollow Creeks, commences at 67 miles 7.60 chains and terminates at 72 miles 24.75 chains, being 21.86 chains longer than original trial lines.

It will be found that this deviation throughout gives a better section than original, although the length of tunnel has been increased.

Deviation.

Deviation No. 2, C.D., run in order to avoid tunnel above referred to, commences on deviation A.B. (point C.), at 68 miles 43.41 chains, terminates at 73 miles 14.95 chains, being 1 mile 34.29 chains longer than deviation No. 1, or 1 mile 56.15 chains longer than original line.

The approximate gradients I have shown on section of deviation No. 1, which I believe to be the most practicable line to be had.

The cross levels shown in blue I have taken for a further improvement in locating position of line:
I have, &c..

CHAS. A. EDWARDES.

Mr. Palmer.—W.H.Q., 11/9/85. Plan and section received and instructions sent to Mr. Edwardes to return to Sydney.—H.P., 11/9/85.

No. 54.

Minute from The Secretary for Public Works to The Engineer-in-Chief.

9 April, 1886.

THE Minister has verbally instructed me to request you to proceed with the permanent surveys of the undermentioned lines as early as practicable, viz. :—

* * * * *

Muswellbrook to Cassilis.

W.H.Q.

Surveyors into the field immediately to carry out the Minister's instructions with reference to the lines above named.—J.W., 9/4/86. Mr. Palmer. With the exception of Mr. Hogg, there is no one at present in the office that I can recommend to be sent on the Muswellbrook and Cassilis survey.—H.P., 21/4/86.

No. 55.

The Assistant Engineer for Trial Surveys to Mr. Surveyor Edwardes.

5 May, 1886.

ON completing the field work of the Culcairn and Corowa Permanent Survey, I shall be able to recommend your being employed on the permanent staking of the Muswellbrook and Cassilis Extension, provided you are able to return to Sydney before it is necessary to make other arrangements for that survey.

HERBERT PALMER.

No. 56.

The Assistant Engineer for Trial Surveys to Mr. Surveyor Edwardes.

25 June, 1886.

ON completing the field work in connection with the permanent survey of the Culcairn and Corowa Extension, including the measurement of the lockspitting of the centre line to the end of the staking, and of the trial holes as far as particulars of sinking have been sent to you, you may return with your party to Sydney. When you have handed over in this office all plans, books, and other documents connected with this work, to my satisfaction, your services will next be required on the permanent staking of the Muswellbrook and Cassilis Extension.

HERBERT PALMER.

No. 57.

R. G. D. Fitzgerald, Esq., M.P., to The Secretary for Public Works.

Sir,

Muswellbrook, 22 June, 1886.

I shall be obliged by your letting me know when it is expected that the work in connection with the survey of the railway line from Muswellbrook to Cassilis will be resumed. Your early reply will oblige.

Yours &c.,

ROBT. GEO. D. FITZGERALD.

What is being done?—W.J.L. Engineer-in-Chief, B.C., 23/6/86. Mr. Palmer, W.H.Q., 28/6/86. Mr. Edwardes, who was engaged on the trial survey of this line, has reported having completed the permanent survey of the Culcairn and Corowa Extension, and he is now under instructions to return to Sydney, and proceed to Muswellbrook to commence the permanent survey, thence towards Cassilis.—H.P., 28/6/86. The Engineer-in-Chief. Under Secretary, B.C., 29/6/86. J.W. (per W.H.Q.) Railways—J.R., B.C., 30/6/86. Inform Mr. Fitzgerald, M.P.—W.J.L., 8/7/86.

No. 58.

W. Bowman, Esq., to The Secretary for Public Works.

Sir,

Muswellbrook, 27 July, 1886.

As the final survey of the railway line from Muswellbrook to Cassilis is now being carried out, I wish to draw your attention to the line passing through my property (Balmoral), situated about 2 miles from Muswellbrook.

The line, as marked at the last survey, passes close to my residence, and between my stables and barn, through my yards connected with the stables, separating my homestead and stables from all water, which will, if carried out, give me any amount of trouble, annoyance, and danger, in crossing stock to water.

If

If the line could be removed 1 or 2 chains to the west when passing my barn it would not separate it from the stables, nor destroy my yards, and lessen the damage to my property considerably. Likewise, as there is a water-course the line has to cross, and a slight fall in the ground, I believe it would give me an under-crossing sufficiently high for stock to pass under to the creek. If only an over-crossing is left it will give me a great deal of extra trouble and expense in getting stock to water, especially stabled stock, such as stallions and bulls, which will have to be done twice a day, and an extra person would be required to open and shut the gates. Trusting instructions will be given to Mr. Surveyor Edwardes, who is now at work on the line, to see if what I propose cannot be carried out, so as to lessen the damage done to my property as much as possible.

I remain, &c.,

WM. BOWMAN.

Acknowledge. Done, 30/7/86. Engineer-in-Chief.—D.C.McL. (*pro* Commissioner.), B.C., 29/7/86. Mr. Palmer for report.—W.H.Q., 3 Aug., 1886. Mr. Edwards instructed to show all these details on the cross-levelled plan, so that the best arrangements admissible may be made when the permanent centre line has to be selected.—H.P., 4/8/86.

No. 59.

The Assistant Engineer for Trial Surveys to Mr. Surveyor Edwardes.

4 August, 1886.

MR. WM. BOWMAN writes that the line of trial survey (Muswellbrook to Cassilis) passes through his property known as Balmoral, doing much damage by passing close to his residence, and between stable and barn, through yards, &c. He also suggests that the line might be removed 1 or 2 chains to the west, and considerably lessen the damage to his property.

You must be careful to show these details on the cross-levelled plan, so that the best possible arrangement may be made when the permanent centre line has to be selected.

HERBERT PALMER.

You should try a deviation to pass between Balmoral and the road, or extend all cross-levels towards the road.

No. 60.

Mr. Surveyor Edwardes to The Engineer-in-Chief.

Sir,

Railway Survey Camp, Muswellbrook, 7 August, 1886.

I have the honor to herewith forward you plan and section showing proposed deviation of the Muswellbrook-Cassilis line at Muswellbrook, and cross-levels on the trial line from Muswellbrook to 8 miles.

This deviation, branching from the Northern Railway between passenger station and goods shed, at Muswellbrook, would pass for 5 chains through the Recreation Reserve, being part of 32 acres dedicated for Show Ground and Recreation Reserve, and would cross the Maitland Road and Mitchell-street on the level.

A reference to properties near to line fronting Maitland Road I have inserted on plan, Nos. 3, 4A; those that it would be necessary to resume being wooden buildings of small value.

Between 2 miles and 3 miles, in order to avoid "Balmoral" (W. Bowman), I have extended the cross-sections.

The land here to west of line is low-lying, and greater part liable to heavy flood.

On plan, I have shown in pencil a modification of the trial line, in order to run parallel to the Denman Road, and thus lessen the severance of property fronting it, and also "Balmoral."

This alteration would increase the length of line 9 chains.

An approximative section of the pencil line is shown in pencil on section. Owing to the Hunter River being at present uncrossable, I have been unable to complete the cross levels to the 12-mile peg, and trace flood line on west bank of river from this camp.

I have, &c.,

CHAS. A. EDWARDES.

Mr. Palmer.—W.H.Q., 9/8/86. Plan received and returned to Mr. Edwardes, with instructions for the permanent staking of the first 8 miles of this line.—H.P., 10/8/86.

No. 61.

Mr. Surveyor Edwardes to The Engineer-in-Chief.

Sir,

Railway Survey Camp, Muscleebrook, 11 August, 1886.

I beg herewith to forward you under separate cover, lithographs of the town of Muscleebrook, and parish maps, Brougham, Vaux, in the country of Durham, on which I have shown (in red) the first 8 miles of the centre line of the permanent survey from Muscleebrook to Cassilis, to be permanently staked.

I would request that the lengths and bearings of the allotments and surveyed portions, with widths of roads, through which the centre line passes, may be inserted on the above maps, and the latter then returned to me.

I have, &c.,

CHAS. A. EDWARDES.

Mr. Palmer. W.H.Q., 13/8/86. Maps returned with all information obtainable marked on them.—H.P., 17/8/86.

No. 62.

The Assistant Engineer for Trial Surveys to Mr. Surveyor Edwardes.

10 August, 1886.

UNDER separate cover, I have returned your cross levelled plan of the first portion of the Muscleebrook and Cassilis trial survey, on which I have shown by blue lines how the first 8 miles may be permanently staked.

HERBERT PALMER.

No. 63.

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No. 63.

Memo. from The Assistant Engineer for Trial Surveys to Mr. Surveyor Edwardes.
 Department of Public Works, Railway Branch, Engineer-in-Chief's Office,
 Sydney, 3 September, 1886.

PLEASE forward a tracing from the first part of the working plan of the Muswellbrook and Cassilis extension, showing the junction with the Northern Railway, the Park, and the crossings of Maitland and Mitchell streets, and the main road to Denman.

HERBERT PALMER.

Tracing as required herewith forwarded under separate cover.—CHS. A. EDWARDS, 7th Sept., 1886. The Engineer-in-Chief. Mr. Palmer.—W.H.Q., 7/9/86. Received.—H.P., 8/9/86.

No. 64.

Memo. from The Assistant Engineer for Trial Surveys to The Engineer-in-Chief.
 Department of Public Works, Railway Branch, Engineer-in-Chief's Office,
 Sydney, 27 September, 1886.

As Mr. Jamieson will shortly complete the plotting of plans, &c., connected with his portion of the permanent survey lately made between Glen Innes and South Grafton, I can recommend his being allowed to take part in the Muswellbrook and Cassilis permanent survey.

HERBERT PALMER.

Approved by E.-in.-C.—W.H.Q., 29 Sept., 1886. Mr. Palmer. Noted.—H.P., 29/9/86.
 E.-in.-C., 30/9/86.

No. 65.

The Assistant Engineer for Trial Surveys to Mr. Surveyor Edwardes.

6 October, 1886.

I HAVE instructed Mr. Jamieson to join you on the permanent staking of the Muswellbrook and Cassilis line, and I shall expect you to work together so that the survey may be pushed forward as rapidly as possible. I shall leave you to arrange to work together until I have an opportunity of visiting the district, when, it is possible, I may make arrangements for placing more surveyors on the survey. I have explained to Mr. Jamieson how I consider the work should be divided when two parties are placed on the same length.

HERBERT PALMER.

No. 66.

The Council Clerk, Muswellbrook, to T. Hungerford, Esq., M.P.

Sir,

Municipal Council Chambers, Muswellbrook, 16 August, 1886.

I have the honor, by direction of the Council, to forward you the two following resolutions, carried unanimously at a meeting held the 11th instant:—

- 1st. That this Council having become aware that it is intended to alter the route of the proposed railway line to Cassilis, through the Municipality, by taking the same through the park, crossing Maitland and Mitchell Streets and the main road to Denman, protests against such deviation from original survey for the following reasons:—
 1. That the original survey will do the least injury to town property.
 2. That the existence of seven railway gates, already in the town, over principal thoroughfares, cause great inconvenience to the inhabitants, and the proposed route will cross other two important streets and the Great Northern Road.
 3. That the original survey will necessitate one, or at most two gates only over unimportant back streets.
 4. That a double crossing in Bridge-street would be far preferable and much less expensive than the number which will be required by the proposed deviation from the original survey.
 5. That a large sum of money has been expended in the maintenance and ornamental planting of the park, and should the deviation be decided upon the people will lose the entire benefit of the same.

This resolution, with the reasons for the protest, I have forwarded to the Minister for Works.

The second resolution as follows:—

That the foregoing resolution be forwarded to the proper officer of the Government through the Members for the district.

A copy sent to R. G. D. Fitzgerald, Esq., M.L.A.

I have, &c.,

J. STAFFORD,

Council Clerk.

Presented by Mr. Hungerford, M.L.A.—J.W., 16/9/86. Mr. Palmer for report.—J.W., 16/9/86.
 This is, I think, a copy of a paper on which I lately forwarded a report, with a tracing, showing how the first part of the Muswellbrook and Cassilis extension has been permanently staked.—H.P., 17/9/86.
 The Engineer-in-Chief.

No. 67.

Mr. Surveyor Edwardes to The Engineer-in-Chief.

Sir,

Railway Survey Camp, Muswellbrook, 4 October, 1886.

I have the honor to herewith forward you two level books containing the through levels of the permanent survey from Muswellbrook to Cassilis, from O.M. to 8 miles 40 chains, and the cross levels taken between O.M. and 5 miles 12 chains. The check level book containing levels, O.M. to 8 miles 40 chains, I have for the present retained for the insertion of more levels.

I have, &c.,

CHAS. A. EDWARDES.

Mr. Palmer.—W.H.Q., 5/10/86. Received.—H.P., 5/10/86.

No. 68.

Mr. Surveyor Edwardes to The Engineer-in-Chief.

Sir,

Railway Survey Camp, Denman, 22 October, 1886.

I have the honor to herewith forward to you, under separate cover, a field plan, with tracing of sections, showing the cross levels taken on the trial line of the Muswellbrook-Cassilis survey, from 8 miles to 21 miles, for the further determination of the straights and curves to be permanently staked.

In order to obtain an easier section through the dividing ridge, at 14 miles, I surveyed the deviations A. B., as shown on plan.

This deviation gives a section with smaller amount of earthworks and slightly easier gradients, the through distance being increased 4.11 chains thereby.

Field plans with section tracing under separate cover.

I have, &c.,

CHAS. A. EDWARDES.

Mr. Palmer.—W.H.Q., 23/10/86. Received.—H.P., 24/10/86.

No. 69.

Mr. Surveyor Edwardes to The Engineer-in-Chief.

Sir,

Railway Survey Camp, Denman, 28 October, 1886.

I beg to herewith forward you, under separate cover, the following parish maps:—Parish of Clauricard, county of Brisbane; parish of Wybong, county of Brisbane; parish of Denman, county of Brisbane; parish of Yarraman, county of Brisbane, on which I have shown, in approximate position, the centre line of the Muswellbrook-Cassilis Permanent Survey.

I have the honor to request that I may be supplied with the lengths and bearings of the boundaries of the measured portions through which the line passes, together with widths of roads crossed; also a tracing of road plans, Merriwa to Denman, catalogued No. R. 5-972, Merriwa to Muswellbrook, catalogued No. R. 900-1,603.

I have, &c.,

CHAS. A. EDWARDES.

Mr. Palmer.—W.H.Q., 30/10/86. Forwarded.—H.P., 11/11/86.

No. 70.

Mr. Surveyor Edwardes to The Engineer-in-Chief.

Sir,

Railway Survey Camp, Denman, 1 December, 1886.

I have the honor to herewith forward you, under separate cover, two level books, containing levels of the Permanent Survey from Muswellbrook to Cassilis, viz., the through levels from 8 miles 40 chains to 19 miles 5 chains, and the check levels from 20 chains to 12 miles 40 chains.

I have, &c.,

CHAS. A. EDWARDES.

Mr. Palmer.—W.H.Q., 3/12/86. Received.—H.P., 9/12/86.

No. 71.

Mr. Surveyor Edwardes to The Engineer-in-Chief.

Sir,

Railway Survey Camp, Denman, 7 December, 1883.

I have the honor to herewith forward you, under separate cover, one level book, containing the cross levels on the Permanent Survey from Muswellbrook to Cassilis, from 12 miles 11 chains to 16 miles 36 chains, and from 16 miles 40 chains to 20 miles 10 chains,

I have, &c.,

CHAS. A. EDWARDES.

Mr. Palmer.—W.H.Q., 8/12/86. Received.—H.P., 9/12/86.

No. 72.

Mr. Surveyor Jamieson to the Engineer-in-Chief.

Sir,

Railway Survey Camp, Denman, 20 December, 1886.

I have the honor to forward, in conjunction with Mr. Edwardes, trial plan, showing cross-levels taken on trial survey (from 26 miles to 31.40 miles), Muswellbrook to Cassilis, for a further determination of straights and curves.

I have, &c.,

JOHN J. JAMIESON.

Mr. Palmer.—W.H.Q., 22/12/86. Plan and section returned to Mr. Edwardes, with instructions.—H.P., 23/12/86.

No. 73.

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No. 73.

Mr. Surveyor Edwardes to The Engineer-in-Chief.

Sir, Railway Survey Camp, Denman, 20 December, 1886.

I have the honor to herewith forward you, under separate cover, a field plan, with section, showing the cross-levels taken on the trial line from Muswellbrook to Cassilis (from 22 miles to 31½ miles), for the further determination of the straights and curves to be permanently staked.

The mileage now shown on plan is the new through mileage from Muswellbrook.

I have, &c.,

CHAS. A. EDWARDES.

Mr. Palmer.—W. H. Q., 22/12/86. Plan and section returned to Mr. Edwardes, with instructions.—H.P., 23/12/86.

No. 74.

The Assistant Engineer for Trial Surveys to Mr. Surveyor Edwardes.

23 December, 1886.

UNDER separate cover I have returned your cross-levelled plan of portion of the Muswellbrook and Cassilis trial survey, on which I have shown how the centre line is to be permanently staked from 22 miles to 31½ miles, excepting between 23 to 24½ miles, where, as you will see by a line I have marked in pencil, with a note also in pencil, that a trial survey should be made to ascertain whether it may be advisable to go round the bend of Hall's Creek in place of crossing it twice. Please return the plan and section as early as practicable, with the required information, so that no time may be lost in carrying forward the chainage through this length.

The first part of the working plan should also be sent in as soon as possible, so that the Parliamentary plan may be proceeded with in this office.

HERBERT PALMER.

No. 75.

Mr. Surveyor Edwardes to The Engineer-in-Chief.

Sir, Railway Survey Camp, Denman, 3 January, 1887.

I have the honor to herewith return you the cross-levelled field plan of portion of the Muswellbrook-Cassilis trial survey, on which I have shown the deviation of the trial line between 23 miles and 24½ miles, made in accordance with your memo. No. 86-399 of 23 December, to avoid the double crossing of Hall's Creek.

The mileage by this new traverse has been increased, as shown on section 28-37 chains.

I also forward a lithograph of the parish of Wickham, on which I have shown, by red line, the position of the line to be permanently staked.

I would request that I may be supplied with the lengths and bearings of the measured portions through which this part of the survey passes.

Plan, section, and litho. herewith, under separate cover.

I have, &c.,

CHAS. A. EDWARDES.

Mr. Palmer.—W. H. Q., 4/1/87. Plan and section returned with instructions. The remaining information required will be forwarded when ready.—H.P., 4/1/87.

No. 76.

The Assistant Engineer for Trial Surveys to Mr. Surveyor Edwardes.

4 January, 1887.

UNDER separate cover I have returned your cross-levelled plan and your section of portion of the Muswellbrook and Cassilis trial survey, on which I have shown how the centre line may be permanently staked round the bend of Hall's Creek, between 23 and 24 miles.

The information as to lengths and bearings of measured portions shall be forwarded as soon as ready.

HERBERT PALMER.

No. 77.

Mr. Surveyor Edwardes to The Engineer-in-Chief.

Sir, Railway Survey Camp, Denman, 28 January, 1887.

I beg to forward you, under separate cover, one level book, containing the through levels of the permanent survey from Muswellbrook to Cassilis, from 19 miles 5 chains to 29 miles 73 chains, the check level book being retained for the insertion of further levels.

I have, &c.,

CHAS. A. EDWARDES.

Mr. Palmer.—W.H.Q., 31/1/87. Received.—H.P., 8/2/87.

No. 78.

Mr. Surveyor Jamieson to The Engineer-in-Chief.

Sir, Post Office, Denman, 6 February, 1887.

I have the honor to forward, under separate cover per same post, three books, one containing check levels from 12 miles 40 chains to 24 miles 75 chains, and the others containing cross levels from 21 miles 4 chains to 26 miles 15 chains (by Mr. Edwardes), and from 26 miles 17 chains to 30 miles 75 chains on the centre line of the proposed railway, Muswellbrook to Cassilis.

I have, &c.,

JOHN J. JAMIESON.

Mr. Palmer.—W.H.Q., 8/2/87. Received.—H.P., 8/2/87.

No. 79.

No. 79.

Mr. Surveyor Edwardes to The Engineer-in-Chief.

Sir,

Railway Survey Camp, Denman, 17 February, 1887.

I have the honor to herewith forward you, under separate cover, the working plan part No. 1, of the Muswellbrook-Cassilis extension, embracing the permanent survey from 0 miles 0 chains at Muswellbrook to 24 miles 50 chains, and book of reference to same.

Together with the above I also forward the following plans:—

Cross-levelled field plans, Nos. 1, 2, 3.

Lithographs, town of Muswellbrook.

„ parish of Brougham, county of Durham.

„ „ Vaux, county of Durham.

„ „ Clanricarde, county of Brisbane.

„ „ Wybong, county of Brisbane.

„ „ Denman, county of Brisbane.

„ „ Yarraman, county of Brisbane.

I have, &c.,

CHAS. A. EDWARDES.

Mr. Palmer.—W.H.Q., 19/2/87. Received.—H.P., 21/2/87.

No. 80.

Mr. Surveyor Edwardes to The Engineer-in-Chief.

Sir,

Railway Survey Camp, Denman, 17 February, 1887.

In conjunction with Mr. Jamieson, I have the honor to forward you, under separate cover, a field plan, with tracing of section, showing the cross levels taken on the trial line from Muswellbrook to Cassilis, from 31 miles 50 chains to 38 miles 40 chains, for the further determination of the straights and curves to be permanently staked.

I have, &c.,

CHAS. A. EDWARDES.

Mr. Palmer.—W.H.Q., 19/2/87. Received and returned to Mr. Edwardes, with instructions for permanent staking of this portion of the Muswellbrook and Cassilis line.—H.P., 21/2/87.

No. 81.

The Assistant Engineer for Trial Surveys to Mr. Surveyor Edwardes.

21 February, 1887.

In future, when forwarding to the Engineer-in-Chief the remaining lengths of cross-levelled plans of the Muswellbrook and Cassilis trial survey for his determination as to the centre line to be permanently staked, you may mark out in pencil through these cross levels the centre line you may propose to permanently stake for his approval.

HERBERT PALMER.

No. 82.

The Assistant Engineer for Trial Surveys to Mr. Surveyor Edwardes.

21 February, 1887.

UNDER separate cover I have returned you 4-chain plan showing cross levels taken on a portion of the Muswellbrook and Cassilis trial survey, on which I have shown how the centre line is to be permanently staked. Enclosed in this plan is your tracing of the section of trial survey.

HERBERT PALMER.

The section I find has been also forwarded to you under separate cover.—H.P.

No. 83.

The Assistant Engineer for Trial Surveys to Mr. Surveyor Jamieson.

21 February, 1887.

For the future, when forwarding to the Engineer-in-Chief the remaining lengths of cross levelled plans of the Muswellbrook and Cassilis trial survey for his determination as to the centre line to be permanently staked, you may mark out in pencil for his approval the centre line you may propose to permanently stake.

HERBERT PALMER.

No. 84.

Mr. Surveyor Jamieson to The Engineer-in-Chief.

Sir,

Post Office, Denman, 23 February, 1887.

I have the honor to enclose tracing showing alienated portions in the parish of Worondi, county of Brisbane, through which the centre line of proposed railway, Muswellbrook to Cassilis, will pass.

Please cause the bearings, distances, &c., to be written on tracing, and returned to me with the least possible delay, so that I may connect same with centre line.

Mr. Palmer.—W.H.Q., 26/2/87.

I have, &c.,

JOHN J. JAMIESON.

Tracing received and the information required forwarded.—E.R.T., 3/3/87.

No. 85.

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No. 85.

Mr. Surveyor Edwardes to The Engineer-in-Chief.

Sir,

Railway Survey Camp, Denman, 26 February, 1887.

I beg to forward you, under separate cover, lithographs of the parishes of Worondi, Mackenzie, and Merriwa, county of Brisbane, on which I have shown by red line the Muswellbrook-Cassilis extension.

I would request that I may be supplied with the lengths and bearings and reference to corners of the portions in the above parishes through which the line passes.

I have, &c.,

CHAS. A. EDWARDES.

Mr. Palmer.—W.H.Q., 1/3/87. Lithographs received and the information required forwarded.—E.R.T., 4/3/87.

No. 86.

The Assistant-Engineer for Trial Surveys to The Engineer-in-Chief.

Muswellbrook to Cassilis—Permanent survey.

Messrs. Edwardes and Jamieson have all necessary instructions for the permanent staking of the centre line to within 1 or 2 miles of Merriwa. For the remaining length to Cassilis they have been instructed to forward cross-levelled plan of trial survey with the line they may propose to permanently stake laid down in pencil through the cross-levels for approval of the Engineer-in-Chief prior to actually staking the centre line.

HERBERT PALMER, 5/3/87.

J.W., 7/3/87. Mr. Thomas.—W.H.Q., 2/5/87. Noted.—E.R.T., 2/5/87.

No. 87.

Mr. Surveyor Edwardes to The Engineer-in-Chief.

Sir,

Railway Survey Camp, Denman, 16 March, 1887.

I beg to herewith forward you, under separate cover, one level-book containing the through levels of the Muswellbrook to Cassilis extension from 29 mls. 73 chs. to 38 mls. 35 chs.

I have, &c.,

CHAS. A. EDWARDES.

Mr. Thomas.—W.H.Q., 17/3/87. Level-book to hand.—E.R.T., 18/3/87.

No. 88.

Mr. Surveyor Edwardes to The Engineer-in-Chief.

Sir,

Railway Survey Camp, Denman, 16 March, 1887.

I have the honor to request that I may be furnished with field-book, No. 3, containing the field-notes of the deviation of the trial survey from Muswellbrook to Cassilis at Merriwa, as when plotting the next cross-level field plan the above notes will be of great service to me. I would also request that I may be supplied with the following:—Tracing or lithograph of village of Merriwa; 4 level-books.

I have, &c.,

CHAS. A. EDWARDES.

Mr. Thomas.—W.H.Q., 17/3/87. Field-book No. 3, tracing of village, and four level-books forwarded.—E.R.T., 18/3/87.

No. 89.

Mr. Surveyor Jamieson to The Engineer-in-Chief.

Sir,

Post Office, Merriwa, 17 March, 1887.

I have the honor to forward under separate cover by to-day's post two (2) books, one containing check levels from 24 mls. 75 chs. to 37 mls., and the other cross levels from 30 mls. to 34 mls. 29 chs. taken on the permanent staking of the line Muswellbrook to Cassilis.

I have, &c.,

JOHN J. JAMIESON.

Mr. Thomas.—W.H.Q., 19/3/87. The two (2) level-books received.—E.R.T., 21/3/87.

No. 90.

Mr. Surveyor Jamieson to The Engineer-in-Chief.

Sir,

Camp, Merriwa, 1 April, 1887.

I have the honor to enclose, in trial plan, a parish map of Watt, county of Brisbane, upon which is shown, in red, the proposed line, passing through the alienated portions. Please cause the bearings and distances, also reference to corners, to be noted upon same, and returned to me as early as possible.

I have, &c.,

JOHN J. JAMIESON.

Mr. Thomas.—W.H.Q., 4/4/87. The Engineer-in-Chief. Plan and section to hand this day, and forwarded for approval.—E.R.T., 4/4/87. Map returned to Mr. Jamieson, with information thereon.—E.R.T., 21/4/87.

No. 91.

No. 91.

Mr. Surveyor Jamieson to The Engineer-in-Chief.

Sir,

Camp, Merriwa, 1 April, 1887.

I have the honor to forward, under separate cover by to-day's post, plan and section of portion of the trial survey, Muswellbrook to Cassilis, from about 43 miles to 49 miles 40 chains, showing cross levels, &c., to enable you to determine the straights and curves for permanent staking. I have, in accordance with your instructions, shown, in pencil, the straights and curves which I propose to be permanently staked; also, on portion of the section, have shown, in pencil, the probable section which the line I propose will give.

I have, &c.,

JOHN J. JAMIESON.

Plan and section herewith.—W.H.Q., 15/4/87. Mr. Drewett.—Received above, 16/4/87. Plan returned to Mr. Thomas for fresh levels to be taken near Cassilis, see No. 1,442-87.—J.W.D., 20/4/87. Mr. Thomas.—W.H.Q., 20/4/87. Plan and section received, without any instructions as to the further permanent staking of the line.—E.R.T., 21/4/87. The Engineer-in-Chief wishes the permanent staking to be proceeded with, including the deviation near Cassilis, and Messrs. Jamieson and Edwardes can now go on with the work.—J.W.D., 23/4/87. Mr. Thomas. Instructions forwarded to Mr. Jamieson.—E.R.T., 23/4/87.

No. 92.

The Acting Assistant Engineer for Trial Surveys to Mr. Surveyor Jamieson.

23 April, 1887.

THE Engineer-in-Chief wishes the permanent staking of the Muswellbrook to Cassilis Railway to be proceeded with, over the line shown in pencil on plan.

Owing to a deviation near Merriwa, and extending to the western side of Merriwa River, you will have to arrange your junction with Mr. Edwardes' staking.

Field plan and section forwarded under separate cover, even date.

EDWIN R. THOMAS.

No. 93.

Mr. Surveyor Edwardes to The Engineer-in-Chief.

Sir,

Railway Survey Camp, Denman, 2 April, 1887.

I have the honor to forward you, under separate cover, a field plan and section, showing the cross levels taken on the trial survey line, from Muswellbrook to Cassilis, between 38 miles and 43 miles 30 chains.

Upon the above plan I have marked, in pencil, a line passing through these cross levels, which I now submit for your approval of the permanent staking of same.

The section, as reduced by the cross levels, I have shown in pencil, also approximate gradients.

At 42½ miles I have marked a proposed site for station at Merriwa, which I believe to be the most practicable one obtainable.

I have, &c.,

CHAS. A. EDWARDES.

Mr. Thomas.—J.W., 4/4/87. The Engineer-in-Chief. Plan and section to hand this day, and forwarded for approval.—E.R.T., 4/4/87.

Will you please to instruct Mr. Edwardes not again to send in a plan and section with different horizontal scales. The plan is 4 chains to an inch, and the section 10 chains, of the Muswellbrook and Cassilis survey, now forwarded.—J.W., 15/4/87.

Plan and section herewith.—W.H.Q., 15/4/87. Mr. Drewett. Received the above.—J.W.D., 16/4/87. Plan returned to Mr. Thomas to have levels taken over the ground shown by a pencil line on plan near Cassilis.—J.W.D., 20/4/87. Mr. Thomas.—W.H.Q., 20/4/87. Mr. Edwardes instructed to take section near Merriwa, and plot sections to same scale as plans.—E.R.T., 21/4/87. For instructions see No. 1,444-87 this day.—J.W.D., 23/4/87. Mr. Thomas. Instructions forwarded to Mr. Edwardes.—E.R.T., 23/4/87.

Telegram from Mr. Surveyor Edwardes to The Engineer-in-Chief for Railways.

Survey Camp, Merriwa.

FIELD plan forwarded on 1st instant. Am awaiting your instructions for further staking line.

CHAS. A. EDWARDES.

No. 94.

The Acting Assistant Engineer for Trial Surveys to Mr. Surveyor Jamieson.

21 April, 1887.

THE Engineer-in-Chief wishes that all sections in the future to be plotted to the same horizontal scale as the plans.

EDWIN R. THOMAS.

No. 95.

The Acting Assistant Engineer for Trial Surveys to Mr. Surveyor Edwardes.

23 April, 1887.

THE Engineer-in-Chief wishes the permanent staking of the Muswellbrook to Cassilis railway to be proceeded with from 38 miles 35 chains on pencil line on plan, including the deviation near Merriwa.

You will have to arrange junction with Mr. Jamieson, owing to deviation. Field plan and section forwarded under separate cover, even date.

EDWIN R. THOMAS.

No. 96.

No. 96.

Memo. from The Acting Assistant Engineer for Trial Surveys to Mr. Surveyor Edwardes.

Department of Public Works, Railway Branch,

Engineer-in-Chief's Office, Sydney, 21 April, 1887.

THE Engineer-in-Chief has given instructions that you are to level over the blue line shown on the tracing forwarded under separate cover, and forward a section of the same plotted to scales of 4 chains to 1 inch horizontal, and 40 feet to 1 inch vertical.

In future, the Engineer-in-Chief wishes all sections plotted to the same horizontal scale as the plans.

EDWIN R. THOMAS.

Section of deviation as shown by blue line on tracing plotted to scales as required herewith (together with tracing) forwarded under separate cover.—CHAS. A. EDWARDES, 26/4/87. The Engineer-in-Chief. Mr. Thomas.—W.H.Q., 28/4/87. The section of deviation and tracing of plan received and forwarded herewith, that the height of the formation for the bridge over Merriwa Rivulet may be decided.—E.R.T., 2/5/87. The Engineer-in-Chief. Mr. Edwardes to return original section, 2/5/87.—W.H.Q. Mr. Thomas.

The original section of trial line and Mr. Edwardes' proposed alteration of same herewith, plotted to a 4-chain scale horizontal, and 40 feet vertical to 1 inch, also section of proposed deviation. Mr. Edwardes has by this date nearly reached the point of junction of proposed deviation, and will need instructions as to the further staking from this point. Is the "lock-spitting" and "trial-hole-sinking" to be proceeded with on this line? No instructions have been given for this work.—E.R.T., 9/5/87. What has been done in this matter? Mr. Drewett.—J.W., 13/5/87. Will Mr. Thomas please reply? Mr. Thomas.—J.W.D., 16/5/87. Mr. Edwardes was instructed on the 9th instant to proceed with permanent staking of deviation at Merriwa. See note on Mr. Edwardes' communication of the 5th instant.—E.R.T., 16/5/87.

No. 97.

Memo. from the Acting Assistant Engineer for Trial Surveys to Mr. Surveyor Edwardes.

4 May, 1887.

PLEASE to return as early as possible the original section from 38 miles 35 chains to Merriwa Rivulet.

EDWIN R. THOMAS.

Muswellbrook to Cassilis.—Section of trial line from 38 miles to 43 miles 30 chains at Merriwa Rivulet (with cross sections noted) herewith returned under separate cover.—CHAS. A. EDWARDES, 6/5/87.

The Engineer-in-Chief.—W.H.Q., 9/5/87. Mr. Thomas. Section returned.—E.R.T., 9/5/87.

No. 98.

Mr. Surveyor Edwardes to The Engineer-in-Chief.

Sir,

Railway Survey Camp, Merriwa, 5 May, 1887.

In accordance with your telegram of 2nd instant, received by me by last night's mail, I beg to herewith forward you under separate cover a section of part of the trial line from Muswellbrook to Cassilis, from 41 miles to 43 miles 40 chains. Section of trial line is shown in black, that of proposed alteration of line as marked in pencil on plan being shown by dotted blue line, plotted from cross levels shown on plan.

I would request that I may be at once informed by telegram should any alteration be now made in the deviation of line shown in blue on tracing forwarded, I having partly completed the staking of the same.

I have, &c.,

CHAS. A. EDWARDES.

Mr. Thomas.—W.H.Q., 7 May, 1887. Section received, and instructions wired.—E.R.T., 9/5/87.

No. 99.

Telegram from the Acting Assistant Engineer to Mr. Surveyor Edwardes.

9 May, 1887.

STAKE line of deviation as per memo., 23 April ultimo.

No. 100.

Mr. Surveyor Edwardes to The Engineer-in-Chief.

Sir,

Railway Survey Branch, Sydney, 18 May, 1887.

I have the honor to herewith forward you plans (2), sections (2), with book of reference, of trial survey, made in accordance with your instructions, from Muswellbrook to Cassilis.

This survey embraces—(1.) an amendment of Mr. Furrowes' trial line between 7 miles 47.44 chains and 22 miles, with deviation from his line at 10 miles, passing near Denman. (2.) Continuation of trial line from 22 miles to Cassilis *via* Merriwa, with deviation (rough staked) passing south of that town.

From Muswellbrook to main dividing range at 34 miles the country traversed by line is of a sandstone nature, valuable for agriculture and vine growing, that part of the Hunter Valley crossed being of an highly fertile nature. From 34 miles to Cassilis the country is chiefly basaltic being good agricultural land. With the exception of Crown reserves, as shown by green tint on plans, the line passes through private property, all more or less improved by cultivation, ringbarking, and clearing. From

From 17 miles to 34 miles, and in the vicinity of the Goulburn River, ironbark timber can be obtained; from 34 miles to Cassilis the timber, chiefly box and gum, is of a worthless description. Ironbark forests exist on Crown land near Ironbark Creek and Green Hills, distant about 7 miles south-west from Cassilis. Ballast is available the whole length of line; freestone for quarrying can also be obtained. From Muswellbrook to Worondi Creek, the soil is suitable for brickmaking. Beyond to Cassilis, owing to limestones and sand, the soil is of an unfavourable nature. Water for locomotive purposes can be had at the Hunter Rivers, Merriwa, Krui, and Munmurra Rivers.

The amendment of Mr. Burrowes' line from 7 miles 47.44 chains (A.) to 23 miles 78.57 chains (D.) is 65.89 chains shorter, and gives throughout a line with much easier grades and earthworks. The flood level of Hunter River (see diagram) is highest visible. I have also shown on plan a known flood mark of flood of 1872. The flats on each side of river being more or less flooded for a distance of about 70 chains on each side of river at and adjacent to crossing will necessitate piling the approaches to bridge.

I examined the country with a view of carrying the line as near as possible to the town of Denman. As will be seen from section (B.C.) the deviation near Denman, commencing at 10 miles on Mr. Burrowes' line, involves very heavy grade and earthworks, being 79.94 chains longer than line from 7 miles 47.44 chains (A.C.), any line taken nearer Denman being blocked by mountain range between Hunter River and Goulburn River. All traffic westerly for Muswellbrook is taken *via* Bell's Lane instead of Denman, it being about 3 miles shorter. Platforms erected at about 7 miles and 15½ miles would I believe fully meet the requirements of the locality, should the direct line be adopted. From 22 miles to 34 miles the country traversed is mountainous, the summit at 29 miles is the lowest gap available, occurring in range between Hall's and Worondi Creeks.

At 34 miles a tunnel 13 chains in length will be necessary. From (F.) summit of main range, at 36½ miles to Cassilis the country is hilly with swelling ridges. At 70½ miles I have surveyed the line with a tunnel through range between Two-mile Hollow Creek and Munmurra River. By skirting this range the tunnel could be avoided, but would increase the distance by 1½ miles.

The deviation south of Merriwa (F.G.) passes through country similar to that *via* Merriwa, being 2 miles 56.10 chains shorter, giving a line with similar rate of grades, with slightly easier earthworks.

The mileage by this survey is as follows:—Mr. Burrowes 22 miles continued *via* Merriwa, 74 miles 40.31 chains; 10 miles continued near Denman and *via* Merriwa, 74 miles 54.36 chains; 7 miles 47.44 chains continued *via* Bell's Lane and Merriwa, 73 miles 54.42 chains; by line south of Merriwa, 2 miles 56.10 chains shorter.

The grades noted on section are those to which I have mainly worked. The approximate size of important water ways are also noted.

I discovered a discrepancy in Mr. Burrowes' levels between 7 miles and 22 miles.

As will be seen, the route from Merriwa to Cassilis is circuitous. I thoroughly examined the country to north of road between these two points with a view of obtaining a more direct route by way of Dunlop, Ailsa, and Pembroke, but could see no way of obtaining a line in that direction.

In conclusion I would beg to point out that in view of a possible extension of this line from Cassilis westerly towards Denison Town, Coolah, thence Coonabarrabran, great difficulty would occur from present terminus of this line, it being blocked by range between the Four-mile Creek and Munmurra River.

By altering present line from about 69 miles, and passing within about 2½ miles of Cassilis, this difficulty could I believe be avoided. From present terminus of line an extension could be obtained towards Quirindi.

This survey was commenced September, 1884, and completed May, 1885.

I have, &c.,

CHAS. A. EDWARDES.

No. 101.

Mr. Surveyor Edwardes to The Engineer-in-Chief.

Sir,

Railway Survey Camp, Merriwa, 25 May, 1887.

I have the honor to request that I may be supplied, as early as practicable, with the following:—

Tracing of plan and section showing the deviation of trial line, Muswellbrook to Cassilis, at crossing of the Kouli River.

The level-books containing the levels of the trial survey, Muswellbrook to Cassilis, from 48 miles 22 chains to Cassilis (including the deviation of survey).

25 ft. plan paper (for field plan.)

25 ft. section paper (for field section.)

10 ft. tracing paper.

Three level books.

One field book.

I have, &c.,

CHAS. A. EDWARDES.

Mr. Thomas.—W.H.Q., 28/5/87.
31/5/87.

The above have been forwarded to Mr. Edwardes.—E.R.T.,

No. 102.

Mr. Surveyor Edwardes to The Engineer-in-Chief.

Sir,

Railway Survey Camp, Merriwa, 25 May, 1887.

I have the honor to herewith forward you, under separate cover, three level-books, containing the following levels of the Muswellbrook-Cassilis permanent survey:—

(1.) Through levels, 38 miles 35 chains to 45 miles.

(2.) Cross sections levels, 34 miles 38 chains to 39 miles 46 chains.

(3.) " " 39 miles 47 chains to 43 miles 43 chains.

I have, &c.,

CHAS. A. EDWARDES.

Mr. Thomas. W.H.Q., 30/5/87.

Level books, as above, received.—E.R.T., 31/5/87.

No. 103.

Mr. Surveyor Jamieson to The Engineer-in-Chief.

Sir,

Survey Camp, 2 June, 1887.

I have the honor to forward, under separate cover, per same post, two level books, one containing permanent levels from 45 miles to 49 miles 50 chains, and the other check levels from 37 miles to 48 miles, taken on the centre line of proposed railway, Muswellbrook to Cassilis.

I have, &c.,

JOHN J. JAMIESON.

Mr. Thomas.—W.H.Q., 2/6/87. Level books (two) received.—E.R.T., 2/6/87.

No. 104.

The Acting Assistant Engineer for Trial Surveys to The Engineer-in-Chief.

Department of Public Works, Railway Branch, Engineer-in-Chief's Office.

Sydney, 17 June, 1887.

FORWARDED herewith, for your approval, are field plans and sections of the line, Muswellbrook to Cassilis, showing the line proposed to be permanently staked, from 49 miles to 63 miles.

The grading can be improved on the working section.

E.R.T.

Line shown in pencil may be staked.—J.W., 18/6/87. Mr. Thomas. Instructions forwarded to Messrs. Edwardes and Jamieson.—E.R.T. 22/6/87.

No. 105.

Mr. Surveyor Edwardes to The Engineer-in-Chief.

Sir,

Railway Survey Camp, Merriwa, 18 June, 1887.

In order to expedite the field work of the permanent survey from Muswellbrook to Cassilis, I would request that I may be furnished with instructions regarding the further staking of the line—field plan and section of which was forwarded on the 14th instant—as early as practicable.

I have, &c.,

CHAS. A. EDWARDES.

Mr. Thomas.—W.H.Q., 22/6/87. Instructions with field plan and section forwarded to Mr. Edwardes.—E.R.T., 22/6/87.

No. 106.

Mr. Surveyor Edwardes to The Engineer-in-Chief.

Sir,

Railway Survey Camp, Merriwa, 18 June, 1887.

In reply to your memo., No. 87/745, of 14th June, *re* progress made, length yet to be done, and probable date of completion of the permanent survey from Muswellbrook to Cassilis, I beg to report that the permanent survey of the line is now completed to 49 miles 50 chains, to which point the working plan, part 2, has also been plotted.

There now remains about 25 miles to complete the staking to Cassilis. After consulting with Mr. Jamieson, I beg to state that, in conjunction with him, I hope to be able to complete the field-work of the above by the end of September.

I have, &c.,

CHARLES EDWARDES.

Mr. Thomas.—W.H.Q., 22/6/87. E.R.T., 23/6/87. J.W., 24/6/87. How is this survey progressing?—W.H.Q., 3/8/87. Mr. Thomas. The July journals of Messrs. Edwardes and Jamieson are not to hand; but from the field plans that have been received it appears likely, if the weather remains favourable, that the survey will be completed by the end of September next.—E.R.T., 4/8/87. End of month.—4/8/87. Mr. Thomas.—W.H.Q., 31/8/87. This survey will most likely be completed within a short period of the time stated, unless the weather has interfered considerably with its progress.—E.R.T., 2/9/87. The Engineer-in-Chief. End of month. Mr. Thomas.—W.H.Q., 4/10/87. This survey should be completed within this month.—E.R.T., 5/10/87. The Engineer-in-Chief.

No. 107.

Mr. Surveyor Jamieson to The Engineer-in-Chief.

Sir,

P.O., Merriwa, 20 June, 1887.

I have the honor to reply to your memo, 87/744, *re* the progress, length of survey yet to be made, and date of completion of the permanent staking, Muswellbrook to Cassilis.

I beg to state that the permanent survey is completed to 50 miles, and there now still remains about 25 miles to be set out to Cassilis. After consulting with Mr. Edwardes, I find that the field work will, in all probability, be completed about the end of September.

The plotting and drawing of working plans will then take another month before the work is finally finished.

I have, &c.,

JOHN J. JAMIESON.

Mr. Thomas.—W.H.Q., 22/6/87. E.R.T., 23/6/87.

No. 108.

Mr. Surveyor Jamieson to The Engineer-in-Chief.

Sir,

P. O., Merriwa, 16 July, 1887.

I have the honor to forward by to-day's post (2) two level books, one containing permanent levels from 45 miles to 54 miles 30 chains, and the other cross sections from 43 miles 47 chains to 50 miles 60 chains, taken on the centre line of proposed railway, Muswellbrook to Cassilis. Also, per same post, I am forwarding the parish maps of Collaroy and Borambil, county of Bligh, upon which is shown approximately in black dotted line the position of centre line passing through alienated portions.

Please cause the bearings, lengths of lines, and reference to corner trees to be noted on same, and returned to me as soon as convenient.

I have, &c.,

JOHN J. JAMIESON.

Mr. Thomas.—W.H.Q., 19/7/87. Through level and cross-level books received, and information on parish maps forwarded.—E.R.T., 25/7/87.

No. 109.

Mr. Surveyor Edwardes to The Engineer-in-Chief.

Sir,

Railway Survey Camp, Merriwa, 22 July, 1887.

I have the honor to herewith forward you under separate cover, two level books, containing the following levels of the permanent survey of the line from Muswellbrook to Cassilis, viz. :—

Through levels, 54 miles 30 chains to 59 miles 70 chains. Check levels, 47 miles 75 chains to 59 miles 70 chains. I would request that the book containing the through levels may be returned to me for the insertion of further levels.

I have, &c.,

CHAS. A. EDWARDES.

Mr. Thomas.—W.H.Q., 26/7/87. The level books received. The through level book will be returned to Mr. Edwardes as soon as plotted.—E.R.T., 27/7/87.

No. 110.

Mr. Surveyor Edwardes to The Engineer-in-Chief.

Sir,

Railway Survey Camp, Merriwa, 30 July, 1887.

I have the honor to forward you, under separate cover, the field plan of the permanent staking of the Muswellbrook-Cassilis Railway, previously sent in by me, on which I have now shown additional cross levels, taken to 64 miles 40 chains.

From last tangent permanently staked (shown in blue) I have marked in pencil through the cross levels the remaining straights and curves to 64 miles 40 chains, the staking of which I now submit for your approval :—

The alteration of section, also forwarded, I have in pencil shown.

A lithograph of parish of Collaroy, county of Bligh I also forward for lengths and bearings of portions through which the line passes.

I would request that this plan may be returned to me as early as practicable.

Plan, section, and litho. herewith, under separate cover. I have, &c.,

CHAS. A. EDWARDES.

Mr. Thomas.—W.H.Q., 2/8/87.

Field plan and sections, also lithograph of the parish of Collaroy received. Plan and section forwarded herewith for your approval of that portion beyond the last permanently staked line, shown in blue on plan at 59 miles. The lithograph will be returned to Mr. Edwardes with the information required thereon.—E.R.T., 3/8/87. The Engineer-in-Chief.

Stake out the line so as to give the section shown in pencil.—J.W., 3/8/87. Mr. Thomas,—Instructions with field plan and section forwarded to Mr. Edwardes.—E.R.T., 4/8/87.

No. 111.

The Acting Assistant Engineer for Trial Surveys to Mr. Surveyor Edwardes.

4 August, 1887.

FIELD plan and section forwarded yesterday. The Engineer-in-Chief approves the staking of line shown in pencil on plan.

No. 112.

Mr. Surveyor Jamieson to The Engineer-in-Chief.

Sir,

Post Office, Merriwa, 6 August, 1887.

I have the honor to forward by to-day's post plan and section of portion of the trial survey, Muswellbrook to Cassilis, from about 64 miles to 72 miles.

I have cross-levelled the above length thoroughly, and have shown same on plan; also have struck out a line in pencil, which I submit to you for approval of permanent staking.

The section is tolerably easy from 64 miles to 70 miles, but from that point to the top of dividing ridge between the Two-mile Hollow Creek and the Munmurra River, I had some difficulty in obtaining a good section.

Mr. Edwardes, when making the trial survey, tried several routes, which I also show on my plan and section.

The line recommended by me is shown in blue on plan, and is considerably better than any of the lines run by Mr. Edwardes.

I wish to draw your attention to the crossing of the Two-mile Hollow Creek, which I have shown to be crossed on an (8) eight chain curve and a 1 in 40 grade. Any other curve increasing considerably the embankment across the creek would also reduce the length of the line, consequently the cutting would also be increased. If the line should not meet with your approval, would you kindly suggest the way in which it should be permanently staked.

There

There will, on completing this length, be still about 3 miles to be set out to Cassilis, which will, in all probability be finished the first week in October.

Please return the plan with approved staking at an early date, so that there will be no delay in the field work.

I have, &c.,

JOHN J. JAMIESON.

Mr. Thomas.—W.H.Q., 9/8/87. Plan, section, and tracing herewith.—E.R.T., 11/8/87. The Engineer-in-Chief. Plan, &c., inspected by the Engineer-in-Chief, and returned herewith.—W.H.Q., 23/8/87. Mr. Thomas. Plan and section received. Both forwarded with instructions to Mr. Jamieson.—E.R.T., 24/8/87. The Engineer-in-Chief. J.W., 25/8/87.

No. 113.

Mr. Surveyor Edwardes to The Engineer-in-Chief.

Sir,

Railway Survey Camp, Merriwa, 31 August, 1887.

I beg to herewith forward you under separate cover three (3) level books, containing the following levels of the permanent survey from Muswellbrook to Cassilis:—

- (1.) Through levels—59 miles 70 chains to 63 miles 60 chains.
- (2.) Check levels—59 miles 70 chains to 65 miles 10 chains.
- (3.) Cross-section levels—50 miles 65 chains to 60 miles 38 chains.

I have, &c.,

CHAS. A. EDWARDES.

Mr. Thomas.—W.H.Q., 6/9/87. Level books as above (3) received.—E.R.T., 7/9/87. The Engineer-in-Chief.

No. 114.

Mr. Surveyor Edwardes to The Engineer-in-Chief.

Sir,

Railway Survey Camp, Merriwa, 31 August, 1887.

As the next field plan of the Muswellbrook-Cassilis permanent survey will embrace the staking of the final portion of the survey at Cassilis, I would request that I may be informed before furnishing you with such plan, whether, in determining the line to be permanently staked, any provision is to be made for the extension of the same beyond Cassilis to the Western District, as from the point of present termination of the trial survey adjacent to the township of Cassilis, great difficulty would occur in extending the line in the above direction.

I have, &c.,

CHAS. A. EDWARDES.

Every provision must be made for the extension of this line beyond Cassilis.—J.W., 6/9/87. Mr. Thomas. Noted, and Mr. Edwards informed.—E.R.T., 7/9/87. The Engineer-in-Chief.

No. 115.

The Acting Assistant Engineer for Trial Surveys to Mr. Surveyor Edwardes.

7 September, 1887.

EVERY provision must be made for the extension of the Muswellbrook to Cassilis railway beyond Cassilis.

EDWIN R. THOMAS.

No. 116.

Mr. Surveyor Edwardes to The Engineer-in-Chief.

Sir,

Railway Survey Camp, Cassilis, 23 September, 1887.

I have the honor to herewith forward you under separate cover, field plan and section of the Muswellbrook-Cassilis railway from 70 $\frac{1}{2}$ miles to termination of survey at Cassilis. On this plan I have laid down in pencil the straights and curves, the permanent staking of which I now submit for your approval.

On plan I have shown by rough traverse D F, E F, how the line could be extended from Cassilis, and on district map I have denoted by dotted red line a route I explored to summit of the Great Dividing Range, bearing towards Uarbry.

From Uarbry the Talbragar water could be followed to near Dubbo, or the Mudgee-Coonamble trial survey be connected with near Munderooran.

The country from Cassilis to Coolah is of a very broken nature, being a series of lofty ranges and intervening creeks, to cross which great difficulties would be met with in extending a line in that direction.

I have, &c.,

CHAS. A. EDWARDES.

Mr. Thomas.—W.H.Q., 27/9/87. Plan, section, and map forwarded for your approval. The Engineer-in-Chief.—E.R.T., 27/9/87. The line may be staked as shown in pencil. The line is a heavy one throughout, and I cannot imagine that it will ever be constructed to a private township like Cassilis.—J.W., 29/9/87. Plans returned herewith.—W.H.Q. Mr. Thomas. Plans received, and instructions forwarded to Mr. Edwardes.—E.R.T., 30/9/87. The Engineer-in-Chief.

No. 117.

Mr. Surveyor Jamieson to The Engineer-in-Chief.

Sir,

Post Office, Merriwa, 24 September, 1887.

I have the honor to forward under separate cover, by to-day's post, level book, containing through levels taken on centre line of proposed railway, Muswellbrook to Cassilis, from 63 miles 60 chains to 72 miles 60 chains.

I have, &c.,

JOHN J. JAMIESON.

Mr. Thomas.—W.H.Q., 27/9/87. Level book received.—E.R.T., 27/9/87. The Engineer-in-Chief.

No. 118.

No. 118.

Mr. Surveyor Edwardes to The Engineer-in-Chief.

Sir,

Railway Survey Camp, Cassilis, 3 September, 1887.

I beg to inform you that I hope to be able to complete the permanent survey of the line from Muswellbrook to Cassilis by the 15th instant.

I have, therefore, the honor to request that I may be furnished with your fresh instructions at an early date.

I have, &c.,

CHAS. A. EDWARDES.

May return to head quarters as soon as all the field work has been finished.—J.W., *per* W.H.Q., 5/10/87. Mr. Thomas. Instructions forwarded.—E.R.T., 6/10/87. The Engineer-in-Chief. End of month.—7/10/87. Mr. Thomas.—W.H.Q., 1/11/87. Mr. Edwardes has completed the survey and permanent staking. He returned to office on October 20th, and is engaged completing working plans.—E.R.T., 2/11/87. The Engineer-in-Chief.

No. 119.

The Acting Assistant Engineer for Trial Surveys to Mr. Surveyor Edwardes.

6 October, 1887.

WHEN you have completed the survey, Muswellbrook to Cassilis, and have measured up the trial holes, &c., you are to return to Sydney.

You have given a list of those trial holes that have not been supplied from this office, as proposed in a former memo. 87/47.

EDWIN R. THOMAS.

No. 120.

Mr. Surveyor Jamieson to The Engineer-in-Chief.

Sir,

Post Office, Merriwa, 28 September, 1887.

I beg most respectfully to inform you that I have this day posted a level book, containing cross levels taken on the centre line of proposed railway, Muswellbrook to Cassilis, from 60 miles 39 chains to 69 miles 15 chains.

I have, &c.,

JOHN J. JAMIESON.

Mr. Thomas.—W.H.Q., 1/10/87. Cross level book received.—E.R.T., 1/10/87.

No. 121.

Mr. Surveyor Jamieson to The Engineer-in-Chief.

Sir,

Cassilis, 3 October, 1887.

I have the honor to report the completion of the survey from 65 miles to 72 miles 60 chains.

My camp is now being removed to Cassilis, and will assist in the staking of the final length of (3) three miles, and, with the assistance of Mr. Edwardes, expect to have the whole survey, Muswellbrook to Cassilis, finished on the 15th of October. Please forward at an early date instructions as regards my future movements.

I have, &c.,

JOHN J. JAMIESON.

May return to head quarters as soon as all the field work has been finished.—J.W., *per* W.H.Q., 5/10/87. Mr. Thomas. Instructions forwarded.—E.R.T., 6/10/87. The Engineer-in-Chief. End of month, 7/10/87. Mr. Thomas.—W.H.Q., 1/11/87. Mr. Jamieson has completed the survey and permanent staking. He returned to the Office on 17th October, and is engaged completing working plans.—E.R.T., 2/11/87. The Engineer-in-Chief.

No. 122.

The Acting Assistant Engineer for Trial Surveys to Mr. Surveyor Jamieson.

6 October, 1887.

WHEN you have completed the survey Muswellbrook to Cassilis you are to return to Sydney.

EDWIN R. THOMAS.

No. 123.

Mr. Surveyor Edwardes to The Engineer-in-Chief.

Sir,

Railway Survey Camp, Cassilis, 13 October, 1887.

I have the honor to herewith forward you, under separate cover, one level book containing the permanent levels of the Muswellbrook-Cassilis Railway, from 72 miles 59 chains to 77 miles, being the end of the staking of same.

I have, &c.,

CHAS. A. EDWARDES.

Mr. Thomas.—W.H.Q., 15/10/87. Level book received.—E.R.T., 17/10/87.

Questions and Answers.

LEGISLATIVE ASSEMBLY—TUESDAY, 3RD JULY, 1888.

- (19.) Railway Line from Muswellbrook to Cassilis—*Mr. McElhone*, for *Mr. Fitzgerald*, asked the Secretary for Public Works,—
- (1.) What was the total cost of the trial and final surveys of the proposed railway line from Muswellbrook to Cassilis?
 - (2.) How many surveyors were employed in carrying out these surveys from first to last?
 - (3.) What was the total cost of lock-spitting and trial-holes on the proposed line?
 - (4.) When was the final contract for lock-spitting, &c., completed?
- Mr. Sutherland* answered,—
- (1.) Trial surveys, £1,090 16s. 5d.; permanent surveys, £3,778 13s. 7d.; total, £4,869 10s.
 - (2.) Four.
 - (3.) £185 4s. 11d.
 - (4.) 2nd April, 1888.

LEGISLATIVE ASSEMBLY—TUESDAY, 3RD JULY, 1888.

- (3.) Railway from Muswellbrook to Cassilis :—*Mr. McElhone* asked the Secretary for Public Works,—
- (1.) Are the plans and sections of the railway from Muswellbrook to Cassilis ready?
 - (2.) Did the late Government have the money voted for the above railway; if so, is it the intention of the Government to call for tenders?
 - (3.) If so, when?
- Mr. Sutherland* answered,—
- (1.) The surveys have been finished, and the plans and sections are nearly ready.
 - (2 and 3.) The necessary amount of money has been voted, but tenders cannot be called until plans and sections, &c., have been approved by both Houses of Parliament.

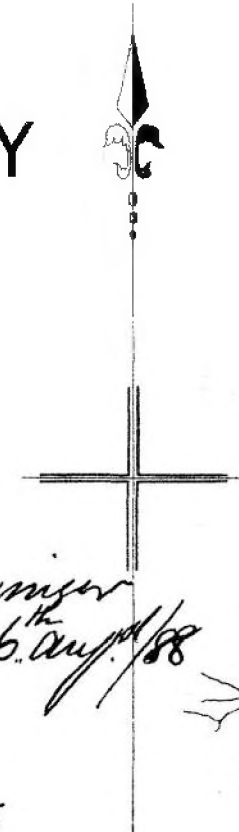
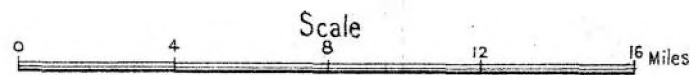
[Two plans.]

Sydney: Charles Potter, Government Printer.—1888.

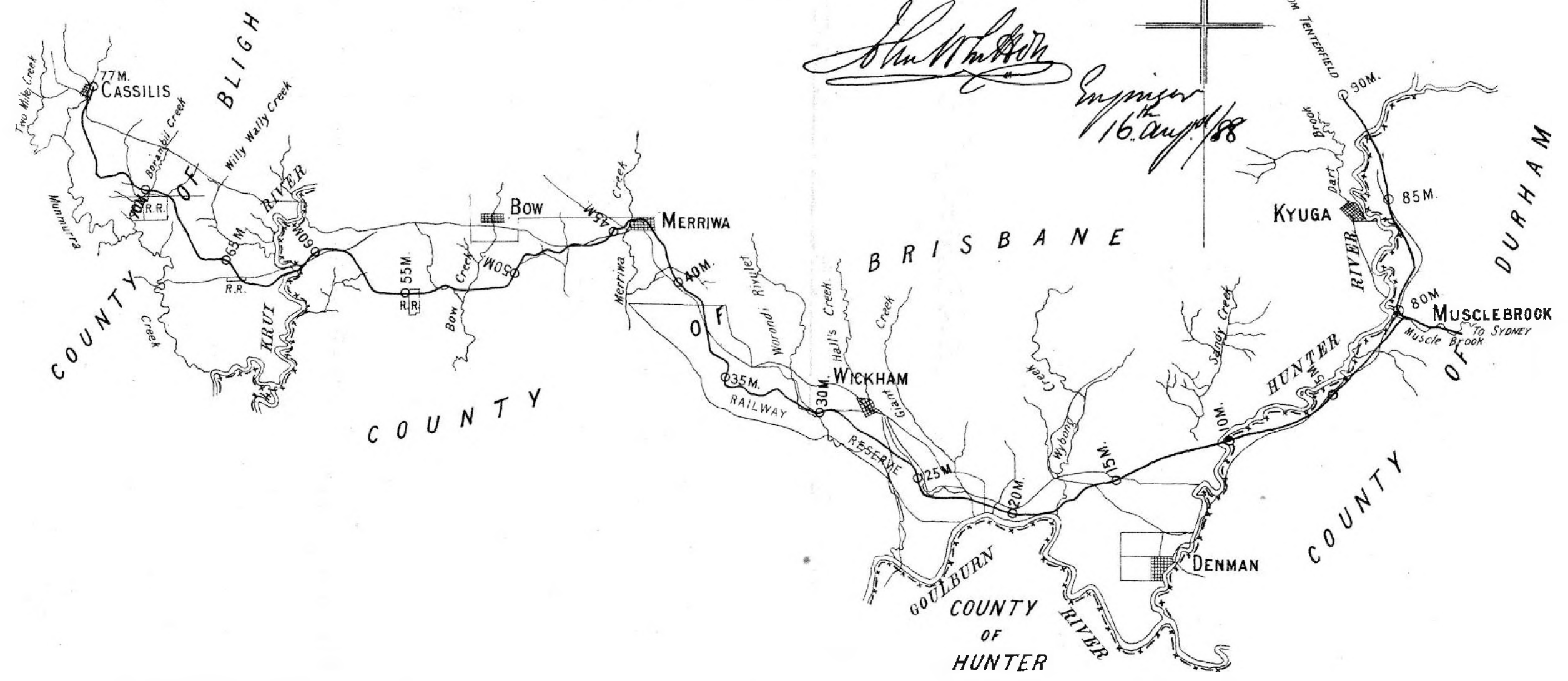
N.S.W. RAILWAYS

MUSCLEBROOK TO CASSILIS RAILWAY

Diagram Plan



John Whitton
Engineer
16. Aug. 1888



(58.17-)

1888.

LEGISLATIVE ASSEMBLY.
NEW SOUTH WALES.

RAILWAY FROM INVERELL TO GLEN INNES.
(PETITION FROM CERTAIN RESIDENTS IN FAVOUR OF.)

Received by the Legislative Assembly, 20 November, 1888.

To the Honorable the Legislative Assembly of New South Wales.

The humble Petition of the undersigned, residents of the district of Inverell,—

RESPECTFULLY SHOWETH:—

That, in the opinion of your Petitioners, the proposal to connect Inverell with either Guyra, Uralla, or Kentucky, is inimical to the interests of the Colony, of no service to the large and important farming district of Inverell, and a useless expenditure of public money.

That, in the opinion of your Petitioners, the line of railway from Inverell to Glen Innes, already adopted on two different occasions by your honorable House, is the only line that can serve the interests of this district, the ulterior object of your Petitioners being to reach the coast at the nearest practicable point.

Your Petitioners therefore pray that your honorable House will take the foregoing statements into your most favourable consideration, and act as in the wisdom of your honorable House may seem best in the premises.

And your Petitioners, as in duty bound, will ever pray, &c.

[Here follow 2,166 signatures.]

1888.

LEGISLATIVE ASSEMBLY.
NEW SOUTH WALES.

TRAMWAY FRAUDS INQUIRY COMMISSION.

REPORT

OF THE

ROYAL COMMISSION,

APPOINTED ON THE 16TH AUGUST, 1888,

TO INQUIRE INTO THE RECENT ALLEGED TRAMWAY FRAUDS, AND TO
REPORT UPON THE MOST EFFICACIOUS MEANS FOR SECURING THE
TRAMWAY REVENUE FROM MISAPPROPRIATION IN THE FUTURE;

TOGETHER WITH THE

MINUTES OF EVIDENCE.

ORDERED BY THE LEGISLATIVE ASSEMBLY TO BE PRINTED,
25 October, 1888.



SYDNEY: CHARLES POTTER, GOVERNMENT PRINTER.

1888.

Commission.

VICTORIA, by the Grace of God, of the United Kingdom of Great Britain and Ireland, Queen, Defender of the Faith, and so forth,—

To Our trusty and well-beloved—

ALEXANDER RICHARDSON, Esquire;
RICHARD WINDEYER THOMPSON, Esquire, M.P.; and
FREDERICK AUNGIER BROCK, Esquire, J.P.,—

Greeting:

Know Ye, that We, reposing great trust and confidence in your ability, zeal, industry, discretion, and integrity, do, by these presents, authorize and appoint you, or any two of you, as hereinafter mentioned, to make a diligent and full inquiry into the recent alleged Tramway Frauds, and to report upon the most efficacious means for securing the Tramway Revenue from misappropriation in the future: And We do, by these presents, grant to you, or any two of you, at any meeting or meetings to which all of you shall have been duly summoned, full power and authority to call before you all such persons as you may judge necessary, by whom you may be better informed of the truth in the premises, and to require the production of all such books, papers, writings, and all other documents as you may deem expedient; and to visit and inspect the same at the offices or places where the same or any of them may be deposited, and to inquire of the premises by all lawful ways and means: And We do give you power at your discretion to procure such clerical and other assistance as you may deem necessary for enabling you duly to execute this Our Commission: And Our further will and pleasure is that you do within one month after the date of this Our Commission, or as soon as the same can be done, using all diligence, certify to Us, in the Office of Our Secretary for Public Works, under your, or any two of your hands and seals, what you shall find touching the premises: And We hereby command all Government Officers and other persons whomsoever within Our said Colony, that they be assistant to you and each of you in the execution of these presents: And We appoint you the said Alexander Richardson, Esquire, to be President of this Our Commission, which said Commission We declare to be a Commission for all purposes of the Act 44 Victoriae No. 1, intituled, "An Act to regulate the taking of Evidence by Commissioners under the Great Seal."

In testimony whereof, We have caused these Our Letters to be made Patent, and the great Seal of Our said Colony of New South Wales to be hereunto affixed.

Witness Our right trusty and well-beloved Councillor, CHARLES ROBERT, BARON CARRINGTON, Knight Grand Cross of Our Most Distinguished Order of Saint Michael and Saint George, Our Governor and Commander-in-Chief of Our Colony of New South Wales and its Dependencies, at Government House, Sydney, in New South Wales aforesaid, this sixteenth day of August, in the fifty-second year of Our Reign, and in the year of Our Lord one thousand eight hundred and eighty-eight.

CARRINGTON.

(SEAL.)

By His Excellency's Command,
JOHN SUTHERLAND.

Entered on record by me, in REGISTER OF PATENTS, No. 13, pages 229-230, this sixteenth day of August, one thousand eight hundred and eighty-eight.

(For the Colonial Secretary and Registrar of Records),

CRITCHETT WALKER,
Principal Under Secretary.

TRAMWAY FRAUDS INQUIRY COMMISSION.

MINUTES OF PROCEEDINGS of the Royal Commission appointed on the 16th August, 1888, to make a diligent and full inquiry into the recent alleged Tramway Frauds, and to report upon the most efficacious means for securing the Tramway Revenue from misappropriation in the future.

THURSDAY, 16 AUGUST, 1888.

MEMBERS PRESENT:—

A. Richardson, Esq., President, in the Chair.

R. W. Thompson, Esq., M.P., | F. Aungier Brock, Esq., J.P.

The Commission met, at 10 a.m., at the office of the Secretary for Public Works.

The Commission was read by the President.

The President announced the receipt from the Commissioner for Railways of papers bearing upon the subject of the inquiry, including the evidence of various witnesses at a previous departmental investigation.

The Commission read the papers and deliberated.

It was resolved that the examination of witnesses should be proceeded with on August 21.

[The meeting adjourned at 11 a.m. until 21st August, at 10 a.m.]

TUESDAY, 21 AUGUST, 1888.

MEMBERS PRESENT:—

A. Richardson, Esq., President.

R. W. Thompson, Esq., M.P. | F. Aungier Brock, Esq., J.P.

The Commission met pursuant to adjournment.

The following witnesses were called in, sworn, and examined:—Pietro Gaspardo, Charles Cook, William Moran, Jules Pierre Rochaix.

[The meeting adjourned at 4.30 p.m. until 22nd August, at 10 a.m.]

WEDNESDAY, 22 AUGUST, 1888.

MEMBERS PRESENT:—

A. Richardson, Esq., President, in the Chair.

R. W. Thompson, Esq., M.P., | F. Aungier Brock, Esq., J.P.

The Commission met pursuant to adjournment.

The following witnesses were called in, sworn, and examined:—George Masoora, John Walsh, Nicholas Johns, John Bremner, Pietro Gaspardo, Marcus Alafousas, John Sotero, George Dummett, John Fountain, and Michael Malsiniotis.

[The meeting adjourned at 4.15 p.m. until 23rd August, at 10 a.m.]

THURSDAY, 23 AUGUST, 1888.

MEMBERS PRESENT:—

A. Richardson, Esq., President, in the Chair.

R. W. Thompson, Esq., M.P., | F. Aungier Brock, Esq., J.P.

The Commission met pursuant to adjournment.

The following witnesses were called in, sworn, and examined:—Michael Malsiniotis, Robert Stove, George Read, John Hoskison, Alfred Martin, George Masoora, Iefteras Epaminondas, Janopolis Vaselli, Marcus Alafousas, Pietro Gaspardo, Frederick Harris, Thomas Mulligan.

[The meeting adjourned at 4.50 p.m. until 24th August, at 10 a.m.]

FRIDAY, 24 AUGUST, 1888.

MEMBERS PRESENT:—

A. Richardson, Esq., President, in the Chair.

R. W. Thompson, Esq., M.P. | F. Aungier Brock, Esq., J.P.

The Commission met pursuant to adjournment.

The following witnesses were called in, sworn, and examined:—Ah Lum, John Graham, Robert Reid, John F. Saunders, Albert Keen.

[The meeting, at 4.30 p.m., adjourned until 28th August, at 10 a.m.]

TUESDAY,

TUESDAY, 28 AUGUST, 1888.

MEMBERS PRESENT:—

A. Richardson, Esq., President in the Chair.

R. W. Thompson, Esq., M.P. | F. Aungier Brock, Esq., J.P.

The Commission met pursuant to adjournment.

The following witnesses were examined:—John Graham, John Charles Frost, John E. Loder, Alfred Weston, Spero Magray, Robert Stove, Walter Bennett, Giacomo Vita, Portrase, Joseph Powell, William Moran.

[The meeting, at 4:20 p.m., adjourned until 29th August, at 10 a.m.]

WEDNESDAY, 29 AUGUST, 1888.

MEMBERS PRESENT:—

A. Richardson, Esq., President, in the Chair.

R. W. Thompson, Esq., M.P., | F. Aungier Brock, Esq., J.P.

The Commission met pursuant to adjournment.

The following witnesses were examined:—Gustave Adolphus Kopsch, Robert Maher, Patrick Greeley, Michael Henry Howard, William Branch, Frederick A. Blackstone, Muir, William Nixon, James Dixon, Helena Dummett.

[The meeting adjourned at 4:15 p.m. until 30th August, at 10 a.m.]

THURSDAY, 30 AUGUST, 1888.

MEMBERS PRESENT:—

A. Richardson, Esq., President, in the Chair.

R. W. Thompson, Esq., M.P., | F. Aungier Brock, Esq., J.P.

The Commission met pursuant to adjournment.

The following witnesses were called in, sworn, and examined:—William Hannam, James Hadwell, Arthur Simpson, Thomas Musgrave.

[The meeting adjourned at 5:10 p.m. until 31st August, at 10 a.m.]

FRIDAY, 31 AUGUST, 1888.

MEMBERS PRESENT:—

A. Richardson, Esq., President, in the Chair.

R. W. Thompson, Esq., M.P., | F. Aungier Brock, Esq., J.P.

The Commission met pursuant to adjournment.

The following witnesses were called in, sworn, and examined:—Daniel Power, Thomas Musgrave, Henry Ferrier.

[The meeting adjourned at 5 p.m. until 1st September, at 10 a.m.]

SATURDAY, 1 SEPTEMBER, 1888.

MEMBERS PRESENT:—

A. Richardson, Esq., President, in the Chair.

R. W. Thompson, Esq., M.P., | F. Aungier Brock, Esq., J.P.

The Commission met pursuant to adjournment.

The following witnesses were called in, sworn, and examined:—Henry Ferrier, Archibald Fraser.

[The meeting adjourned at 12:30 p.m. until 3rd September, at 10 a.m.]

MONDAY, 3 SEPTEMBER, 1888.

MEMBERS PRESENT:—

A. Richardson, Esq., President, in the Chair.

F. Aungier Brock, Esq., J.P.

The Commission met pursuant to adjournment.

The following witnesses were called in, sworn, and examined:—Griffith Jones, William Moran, Henry D. Elliott.

[The meeting adjourned at 5 p.m. until 4th September, at 10 a.m.]

TUESDAY, 4 SEPTEMBER, 1888.

MEMBERS PRESENT:—

A. Richardson, Esq., President, in the Chair.

R. W. Thompson, Esq., M.P., | F. Aungier Brock, Esq., J.P.

The Commission met pursuant to adjournment.

The following witnesses were called in, sworn, and examined:—John Graham, Frank Coll, John Connors, James Siddons, Francis Joseph M'Mahon, William Dolan, Patrick Stack, Ambrose Scott.

[The meeting adjourned at 5:10 p.m. until 5th September, at 10 a.m.]

WEDNESDAY,

WEDNESDAY, 5 SEPTEMBER, 1888.

MEMBERS PRESENT:—

A. Richardson, Esq., President, in the Chair.
 R. W. Thompson, Esq., M.P., | F. Aungier Brock, Esq., J.P.

The Commission met pursuant to adjournment.

The following witnesses were called in, sworn, and examined:—Patrick Quin, James Roberts, Alfred Thomas Collis.

[The meeting adjourned at 4:30 p.m. until 6th September, at 10 a.m.]

THURSDAY, 6 SEPTEMBER, 1888.

MEMBERS PRESENT:—

A. Richardson, Esq., President, in the Chair.
 R. W. Thompson, Esq., M.P., | F. Aungier Brock, Esq., J.P.

The Commission met pursuant to adjournment.

The following witnesses were called in, sworn, and examined:—Gustave Adolphus Kopsch, Alfred Solomon, James Marwood Elton, William Lambert, Elizabeth Elton.

[The meeting adjourned at 4:40 p.m. until 7 September, at 10 a.m.]

FRIDAY, 7 SEPTEMBER, 1888.

MEMBERS PRESENT:—

A. Richardson, Esq., President, in the Chair.
 R. W. Thompson, Esq., M.P., | F. Aungier Brock, Esq., J.P.

The following witnesses were called in, sworn, and examined:—John Bell, George Andrews Bramston, Hugo Dalms, Alfred Solomon.

[The meeting adjourned at 4 p.m. until 11 September, at 10 a.m.]

TUESDAY, 11 SEPTEMBER, 1888.

MEMBERS PRESENT:—

A. Richardson, Esq., President, in the Chair.
 F. Aungier Brock, Esq., J.P.

The Commission met pursuant to adjournment.

It was resolved that examination of witnesses should not be proceeded with in the absence of Mr. R. W. Thompson, M.P., one of the Commissioners.

[The meeting adjourned at 10:30 a.m. until 12 September, at 10 a.m.]

WEDNESDAY, 12 SEPTEMBER, 1888.

MEMBERS PRESENT:—

A. Richardson, Esq., President, in the Chair.
 F. Aungier Brock, Esq., J.P.

The Commission met pursuant to adjournment.

The President read a communication from Mr. R. W. Thompson, M.P., one of the Commissioners, intimating that he might be unable to attend the meetings of the Commission for some days.

It was resolved that the examination of witnesses be proceeded with.

The following witnesses were called in, sworn, and examined:—James Roberts, William Boyd, Patrick Greeley, Frederick Oakes, John William Tyrer, Albert Frederick Primrose, William Lambert.

[The meeting adjourned at 5 p.m. until 13 September, at 10 a.m.]

THURSDAY, 13 SEPTEMBER, 1888.

MEMBERS PRESENT:—

A. Richardson, Esq., President, in the Chair.
 F. Aungier Brock, Esq., J.P.

The Commission met pursuant to adjournment.

The following witnesses were called in, sworn, and examined:—William Hannam, Walter Wigg, Edwin Tatham.

[The meeting adjourned at 4 p.m., until 18 September, at 10 a.m.]

TUESDAY, 18 SEPTEMBER, 1888.

MEMBERS PRESENT:—

A. Richardson, Esq., President, in the Chair.
 F. Aungier Brock, Esq., J.P.

The Commission met pursuant to adjournment.

The President announced the receipt of a communication from Mr. R. W. Thompson, M.P., one of the Commissioners, stating that he could not attend this meeting.

[The meeting adjourned at 10:30 a.m. until 19 September, at 10 a.m.]

WEDNESDAY

WEDNESDAY, 19 SEPTEMBER, 1888.

MEMBERS PRESENT :—

A. Richardson, Esq., President, in the Chair.
F. Aungier Brock, Esq., J.P.

The Commission met pursuant to adjournment.

The President announced the receipt of a communication from Mr. R. W. Thompson, M.P., one of the Commissioners, stating that he would attend the meeting of the Commission on the following day.

The following witnesses were called in, sworn, and examined :—Albert Frederick Primrose, Frank O'Brien, Frederick Oakes, William Hannam.

[The meeting adjourned, at 4 p.m., until 20 September, at 10 a.m.]

THURSDAY, 20 SEPTEMBER, 1888.

MEMBERS PRESENT :—

A. Richardson, Esq., President, in the Chair.
R. W. Thompson, Esq., M.P., | F. Aungier Brock, Esq., J.P.

The Commission met pursuant to adjournment.

The following witnesses were called in, sworn, and examined :—John Walsh, John Martin, Francis Joseph MacMahon, William Lambert.

[The meeting adjourned, at 4.30 p.m., until 21 September, at 10 a.m.]

FRIDAY, 21 SEPTEMBER, 1888.

MEMBERS PRESENT :—

A. Richardson, Esq., President, in the Chair.
R. W. Thompson, Esq., M.P., | F. Aungier Brock, Esq., J.P.

The Commission met pursuant to adjournment.

The following witnesses were called in, sworn, and examined :—Cecil Peters, George Love, George William Macdonald, Matthew Williams, William Tipping, Edwin Stafford, Michael Leaney, John William Tyrer.

[The meeting adjourned, at 5 p.m., until 25 September, at 10 a.m.]

TUESDAY, 25 SEPTEMBER, 1888.

MEMBERS PRESENT :—

A. Richardson, Esq., President, in the Chair.
R. W. Thompson, Esq., M.P., | F. Aungier Brock, Esq., J.P.

The Commission met pursuant to adjournment.

The President submitted a Draft Report.

The Commission deliberated upon and amended the Draft Report.

[The meeting adjourned, at 5 p.m., until 27 September, at 10 a.m.]

THURSDAY, 27 SEPTEMBER, 1888.

MEMBERS PRESENT :—

A. Richardson, Esq., President, in the Chair.
F. Aungier Brock, Esq., J.P.

The Commission met pursuant to adjournment.

The President announced the receipt of a communication from Mr. R. W. Thompson, M.P., one of the Commissioners, stating that he could not attend this meeting.

A witness, Alfred Charles Tomkins, was called in, sworn, and examined.

The Commission deliberated upon and amended the Draft Report.

[The meeting adjourned, at 5 p.m., until 28 September, at 10 a.m.]

FRIDAY, 28 SEPTEMBER, 1888.

MEMBERS PRESENT :—

A. Richardson, Esq., President, in the Chair.
F. Aungier Brock, Esq., J.P.

The Commission met pursuant to adjournment.

The President announced the receipt of a communication from Mr. R. W. Thompson, M.P., one of the Commissioners, stating that he would not be able to attend any further meeting of the Commission this week.

The following witnesses were called in, sworn, and examined :—John Sale, Frederick Oakes, John Allen, and James Roberts.

The Commission deliberated upon and amended the Draft Report.

[The meeting adjourned, at 4.30 p.m., until 1 October, at 10 a.m.]

MONDAY,

MONDAY, 1 OCTOBER, 1888.

MEMBERS PRESENT :—

A. Richardson, Esq., President, in the Chair.

F. Aungier Brock, Esq., J.P.

The Commission met pursuant to adjournment.

The President announced the receipt of a communication from Mr. R. W. Thompson, M.P., one of the Commissioners, stating that he could not attend this meeting.

The Commission deliberated upon and amended the Draft Report.

[The meeting adjourned, at 5 p.m., until 2 October, at 10 a.m.]

TUESDAY, 2 OCTOBER, 1888.

MEMBERS PRESENT :—

A. Richardson, Esq., President, in the Chair.

R. W. Thompson, Esq., M.P.

F. Aungier Brock, Esq., J.P.

The Commission met pursuant to adjournment.

A witness, Edward Warby, was called in, sworn, and examined.

The Commission deliberated upon and amended the Draft Report.

[The meeting adjourned at 5 p.m., until 3 October at 2 p.m.]

WEDNESDAY, 3 OCTOBER, 1888.

MEMBERS PRESENT :—

A. Richardson, Esq., President, in the Chair.

R. W. Thompson, Esq., M.P.

F. Aungier Brock, Esq., J.P.

The Commission met pursuant to adjournment.

The Commission deliberated upon the Draft Report, as amended, and adopted it.

The President, Mr. R. W. Thompson, M.P., and Mr. F. A. Brock, J.P., attached their signatures to the Report.

On the motion of Mr. Thompson, it was resolved :—“That the President be authorized to pay any outstanding accounts not yet sent in, and any petty expenses incurred in connection with the completion of the Commission's labours.”

[The meeting then adjourned *sine die*.]

REPORT.

To His Excellency the Right Honorable CHARLES ROBERT, BARON CARRINGTON, Knight Grand Cross of the Most Distinguished Order of Saint Michael and Saint George, Governor and Commander-in-Chief of the Colony of New South Wales and its Dependencies.

MAY IT PLEASE YOUR EXCELLENCY,—

We, the undersigned, Members of the Royal Commission appointed on the 16th of August, 1888, to make a diligent and full inquiry into the recent alleged Tramway Frauds, and to report upon the most efficacious means for securing the Tramway revenue from misappropriation in the future, beg, as the result of our inquiries and deliberations, to submit the following Report:—

We desire at the outset to point out that we have had to deal with a number of witnesses of a highly unsatisfactory class, some of whom have manifestly sworn falsely, while others have withheld information which it was evidently in their power to give.

The history of the frauds, so far as the evidence carries us, may be briefly stated as follows:—For some considerable time past—with the conflicting testimony on this point, it is impossible to say for how long—certain conductors have by various means intercepted tickets collected by them, and resold them to vendors, who have in their turn retailed them to the public. In this way large quantities of tickets have realized a second penny, while one penny only, their standard value, has found its way into the Treasury.

It will be apparent on reflection that these frauds have been of a character likely to escape detection, for, owing to the fact that the tickets twice used would only once be legitimately sold, and once only passed into the Receiving Office, no discrepancy would follow upon a comparison between the number of tickets sold by the Department and that collected by it.

In order to indicate to some extent what these frauds may have amounted to, it will be necessary to refer somewhat in detail to the evidence which brings us indisputably to the conclusion that frauds have been perpetrated.

According to the evidence of Driver Graham, pages 24–31 and 36–38, a conductor named Thomas Musgrave, since dismissed, told him that from a fortnight after his appointment to the Tramway service some two years and a half ago he had been more or less engaged in defrauding the Department by one means or another. During the periods in which the system of bell-registers had been in operation this had been effected by the manipulation of a spring inside the register, so that on the insertion of a pin or piece of wire in the slot at the foot, the register when brought into use would cease to indicate, although the bell attached to it would ring as usual. The tickets collected during this process were not placed in the bag provided for the purpose. It is obvious that by this means risk of detection was minimized, because any conductor having brought himself under suspicion, could pass the test of having his register and the contents of his bag compared on any part of his journey, when, owing to the plan adopted, they would be found substantially in agreement, and this appears to have been actually the case with

Musgrave on one occasion. The pin or wire could readily be released, as was done when the register was wanted to discharge its proper function, for it is needless to say the plundering had to be carried on with discrimination, or it would soon have led to detection by a striking deficiency in the returns sent in by the conductors. Although Graham was so far confided in with reference to the fraud which was being carried on by Musgrave, he was unable to gain information from the latter as to the means by which he disposed of the tickets which came fraudulently into his possession. The most Graham was able to learn from him in this direction was that he had an interest, or, to use his own words, a "say" in a shop at Newtown, where tram-tickets were sold, but the locality of this shop, or the name of the person by whom it was kept, did not transpire.

Musgrave's complicity in the matter rests to a large extent upon the evidence of driver Graham; but in estimating the credibility of this witness we find ourselves materially aided by the evidence of Musgrave himself, lying, contradictory, and full of prevarication though most of it unquestionably is. (Pages 57-90.)

Amidst the mass of falsehood and pure invention with which these 33 pages of evidence abound there is sufficient agreement to show one of two things, either that Graham's evidence may be relied on, or that he is an unprincipled scoundrel, who, for no apparent purpose, perverts the confidence of a foolish, misguided, but in the main innocent, youth, into a confession of crime. On his own admission Musgrave was for a considerable period in possession of registers which, with his concurrence, had been tampered with. With these registers he showed Graham the means by which fraud could be perpetrated, and actually demonstrated this by collecting fares without registering them, afterwards showing Graham that the indicator had not moved during the process. If Musgrave had not so evidently sworn falsely we might be in some doubt as to his guilt, but entertaining so strongly this view of the case, and seeing that Graham's statements are largely borne out by the evidence of firemen Reid and Simpson, driver Hadwell and others, we have little difficulty in concluding that driver Graham has spoken the truth, and that his evidence may be relied on, although he should, immediately he became possessed of the information, have reported the matter to his superior officer. Independently of Musgrave's version to Graham of the extent of his malpractices, the fact that frauds of considerable magnitude have been carried on for some time past has come before us in connection with another phase of the frauds, viz., the purchase of tickets from conductors. It is therefore clear to us that Musgrave was systematically defrauding the Government from early in the present year up to the date of his dismissal, and, accepting this view of the case, there seems no reason to doubt the correctness of Musgrave's own statement to Graham (which of course he denies) that he was engaged in this systematic fraud for a much longer period.

We have now to refer to two other persons who, on the statement of Musgrave to Graham, are implicated in this wholesale dishonesty. These are Archibald Fraser, a conductor, and Henry Ferrier, once a conductor, but later employed in the Railway Locomotive Department as a labourer.

We will deal first with Fraser. He still stands on the books as a conductor, but seeing his name in print in connection with the departmental inquiry, which was instituted with regard to these frauds more than two months ago, withdrew from his work, and intimated in writing to the Superintendent that he would not resume duty until his character was cleared. Apart from Musgrave's statement to Graham, there is not much direct evidence of Fraser's complicity in these frauds; but the evidence which is forthcoming with regard to Ferrier—corroborated as it is by the testimony of Graham, which shows that Fraser, like Ferrier, received his instructions from Musgrave—leads us to conclude that Fraser is guilty. A highly suspicious circumstance, and one which appears to us to furnish strong circumstantial evidence of Fraser's complicity in the matter, lies in the discovery of a large velvet pocket placed on the inside of a uniform jacket belonging to this man, and the very unsatisfactory evidence given by Fraser in connection with this pocket (page 102, questions 3300-3613), convinces us that he placed it in the position it occupies for the purpose of holding stolen tickets.

Ferrier, to whom we now direct attention, stands self-convicted to conductor Greeley; and in his case there is a reliable witness in William Moran. Moran's knowledge of what occurred has not, however, the effect of causing Ferrier to confess

confess his share in the transactions, but leads him to adopt the shallow and flimsy pretence that his confidential statements to Greeley were the result of a desire to perpetrate a hoax upon the latter. This may, in the absence of any more direct evidence against him, serve to shield Ferrier from criminal prosecution; but it is altogether too transparent to deceive persons of common sense, coupled as it is with a knowledge of Ferrier's conduct and character during the time he was under surveillance, and other evidence connecting him with the sale of stolen tickets.

We will not at present deal further with the question of the *abstraction of tickets by the employees*, but pass on to the evidence which discloses the second process, viz., *the disposal of the tickets abstracted*.

It is to be regretted that we have not been able to gain any very definite information on this point, still less to trace with certainty the connecting link between the ticket abstractors and the purchasers of the tickets abstracted. We have done our utmost to obtain this; and our opinion is that if one witness—Pietro Gaspardo—could have been induced to reveal all he knows, the information necessary to enable the Government to prove the guilt of many of those concerned in the frauds would have been forthcoming. It may not here be out of place to point out the difficulty with which we have had to contend in eliciting the desired information, the fact being that we have had to rely chiefly upon the testimony of active participators in the frauds, and have further been thwarted by evident collusion on the part of several witnesses.

The evidence of Pietro Gaspardo is of a most unsatisfactory character, so much so (pages 2—5, 6—7, 14—15), that we should be disinclined to give it much credence, were it not supported by the evidence of Michael Malsiniotis, who received his information from one of the ticket receivers, Constantine Pappadocci, and which we have otherwise reason to consider reliable. The gist of the evidence of Gaspardo and Malsiniotis is, that the lessees of an oyster-shop at the corner of Liverpool and Elizabeth streets (Constantine Pappadocci and George Masoora), had been carrying on a large traffic in second-hand tram-tickets, amounting in sixteen months to a sum variously stated, but probably not less than £2,000.

Some three or four months ago Constantine Pappadocci sold his share of the business to his partner Masoora, and left for his native country, Greece, taking with him it is alleged, about £1,000, as his share of the booty. Another Greek, named Nicholas, left for Greece about the same time, and, it is said, received £150 from some of those implicated in the frauds as an inducement to hold his tongue. The partner, George Masoora, who still conducts the business, gave Pappadocci £300 for the good-will. There is unfortunately no evidence beyond that of Gaspardo to implicate Masoora, and, as might be expected, he strenuously denies any knowledge whatever of any irregular transaction. (Pages 8, 9, 10, 11, and 19.)

If Gaspardo's evidence is to be relied on—and so far as it concerns Pappadocci and Nicholas, there is proof in the testimony of Michael Malsiniotis that it is—the fraudulent purchase of second-hand tickets from the conductors is wider spread than any details we have obtained would indicate. According to Detective Rochaix (page 6, question 109), Gaspardo distinctly told him that several of the tramway employees had been engaged in trafficking in these tickets, and that he would be able to identify them. When under examination however, Gaspardo, after much prevarication, stated that there was only one conductor concerned in the sale of these tickets, and this statement he persisted in. Gaspardo informed us that he would be able to identify this person, and this was put to the test by enabling him, unseen himself, to see Musgrave, Fraser, and Ferrier; but he reported that neither of these three men was the one who had been seen by him selling tram-tickets at Pappadocci's shop.

We are of opinion that Gaspardo, in proffering information, was actuated solely by the hope of securing to himself a substantial reward. In fact he made no secret of this, as will be seen by a reference to the evidence of Loder (page 40, q. 1196), whom he first consulted with respect to the matter, and to that of Detective Rochaix (page 6), to whom he subsequently made overtures on the subject. Our impression is that Gaspardo, finding he was likely to fail in his object of securing a reward, has told just as little as possible, and would not have told that little if he could safely have avoided doing so.

Apart from the direct evidence of the purchase of tickets from the tramway employees at Pappadocci's shop in Elizabeth-street, there is nothing which points absolutely

absolutely to the fact that large transactions of this kind have taken place elsewhere, but there is the somewhat indirect statement of Gaspardo that Marcus Alafousas and other Greeks have been engaged in this traffic.

Considerable suspicion has attached to Charles Cook, a man who keeps a barber's shop at 94, Liverpool-street, and who seems to have an interest in some other establishments. He is a man of very questionable character, and has been observed frequently riding short distances with conductors (page 1, q. 1), and according to the statement made by him to one of them, Patrick Greeley, he was engaged in the purchase of tickets in large quantities from some of the tramway conductors. In fact Cook himself admits (page 8, q. 146) that he made offers for the purchase of tickets to several conductors, and that some of them threatened to throw him off the trams. He certainly alleges that he was endeavouring to get up a case for Detective Hoskison. He has been seen by Moran and others leaving the trams after some of these short rides with a black bag in his hand, and according to Greeley, Cook informed him on one occasion that this bag contained 5,000 tram-tickets, and went the length of showing Greeley the contents of the bag, which Greeley declares were tram-tickets, although Cook claims that they were race-tickets. In addition to this we have Mrs. Dummett's statement that Cook offered her, on behalf of her husband, £7 worth of tram-tickets in ones and twos, advancing in explanation of his having so many torn tickets that he had been doing an immense business in tram-tickets, rendering it necessary for him to keep a boxful of loose tickets in order to meet the rush of purchasers which occasionally set in. This is sufficient to prove that Cook has not only been engaged in dealings in tram-tickets, but that he has been guilty in his evidence of two direct falsehoods in denying that he had ever sold tram-tickets, (questions 144 and 145, page 7), or that he had offered the tickets referred to for sale to Mrs. Dummett. We believe that Cook is a man on whose word very little reliance can be placed, but if he is to be believed, the sale by him of £1 worth of tickets at Pappadocci and Masoor's shop for 15s. is another proof that these persons were in the habit of buying used tickets.

There is evidence that such tickets have found a market in other places. We have Elton's statement as to a purchase by his wife at a shop in Darlington, and as to the presence there of a conductor who was evidently selling a considerable number to the keeper of the shop (page 155). We have also evidence by Messrs. Solomon (page 169), Colls (page 144), and Griffith Jones (page 105), all pointing to the same conclusion. We strongly suspect, also, that Siddons, a shop-keeper at Waterloo, has been largely engaged in traffic of this kind.

Having now disposed of the evidence pointing to the existence of frauds, we have to consider the most efficacious means of preventing them in the future.

We are of opinion that the present system of ticket sale by licensed vendors should be abolished. There can be no question whatever that so long as it exists there will be strong inducement to ill-disposed conductors and others through whose hands undefaced tickets pass to make use of them for dishonest purposes.

Reviewing the means of check at present in operation to prevent dishonest manipulation, there is, as far as we can learn, a perfectly satisfactory check upon the ticket transactions up to the point of their sale by the Department to the licensed vendors. From this point, however, in the light of recent events, the checks cannot be said to be so satisfactory as could be desired. The check upon the collector—the tram conductor—is in the form of a bell register, regarding the merits of which even after what has come to light, opinion appears to be somewhat divided. It is without doubt a very rapid process, and on that account well adapted to the seating capacity of the cars and the almost systematic over-crowding to which at some periods of the day they are subjected.

Regarding the bell-register, however, in its most favourable aspect, and under such circumstances as secure it beyond question from fraudulent manipulation at the hands of the conductors, we have no hesitation in condemning it as an unsatisfactory check, and one which can be improved upon. No system can be regarded as satisfactory which cannot be relied upon to indicate that the work which it is designed to check has been accurately performed.

It is clear, apart from the evidence of Messrs. Tyrer, Oakes, Primrose, and others practically conversant with the subject, that these registers cannot, by the most honest and careful conductor, be so worked when the traffic is heavy, that the number

number of tickets indicated shall agree with that actually collected. With this indefiniteness, even under favourable circumstances, such a system can hardly be expected to afford a check of much value upon fraudulent manipulation.

Setting aside altogether the more studied form of fraud which has evidently been practised, the lazy and non-inventive rogue, who wishes to supplement his earnings, may place his hand in the bag, when opportunity serves him, and abstract during the day sufficient to add considerably to his income, trusting to the unreliability of his register to save him from detection. It is imperative that the registration should be such as to give the Department the right to demand from the collector the value indicated, as having been collected by him.

Hitherto the practice has been to read the registers once a day only. In our opinion, whatever system may be adopted, the returns should be handed in and the registers read after every round trip, and in no case should a register be allowed to be in a conductor's possession when off the cars.

Another evil of the present system is that after tickets have been collected and handed in, the danger of misappropriation still exists, for until they have been destroyed, there is always the possibility, even under the strictest supervision, that some of them may a second time be brought into circulation. The Department has shown itself alive to this contingency. Nearly two years ago the system of tearing tickets was adopted, but after a trial for nine months was abandoned as unsatisfactory, and the register reverted to—a step which the evidence unquestionably justifies.

Several very ingenious substitutes for the present system of ticket collection have been brought under our notice. Those introduced by Mr. Tatham and Mr. Bramstone, although varying considerably in detail, are almost identical in their two main features, which consist of the issue of tickets to passengers from a continuous roll, enclosed in a small metal case, and a system of sectional obliteration, under which passengers would be required to hold their tickets until the end of the section on which they had been issued, at the risk of being a second time called upon to pay. Mr. Tatham's invention includes a printing machine for the production of the tickets, but Mr. Bramstone's scheme, with greater ingenuity, provides for the printing and dating of tickets during the process of issue and obliteration—a great safeguard if it could be depended upon to work with accuracy. Mr. Tatham has furnished us with models—Mr. Bramstone with a drawing only. The model register submitted by the former is too flimsy, and the bell too undecided to be satisfactory, but this could probably be improved upon. While recognizing, however, that both of these inventions display considerable ingenuity, and would be applicable to our tramway system, we are inclined to think that their mechanism would be liable to get out of order, and moreover that too much is left in the hands of the conductor with regard to the sectional alterations and obliterations which, if not properly dealt with, might lead to confusion and consequent irregularity instead of furnishing the additional check desired.

We think the New York-Melbourne bell-punch system, as described by Mr. Elliott (page 107), or the Glasgow system, brought under notice by Mr. O'Brien, of the Tramway Department (page 211), would be better than either of these. Both of them may be fairly depended upon for accuracy, and fraudulent manipulation would be a matter of difficulty.

An objectionable feature in connection with the New York-Melbourne system is the sale of tickets by the conductors, which admits of fraud (Page 211, question 7,231); but the fares on our Tramways being so low, the issue of tickets by conductors at a reduced rate would seem to be unnecessary. With this exception the system is really a cash one, the collections being recorded by the conductor by means of a bell-punch, with which he punches a hole in a ticket slip fastened to his coat. The punch registers each fare, and the piece punched out of the slip is retained in the instrument as an additional check. Every passenger is expected to see his fare punched for on the proper ticket slip, according to the price of the section. Another objectionable feature in connection with this system, as applied to our Tramways, would be the necessity for two fare slips of different value, viz., 2d. and 1d., the system being really framed for one rate of fare. It would be simple to have 2d. and 1d. slips, but a sharp conductor, dishonestly inclined, might without much difficulty punch for a 2d. fare on a 1d. slip.

The

The Glasgow system differs only from the New York in that the former provides for the issue and punching of tickets, instead of the punching of slips incidental to the latter.

The system which of those submitted to us we regard with most favour is that of Mr. Bell (page 165). This is in the form of a metal case, which is locked into a bag, and provides for the reception, at several apertures, of fares in the shape of pence only. The pence, in passing through the receptacle, are automatically registered, and then find their way into a portion of the bag accessible to the conductor, who is thus enabled to utilize them in giving change, at the same time lightening his bag. The pence are, in all cases, to be deposited by the passenger. It is unquestionably an ingenious device for the reception of cash-fares, is simple in its operation, and if properly carried out would place the collection and registration of fares out of the hands of the conductor. The chief drawbacks are the time consumed in the process, and the trouble and inconvenience entailed upon the public. Seeing, however, that the public accept uncomplainingly the difficult and often inconvenient method of fare-paying entailed upon them by the Omnibus Co., we fail to see that there would be reasonable ground for complaint on their part.

It is probable that considerable difficulty will be experienced in adopting a slower process of collection and registration, as one of two courses will be necessary: either to get rid of overcrowding, or to make some alteration or modification in the seating of the cars. Whatever may be the form of fare collection and registration, the difficulties will be largely increased when the cars are taxed over their carrying capacity. The collector will then experience great difficulty in reaching the passengers, and receiving from them their fares, and still more in distinguishing those who have paid from those who have not. The cars in connection with our tram-lines are probably, at certain times of the day, more overcrowded than those of any system to be met with elsewhere. This, in our opinion, may be remedied by passing the usual stopping places when the cars are loaded to their full capacity. It will be urged, no doubt, that the passing of an advertised stopping-place will increase the risk to foot and vehicular traffic, but we venture to think that the matter only needs to be systematized to place it upon a safe and satisfactory basis. It must be admitted that if a fully loaded tram pulls up at a stopping place the one or two conductors in charge are absolutely powerless to prevent passengers from getting on at some point or points, and in this way at stopping-place after stopping-place the cars add to their loads until such overcrowding results as to cause great discomfort to the public, and to render it impossible for the ablest and best-disposed official to do his collecting duties and look after the public safety with any degree of satisfaction.

When a tram has become fully loaded, the conductor in charge should acquaint the driver, who should exhibit some signal to be arranged by the Department, which would at once be known by crossing keepers, and would soon be learnt and understood by the general public. The driver would then approach the crossings at reduced speed, and give several short whistles, as provided for by the regulations. This course would, we believe, remove all risk, and a serious abuse would be satisfactorily disposed of. In order that persons wishing to alight should not be carried beyond their destinations, it would be the duty of the conductor to pass along his car calling the name of the street, in sufficient time before approaching it to admit of the tram being brought to a stand.

If overcrowding were prevented almost any system of collection and registration could be applied to our cars; but as it would be necessary, under Mr. Bell's system, for each passenger to deposit the fare, some modification of the seating arrangements of the cars might be deemed advisable.

Under any of these systems ticket selling would be abolished, and it is therefore apparent that a large annual saving in commission and salaries would be effected.

Before proceeding to submit the conclusions to which we have arrived in connection with both branches of our inquiry, we would direct attention to Mr. Elliott's evidence (page 112, question 3901), also to the printed regulations under which the bell punch system is worked (question 3808), as illustrative of the care taken by American Tramway Companies in the selection of men for the responsible position of conductor, as also of the restrictions with which they are surrounded, and the penalties to which they are subject in the event of failure to properly carry out their duties.

We

We are of opinion that no one should in future be appointed to the position of assistant conductor who should not, in addition to finding security and passing the medical and other examination provided by the regulations of the Department, be passed as suitable by the following officials:—the Tramway Superintendent, the Chief Railway Audit Inspector, and the Inspector of the Division in which the necessity for his services may have arisen; and further, that no promotion to the position of senior conductor should be made without a certificate from the same officers. In this way a more select class of men would, we think, be obtained for these positions,—a very important point, seeing that under the best system which can possibly be adopted something must be left to the care and honesty of the officials concerned.

Our inquiry has disclosed a lack of system in connection with the office at which the conductors hand in their takings. It has been customary for the clerks employed in that office when receiving the returns from the various conductors to accept without question the conductor's statement as to the lines upon which he has been working; moreover, there is evidence that a conductor might, without detection, absent himself, and fail to return his register and takings. It is absolutely necessary that a tabulated statement should be furnished to the Receiving Office by the foreman, or other officer dealing with the subject, showing the daily running allotted to each conductor, any variation from which should be specially and promptly reported. This list should be carefully and systematically checked by the receiving clerk with the returns and statement furnished by each conductor, and any irregularity, misstatement, or absence from duty, should be at once reported. In order to prevent fraud in the Receiving Office, each conductor should have a book in which should be entered his return for each round trip, and which should bear the initials of two clerks, one belonging to the Receiving Office, the other to the Audit Branch of the Department, and these books should be audited monthly (books being issued bi-monthly for the purpose) and compared with the returns of cash paid to revenue. In order also that the cash collected during every round trip may be regularly handed in by each conductor, the correctness of the amount ascertained, and a receipt given to the conductor in the book to be carried by him for the purpose, the Receiving Office should be located as near the City terminus as possible, and sufficient time should be afforded to each conductor to discharge satisfactorily this part of his duty before proceeding on another trip. It appears that at present a conductor has, occasionally, no time to do more than shunt his tram before he has to start on another journey. This should be altered, for it is important that the transactions for each round trip should be definitely disposed of before the conductor leaves the Receiving Office, and that the register indicator should be replaced at zero before the conductor proceeds upon his next journey.

A great advantage, arising out of the regular and systematic collection of takings and reading of registers after every round trip, will be the accurate and permanent record which it will give of the earnings of each line, and under a cash system the sum total of all line earnings daily should be balanced with the total cash handed in by the conductors, and the correct amount be paid each day to revenue.

In conclusion, we are of opinion—

- (1) That extensive frauds have unquestionably been perpetrated; but that it is impossible to ascertain to what extent the revenue has suffered.
- (2) That Thomas Musgrave, late assistant conductor, Henry Ferrier, formerly a conductor but lately employed as a labourer in the Railway Locomotive Department, and Archibald Fraser, an assistant conductor, have undoubtedly participated in the said frauds.
- (3) That the action of the Department in dismissing Musgrave and Ferrier was entirely warranted by the circumstances; and that Fraser's withdrawal from the service of the Department should be followed by his dismissal, to date from such withdrawal.
- (4) That the conduct of conductor Greeley is open to such grave suspicion as to warrant his dismissal.
- (5) That the general character of conductors Connors and Hannam, as disclosed by the evidence, unfits them for the position of conductor.

(6)

- (6) That with a view to the better control of the conductors the tramway system should be divided into three districts, and that an inspector should be placed in charge of each, to control and supervise the conductors.
- (7) That the claims of Messrs. Wigg and Moran, special conductors, from whom we have received great assistance in the prosecution of our labours, be considered in connection with these appointments.
- (8) That as soon as arrangements can be made for the introduction of a new system, the use of the present bell registers and the sale of tickets by licensed vendors should be abolished.
- (9) That a trial should be given to Mr. John Bell's automatic cash register, with a view to its being brought into general use.

Certified under our hands and seals this 3rd day of October, 1888,—

A. RICHARDSON, President. . . (L.S.)
R. W. THOMPSON. . . (L.S.)
F. AUNGIER BROCK. . . (L.S.)

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TRAMWAY FRAUDS INQUIRY COMMISSION.

MINUTES OF EVIDENCE.

TUESDAY, 21. AUGUST, 1888.

Present:—

A. RICHARDSON, Esq., PRESIDENT.

R. W. THOMPSON, Esq., M.P.,

F. A. BROCK, Esq., J.P.

William Moran called in, sworn, and examined:—

1. *President.*] We want to have from you as briefly as possible your whole knowledge of the frauds in tram tickets, beginning from the earliest period? The first that I heard about it was that some man in the Sailors' Home was selling tram tickets in November, 1887, at the reduced rate of something like 7s. 6d. for 10s. worth. This information was brought by Constable Taylor, about nine or ten months ago. I think this was during the time the tearing of the tickets was being done. I went to see this man, who had been convicted for a swindle at the Sailors' Home. He denied having sold them. I went to this man's house, and looking over an album, saw the portrait of Jessop, a conductor. We asked if he knew this man, and he said he did not know him, and could not account for his portrait being in the album. He denied all knowledge of him. I think he was convicted about this time. He was under suspicion or trial about this time. Next we heard was that Conductor Godby, in the service now, had reported other conductors for carrying passengers free. About the 23rd June, Conductor Greeley came to me and told me some one had made overtures to him about buying tickets. We had watched C. W. Cook, a monte player, jump on and off trams frequently. On June the 23rd we saw him jump on Greeley's tram. Wigg went on with him, and I said I would follow and see what the game was. Coming back I jumped on his tram, and asked Greeley what Cook's little swindle was. He said that Cook had 5,000 tram tickets in the bag, and that he paid a man £10 per week. Cook also said that the bells were faked and he would show how it was done. I told Greeley to make an appointment to meet him and learn how it was done. He arranged to meet Cook but Cook did not turn up. On the 27th June Ferrier told Greeley how the bells were to be faked, and how to make money, and promised to let him into the whole business. I told him to make an appointment with Ferrier and I would secrete myself in the house and watch the proceedings. On the 7th July he came to Greeley's house as arranged, and, whilst Wigg watched outside, I was planted behind the bed. Ferrier had promised to be there at half-past 7. I was in the house at 7 o'clock. Ferrier came and sat on the bed with Greeley. He struck a match and made some remarks about feeling a bit nervous, and he told Greeley things were a bit unsettled and he had better wait a few days. He said that he would take the bells away to some man at Eveleigh who would do what was required. When they are done you can use them and neither Moran, Wigg, nor the Commissioner himself, could know what you are doing. He told Greeley that he had better try them on the Waverley and Coogee lines as there was a better chance of doing business than on the Waterloo lines, as there were generally holiday seekers on these lines, and as they were twopenny sections the tickets would be clean. This would not be the time Musgrave's bells were taken from him. We had the "office" from head-quarters. They went to catch one man but he was "put fly" and knew all about it. I can only account for his knowing all about it in one way, and that is that the clerks in Mr. Roberts' room saw the reports and let him know.

William
Moran.
21 Aug., 1888.

2. *Mr. Brock.*] How do you think the clerks were interested in the matter? The relationship between one of them and Musgrave. Colls is a brother-in-law I think of Musgrave's.

3. *Mr. Thompson.*] Do you think Mr. Roberts himself had anything to do with the matter? I cannot say. I had an opinion that he had, but I have not sufficient ground for that opinion. The only reason that caused me to think that, was on account of the information getting out so quickly.

4. *President.*] I ask you in justice to Mr. Roberts do you say you have no legitimate reason for holding the opinion that it was he who gave the information. We are holding this inquiry for the purpose of getting to the bottom of the whole thing. Now Moran I order you to say whatever you know about it, no matter whom it may affect; be he in a high or low position? Yes, I have no legitimate reason for my opinion, except as I stated the fact of the reports getting known so soon.

5. You have sent several confidential reports to Mr. Roberts, some of which have been sent on to me. Have you any idea that any of those have been made public? No.

6. Then what is the explanation? I think it has been stated in the office that the clerks saw the reports, and there is no doubt whatever about it that the information came direct from the office, but it was not given by Mr. Roberts.

7. Will you now proceed with your narration of the circumstances in connection with Ferrier's visit to Greeley's house? Ferrier told Greeley that he could make £10 per week, if he got a shift. He must get on to the Waverley or Coogee run as they were all too poor a class on the Waterloo line. Greeley could call at Ferrier's mother's place and the bells would be ready after they had been doctored, but he would have to wait a few days as they had to be done by a mechanic. In the meantime Greeley was to get a shift. He then made an appointment in the room to come again on Monday night. On Monday morning Greeley came from the office to see me because I had to get the bells specially from the office, and

William
Moran.
21 Aug., 1888.

was talking rather confidentially to me, when I said, "Look out Musgrave is coming." Greeley, however, followed me and as soon as Musgrave saw me speaking to Greeley he suspected something. About 10 o'clock Colls came to Mr. Roberts, and said Musgrave had something to state to him. Musgrave came in, but what took place I do not know. Mr. Roberts sent for me, and said, "Musgrave has come to make a confession of his guilt." Ferrier on the same evening jumped on Greeley's tram and said, "Things are all up, and I won't touch the bells for 50 quid." This was the same day. I have no knowledge of what took place when Mr. Roberts came over with Musgrave to Mr. Vernon or Mr. Richardson, except that immediately afterwards Ferrier was sent for up to Eveleigh on the following day. He came down with a clerk in a cab, but what took place I do not know. Ferrier was dismissed that day. On the same day after he had been dismissed he met Musgrave at the pointsman's box at Devonshire and George Streets and they had a long conversation. It must have lasted over an hour. Conductor Kenny told me that they were standing there when he passed in and when he passed out again. It would be about an hour to get back. After Musgrave made the confession he went back to work and worked up till the following Monday.

7½. *President.*] How did Musgrave have so much time to spare if he were on duty? It might have been whilst he was off duty or waiting to relieve. I think it was before he came on duty. They have eight-hour shifts. Hickey, I believe, was the pointsman's name. I do not think Hickey heard the conversation. I do not think that Musgrave made the appointment. They may have met by appointment. Ferrier was going about with his eye bad, having got hurt whilst drunk. Musgrave at this time was living at Newtown, and had to come into town to sign on. I came to Mr. Richardson and made a statement of who I suspected. I knew they were spending more money than they could earn, and living a fast life. Ferrier and Musgrave I thought were living much above their means—Scott and Yelland for different reasons. Yelland on one occasion made a statement to one of the conductors how they could fake the bells. Scott had been on the railway, and was dismissed for stealing money. I have seen him frequently with Musgrave and Ferrier; Yelland made a statement to Graham; Greeley can say the same. The report was that Yelland had made £1,800, and had run away with another man's wife. Keen informed me that the Railway Department discharged Scott for thieving. Connors was frequently in Ferrier's and Musgrave's company. This was the only reason for my suspicions of him. I have not seen him spending much money. It was not so much the meeting them but it was the way of meeting—jumping on and off the trams. I told Mr. Roberts, and he came and watched. On four or five occasions I saw Cook jump on trams with Connors. Doolan threatened to throw Cook off the tram for making overtures to buy tickets. Connors made a statement that Ferrier had made overtures to him about buying tickets before the reports appeared in the papers. Beyond this I have no reason to suspect Connors. Connors assured me that he neither knew Cook nor had he spoken to him. The only further reason for my suspecting Connors was that Cook told me that he camped with a "little girl" who told him her husband was a tram conductor named Chuckey Connors. About the latter end of December last Greeley came to me and said that Siddons, who is a tobacconist in Botany Road, had jumped on his tram, and asked if he could sell some tickets, and said he "was in the habit of buying large quantities of tickets from men; that he paid one man £3 10s. per week; the only thing you will have to do will be to see that they are not marked, so that the detectives will not trap you; I will come to your house or you to mine; the trick is done by altering the bell." He also told Greeley that he need not be afraid, it would not be detected, only he must be particular of the marked tickets; he would explain the whole thing and let him into the secret. I reported this to Mr. Roberts. We then purchased tickets at Siddons'. They were all twos and threes, and had evidently been used before. I went one day and sent a little girl for tickets. Siddons came and said, "Who sent you; was it Moran?" The girl said she did not know. He came and had a look outside. He said, "I am a little too fly for you." His license is cancelled now. He then made further overtures to Greeley. I brought Greeley to Mr. Roberts, and suggested that he might be allowed to entrap Siddons by selling tickets, in order that we might find out who were in the swim. Greeley made an appointment with Siddons, and in the meantime I saw Mr. Vernon, who objected to this being done. He said he would cancel his license and have done with him.

8. Mr. Vernon did not like detective work? No; I told Mr. Vernon that we might find out something. He decided to cancel the man's license; previously Siddons had been up on two occasions, charged with receiving stolen property.

9. Was it not thought we had a case for a prosecution? No; we bought the tickets from Siddons. We had repeatedly gone to the different vendors of fruits—Italians, Greeks, and other foreigners—in Elizabeth-street, Belmore Park, and other places. Their answers are that they take them from school children in exchange for lollies and fruit. On one occasion Mr. Badham, in this office, wrote to the Department about a Miss Dunn, of Waverley, buying in ones and twos, and Miss Dunn made the same statement that the children gave their tickets in payment for lollies and fruit. About the time it was decided to cancel Siddons' license, Wigg and I went one day to Waterloo, and though we kept away, and the little girl we sent in put the money on the counter, he asked who sent her, and when she told him two men, he would not serve her. We tried several times to entrap him, but did not succeed. I have a suspicion that even now he sells tickets. After this matter was settled Greeley came again to me, about the 3rd or 4th of March, and said, "What do you think? I have found a lot of tickets in my great-coat pocket. I put my hand into my pocket, and I found a handful of tickets. There were 22." I told him I would have to report it. I made the report about it. James Tunks was his mate on relieving shift. Tunks denied having put the tickets there, and thought they had been placed there by Greeley.

10. *President.*] Was that the way it came out? Yes; this is Greeley's account. Greeley told me he thought it was a trap for him. Frost was with Greeley and saw him pull the tickets out of his pocket.

11. What is your opinion of Greeley's character? I believe Greeley is an honest man.

Pietro Gaspardo called in, sworn, and examined:—

P. Gaspardo. 12. *President.*] What is your name? Pietro Gaspardo.

13. What are you? A Greek.

14. What is your occupation? I was in business, but am looking for work now.

15. We have been told that you can give us valuable information with regard to these frauds, which have been carried on by the Government tram conductors in connection with the tram tickets, and that you are desirous of giving this information? I cannot give you any valuable information.

16.

16. Why can you not give us this information? Because the persons who had these dealings are not here now. Both have left the country and gone to Greece. About three months ago I could have given the information, but I cannot do so now. It is against my principles. P. Gaspardo.
21 Aug., 1888.
17. How do you mean that it is against your principles;—what are your principles? I cannot prove anything.
18. How do you mean that you cannot give us this information now if you could have done so before these persons left the Colony? I can only say what I have already told you.
19. It is a fact, is it not, that you have seen numbers of tickets sold improperly by persons in connection with the Tramway Department. Now give us the information in your own way as clearly and fully as possible? I can prove nothing, and I cannot give you any information.
20. *Mr. Brock.*] Why not. Are you frightened to give the information? The persons who told me about it have gone away.
21. *President.*] The object of this Commission is to get at the bottom of these frauds, and I am able to hold out to you from the Government the promise that you will be protected in case you may have anything to fear as a result of your giving evidence? If you give me time to search, I will be able to give you information.
22. Have you told anything to Detective Rochaix? I have told something to Detective Rochaix.
23. What you told him you must tell us? I cannot tell.
24. *Mr. Thompson.*] What we want to get at is how these things have been managed. Tell us how the conductors have been able to cheat the Government of the money and steal these tickets. Any suggestion you may be able to give of the method adopted to cheat the Government will be kept secret, and you will not have the slightest reason to fear injury? My principles are very strong.
25. *President.*] Have you told Rochaix that you have seen men bring tickets to the keeper of a shop in Elizabeth-street; did you give him the dates on which the tickets were brought and say that you could identify the men who brought them? I was told so.
26. Our information is that you have seen them? I was told so.
27. How then do we come to have been told that you saw them? I do not know.
28. *Mr. Thompson.*] Who kept the shop? Constantine Pappodocci.
29. Where is he now? He has gone away.
30. When did he go away? About three months ago.
31. Were any of your countrymen there also? Nicholas was there. He went away with Constantine.
32. Were you employed in the shop? I was employed in the shop for awhile. I afterwards had my own business. I retailed oysters and fish in the town, and also at my own place in Albion-street.
33. How long were you employed at Elizabeth-street? I was employed about four or five weeks in the shop.
34. *President.*] It was during this time that you saw these stolen tickets sold? I cannot tell you anything about it.
35. I say it was during the time you were employed there that these tickets were sold by the conductors;—is it not a fact? I cannot tell you.
36. You have not denied having seen tickets sold, and naturally it must have been during the time that you were engaged in the shop? I was engaged assisting in the shop. It is against my principles.
37. *Mr. Thompson.*] If you are hesitating under the impression that money will be offered you for your evidence, I must tell you that no such offer will be made, but you will be paid the same as any other witness? I would not have my name put in the papers. Rochaix used to come bothering me every day, and I told him one day in French that some people were making a good deal of money out of tram tickets, and he has made all this bother.
38. *President.*] You have admitted the correctness of the statement to Rochaix that you did see the conductors selling tickets to the owners of the Elizabeth-street shop? If you give me four or five days' time I will give you full information.
39. How long ago is it since you told Rochaix? It is a good while since—four or five weeks. It does not interest me, so I can tell you nothing.
40. *Mr. Thompson.*] Did not some one give Nicholas, who went away, £50 to go away? I cannot tell you. I do not know that he did get £50. He went home with the French mail-boat. I went to see him away.
41. If you give evidence which is really valuable we have made up our minds to recommend you for a special gratuity, but we can only promise to pay you for your attendance otherwise. Tell us what you told Rochaix? Rochaix will tell you more than is necessary.
42. Both Rochaix and Wigg say that you want money for your evidence? No, not at all. What I told Wigg was, that I did not think it worth while coming, as I did not know anything myself.
43. Did they sell tram-tickets at this shop? Yes, and they do so at the present moment. George Masoora keeps the shop now. He bought the business from Constantine. It is a fruit, fish, and oyster business.
44. According to you, Rochaix must have told a great many untruths when he said you told him that you had written down the number of tickets bought, the dates on which they were bought, the price given for them, and that you could recognise the men who sold them? I never said it. I told him I was told who the men were. Nicholas told me who the men were. If you give me time I can get you full information.
45. *Mr. Brock.*] You know just as well now who the men were as you will know in a few days; you know the men's names now—you know the men by sight? I do not. I was told that the men were selling the tickets. I cannot tell you that I could identify the men if I saw them.
46. *President.*] How long is it since you were employed there? I cannot give you exactly. It is three months since he left. It was about three months before that I was in his employ; that is about six months ago.
47. And yet you say you are not prepared to identify them now? No, I cannot identify them now. I could have done so a few days ago. I cannot be an informer. That is my principle.
48. Do we understand then that you distinctly refuse to give us the information which you have in your possession? I cannot be an informer.
49. *Mr. Thompson.*] We want to know in what way you will be made an informer. You will have to give the evidence or take the alternative of going to gaol until you do give it? That is my principles.
50. What price do you put upon the information? I will put no price upon it.

- P. Gaspard. 51. *Mr. Brock.*] Has any one threatened you with harm if you give information? No, I did not say so. I cannot prove anything.
- 21 Aug., 1883. 52. *Mr. Thompson.*] We do not want you to prove anything, What we want is that you should give us anything, even the smallest item of what you have heard or seen. It does not matter whether people have told you lies or not, it may enable us to find out what is of importance to this Commission's inquiry. I cannot identify these men. I shall have to leave the Colony if they get to know that I have given information. I would have my brains blown out.
53. *President.*] You have no reason to fear that anything you say in this room will be known outside. The Commission is sitting with closed doors, and the newspapers will therefore have no opportunity to report the proceedings. The gentleman who is taking down the evidence is Secretary to the Commission, and is recording the proceedings for our information only? They know that I have come here.
54. *Mr. Thompson.*] Then are you frightened? Yes. I would have my brains blown out.
55. You have nothing to fear in that way; you are in an English colony, where such things are not allowed. You never hear of a witness in a Court here being killed because he gives evidence against a man. You had better give us this evidence, for it will have to be given. The Commission is clothed, as are all Royal Commissions, with the same powers as those of the Supreme Court Judges. The Commissioners, through their President, have power to issue a warrant and send to gaol for refusal to give evidence or for telling an untruth. In the case of a witness being sent to gaol he would be taken by a policeman, and everybody would know through the newspapers exactly what he had been sent to gaol for. Did you tell any person but Rochaix about this matter? Only Rochaix; but I did not tell him all he states I did. He used to come bothering me continually, asking me what I knew and, after a long time, I told him the Government was being robbed.
56. You did what was quite right in the matter by telling Rochaix. If you saw a murder committed would you not inform? Yes; but I must not stop in the Colony if I give you evidence.
57. *Mr. Brock.*] Do you believe that the evidence you will give may lead to your being hurt. Do you want to leave the Colony? I do want to leave the Colony.
58. *Mr. Thompson.*] If you want to leave the Colony I think we can arrange for that. Neither Nicholas nor Constantine can be hurt by your evidence, as they are out of the Colony. It is a right and proper thing for you to tell these things, and let us know who are the people that are robbing the Government. You pay rent and taxes, and they are robbing you as well as others, and you should look at it in this light. You understand English quite well? No; not well.
59. Where did you learn to speak English and French? I have been most of my lifetime amongst English people. I picked up French in America, where I was in a restaurant with French boarders and cooks.
60. *President.*] Please tell us exactly what you said to Mr. Rochaix? Rochaix tells lies; I told him nothing. I must not stop in the Colony if I tell you.
61. *Mr. Thompson.*] That can be arranged for, but you must give us full information. Lots of these men have told heaps of things against the conductors, far worse things than you can tell—some of them being up to their necks in it, and yet no one has been hurt. Unless you open your mouth outside this room there will not be a word known outside? If you give me a thorough understanding that I may get out of Sydney, I can tell you something. The people know that I have come here to give information and they will hurt me.
62. *President.*] You are in a worse position now because people believe you have given evidence? I don't know that.
63. *Mr. Thompson.*] Did you tell Rochaix that you could give valuable information with regard to the tram frauds if you were paid for your information? I did.
64. Did you tell him that you had seen large quantities of used tram-tickets sold to a shopkeeper at the corner of Elizabeth and Liverpool streets? Yes.
65. Did you tell him that you had taken the amounts of such stolen tickets, the prices paid for them, the number of times they were bought, and that you could identify the persons who sold them? Yes.
66. Do you know a man named Nicholas Johns, a bootmaker, in Regent-street, Redfern? I do.
67. How many tramway tickets do you think you saw sold altogether by the tramway conductors whilst you were in the shop of Constantine Pappadocci? I cannot tell you the amount.
68. *Mr. Brock.*] Do you think there was £20 or £100 worth? I cannot say. If I told you I cannot remain in the Colony.
69. *President.*] We will promise you that you shall leave the Colony if you wish to do so? I do want to go. This affair went on to my knowledge for about eight months. The tickets were brought in twice a week and once a week. They were sold by one man; always the same man. From £60, sometimes £40, and sometimes £20, were brought once a week and twice a week.
70. *Mr. Thompson.*] What price did Constantine pay for them? I think 10s. in the pound. They were always used, or second-hand tickets.
71. *President.*] Were the tickets in ones, twos, threes, and fours, or were they in large fresh sheets? No, they were all soiled tickets. Once there was a young fellow came to me when I was keeping a shop and wanted to sell cigars or cigarettes and used tram-tickets to me. He said, "I have sold some to such a man and he has made money," and I said, "I do not want tram-tickets; I do not sell them." He said he would sell me £1 worth for 15s. I said I did not want them. He said he had done a good business in them. I thought he was a larrikin, not a tram conductor. I have not seen him since. I think he was a bit of a scamp.
72. Did he show you the tickets? No, he had no tickets with him; he was going to bring them. He said I met two or three men with money. He said he could sell me cigars and tram tickets.
73. *Mr. Thompson.*] Did you know him? I never saw him before. It was about 11:30 p.m. one night as I was shutting up my own shop that he came to me. I do not think he had anything to do with the trams.
74. *President.*] Where are the men who sold tickets to Constantine? I do not know; I have not seen him lately. I do not know his name, but would know him if I saw him. He was a conductor. I cannot tell you what line he was on. He came in citizen's clothes on Sunday morning. I have seen him in Liverpool-street with his bag on going up the street. It is a good while since; about 2½ months ago. He was a man about 30 years of age, clean shaved, with a little fine moustache, full face, moustache between black and white; a big well-built man.
75. *Mr. Thompson.*] Have you seen him since Constantine and Nicholas went away? Yes, but I have not taken the slightest notice of the affair as it does not concern me. 76.

76. *Mr. Brock.*] What line was he on? I cannot tell what line. I think I have seen him on the railway line. I have seen him going on the railway tram I think. I have not taken the slightest notice of where he was on. P. Gasparolo.
21 Aug., 1888.
77. *Mr. Thompson.*] Have you told any person about these people cheating? I never passed any remarks because it did not matter to me. I was going to bring this man so that you could catch him and the tickets as well. He was a friend of mine who had been in the force before. His name is Jack Loder. He has an office in Elizabeth-street. He is a hotel broker, and advised me to have nothing to do with the matter and to say nothing about it as I could prove nothing.
78. *Mr. Brock.*] How much did Constantine and his partner share per week? I believe about £40 per week between them. This was out of the money for the tram-tickets. Loder knew nothing at all about it. I told Loder.
79. *President.*] When did you first give information about this. You saw this going on and you knew it was wrong and yet you did not tell about it? I told Loder who has been in the police force and he told me it was not worth while to take any notice of it as it would cause me a lot of trouble and I would get nothing for it because I could prove nothing.
80. *Mr. Brock.*] When did you first get to know about this cheating? I was told before I went to Constantine's. Nicholas told me before I went there.
81. *President.*] Was he sharing in the profits made out of the stolen tickets? He told me he was not sharing in the affair but it was going on. I do not know that it was going on when I first went to Constantine's. It was a good while afterwards that I told Loder. I told him that there were tremendous robberies being carried on in the Government trams.
82. *Mr. Brock.*] When did you know of these robberies? The last week I was at Constantine's, I knew it. I was not in his service all the time but I used to go back and forwards and then I saw it.
83. *President.*] When did you first tell Loder? I informed Loder when I was in the employ of Constantine.
84. *Mr. Thompson.*] How long after you spoke to Loder did you speak to Rochaix? A good while after.
85. Do you think that Loder told Rochaix? I cannot say. Loder said to me that I would get into trouble, and nothing else.
86. *President.*] Have you seen tram-tickets sold by conductors anywhere else than in Constantine's shop? Nowhere else.
87. *Mr. Brock.*] You take a long time to answer a question;—how is that? I do not want to tell you a lie.
88. *President.*] You have told us that you knew the persons who sold these used or second-hand tickets, and that you could identify them? I can only identify one person, not others.
89. Tell us everything you know—keep nothing back; you have nothing to fear. You have seen far more tickets sold than you have told us about? No, I have not.
90. *Mr. Brock.*] Where is the conductor now? I do not know where he is now; I have not seen him since.
91. *Mr. Thompson.*] What did you do with your memorandum of all the tickets sold to Constantine—the prices given for them, the dates of the sales; where is it now? I have not got it; I destroyed it.
92. Who told you that they divided as much as £40 per week? Nicholas did.
93. *President.*] When Constantine sold out were you in his employ? No, I was in my own shop.
94. Do you remember the circumstances which caused Constantine to sell out? I do not know.
95. If we were told that you were engaged in Constantine's shop when he gave up, would it be true? No; I had left.
96. *Mr. Thompson.*] Did you share the proceeds of this cheating? No; I had nothing whatever to do with it.
97. Do you know a man named Nicholas John, who keeps a shop in Regent-street? I do not know which Nicholas it is. There are two or three living in Redfern. I do know Nicholas Johns the boot-maker right enough.
98. *President.*] Johns says you were employed by Constantine when he gave up business? He tells a lie.
99. *Mr. Brock.*] What do you mean;—had you left him? Yes, I had left him, and was away. I can tell you nothing about why he sold out.
100. *Mr. Thompson.*] Is it not a fact that several of the tramway men have asked you not to say a word against them? Not a single man has come to me about it.
101. *President.*] Do you know a man named Cook, who keeps a shop, and sells tram-tickets? No.
102. As we have positive information of all you can give us, why do you waste so much of our time? I do not know any more; I am telling you all I know about it.
103. You are holding back information; what are you afraid of? I am afraid of the others—shop-keepers and others.
104. *Mr. Thompson.*] You have been told about some other shops where these used tram-tickets have been sold. Tell us the names of the keepers of these shops? I have heard from a person who is not here now that the man at the top of the railway station, in the little fruit-shop—a little fruit-shop opposite the school in Elizabeth-street. I do not know the name of the man near the railway station. I was told by Nicholas that a shop near the railway station, and in Wexford-street, kept by Nicholas Williams, were buying tickets from the tram conductors.
105. Did Nicholas tell you how much they were selling at these little shops? No.
106. *Mr. Brock.*] You told a deliberate untruth when you said you could give us all the information in four or five days. You can tell us now, but you intended going away and not coming back? I was not going away. I came to tell you only what I saw.
107. *President.*] Tell us distinctly before you go, have you no further information to give us. If we find afterwards that you have kept anything back, it may not turn out satisfactory for yourself? I do not know anything more. I will go around the shops and find out for you.

Jules Pierre Rochaix called in, sworn, and examined:—

108. *President.*] Mr. Rochaix, we have sent for you in consequence of the statement of Pietro Gasparolo. We were given to understand that he had given you considerable information on the subject of the tram-ticket frauds; but after a great deal of hesitation, prevarication, and delay, he has given us very little information. J. P. Rochaix.
21 Aug., 1888.

J. P.
Rochaix.
21 Aug., 1888.

information of consequence. Will you be good enough to let us know what he told you? About twelve months ago I was told by a thief that a certain shop in Elizabeth-street was crooked. I watched the place and found that Gaspardo was working there. I believe he was working there more than five weeks. He knew me. About three months ago, one Sunday, I met him in Wexford-street, coming out of a Greek's shop, kept by a man named Nicholas Williams. He beckoned to me, and said he wanted to tell me something. I left Detective Roche, who was with me, and went into the shop. He said "Will you tell me whether I can get any reward if I give information which will save the Government thousands of pounds?" I said, "I cannot give you an assurance, but I think you would get a reward." He said, "I will give every information to the Inspector-General." I said, "If you do not tell me something about it I cannot assist you." I then dropped the matter, but went again several times. On one occasion he said, "It is in reference to the tram-tickets and those who sell them." I said, "Are you ready to give this information?" He said, "Yes, if you will get me an assurance of a sum of money to go away." I said, "I cannot do anything of the kind until you give me the information." I received from the Inspector-General this anonymous letter. [Appendix A.]

109. This is probably Johns' production? I think Johns has written it out of spite. Gaspardo told me he knew of some one writing, but he did not say who it was. I saw Mr. Roberts, Superintendent of the Tramways, about the matter. I went to see Gaspardo often, to try if I could get any information from him. One time he showed me a piece of paper with numbers on it. They represented the sums of money paid to different persons, and amounted to £2,000. He positively said he could point out several men who had received money for these tickets. I made him speak it several times so that I should be quite certain. He laid great stress on it that there were several men, and not only that, but several shops, that bought the used tickets. I know Gaspardo frequents all these shops. I have frequently seen him going into all of them, and he appears to be at home in them. They are all Greeks.

110. Did he make any overtures about payment? He said if he could get a sufficient sum of money he could point out the men, and he would bring others who were in Sydney now. Connin and Peterlein told me some time ago about the writing of the letter.

111. *Mr. Brock.*] Do you know a shop in Stanley-street, nearly opposite the school, where tickets are sold? Yes. Ice-cream men take tram-tickets, postage-stamps, or duty-stamps in payment. Gaspardo told me that they were not sheets which were sold in Constantine's shop. He said he was present when these transactions took place.

P. Gaspardo called in and further examined:—

P. Gaspardo. 112. *President.*] You recollect how strongly I told you that you were keeping back information which you had, and how very persistently you kept it back? I do not know.

21 Aug., 1888. 113. You persisted that only one man came to Constantine's shop when you were pressed, but you repeatedly said that there were several persons. You have also said—if not here, at any rate to others—that you had a memorandum of every sale which took place, the price given for the tickets, number of tickets sold, and that you could identify the men, and state how much each received; that the whole of the fraudulent sales amounted to over £2,000. How was it you did not give us this information this morning. How many men were there? I have only seen one man there.

114. Did you not say to Rochaix that there were four or five conductors bringing these tickets, and that you could point them out? I can point out one. The amount of £2,880 shown is in Loder's writing. I used to take the account to Loder, who made it up from my figures.

115. You are not being straightforward; you knew all the time that the amount was £2,880, and yet you said when asked that it might be only £20? Mr. Loder made up the amount.

116. I asked you very distinctly whether these men brought you single tickets or twos or threes, or large sheets? No sheets whatever.

117. Is it not a fact that some men or the same man came with sheets of tickets rolled round their bodies? I have not seen them.

118. What men came to Constantine's shop? I do not know them.

119. Did you not say to Rochaix that you could give information about these frauds which would be worth thousands of pounds to the country? I did say that I would not give the information unless I was paid for it. I never saw sheets brought in by these people and bought by Constantine.

120. *Mr. Brock.*] Did you and Constantine part good friends when he left? Not exactly good friends—we were neither bad friends nor good friends. We had not fallen out; we did not use bad words when he left.

121. *President.*] Did you not tell Rochaix that when these people came into the shop and sold tickets they used to lock themselves up with the man who was buying so that no one should see what they were doing? No, I do not recollect. I only saw two bundles—no sheets; they hurled the two packets on to the floor; the packages amounted to a pound's worth each; they were made up in parcels of a pound; they were bent up and made (wrapped) up in pieces of paper. I have seen them in paper bags, once in a portmanteau, once in a bag, and once in cases packed in bags.

122. Is this the amount he made or paid? They got it, and divided it between the three of them—between the seller and the buyer.

123. *Mr. Brock.*] Who was the seller? The conductor; I do not know his name; I cannot tell you his name.

124. *President.*] Who reckoned this amount up? Mr. Loder and I reckoned it up. During six months £2,880 was made.

125. Who made the notes of these transactions from which you got this calculation made? I made a rough guess of so much per week.

126. We can understand a rough guess of £2,800, but not of such a sum as £2,880. Tell us exactly the same as you told Mr. Loder, so that we can make our own calculation? I took £20, £40, and £60 per week for twenty-five weeks.

127. *Mr. Thompson.*] This would only make £1,000 for six months. Did you put the figures down? No, I did not put the figures down.

128. *President.*] How did you get the amount per week and the number of weeks? I was told by Nicholas that it had been going on for that length of time, and I saw it myself.

129. *Mr. Brock.*] How long did you notice it? The last week.

130. *President.*] You told us this morning that you were five weeks there, and yet you only noticed this during the last week; now you tell us you were only three weeks there? I do not understand. P. Gaspardo.
131. *Mr. Brock.*] Do you know a shop in Stanley-street where they sell tickets? I do not. 21 Aug., 1888.
132. *President.*] You told me that you heard of other shops where they buy tram-tickets? Nicholas told me, but I did not see them myself. I have been in a shop near the police station, in Wexford-street, in Elizabeth-street, and near Belmore Markets. Nicholas told me of these places. It is sometime last week since I was in Palesi's. They are no friends of mine, none whatever.
133. *Mr. Brock.*] All these men whom you say you only know by sight are intimate friends of yours? No, I only know them by sight. I only know the Greeks. I know Peterlein. I do not know the people living next door to him.
134. *President.*] We want all the information we can get, and if you are keeping anything back you are acting very foolishly, for we mean to have it in some way. Masoora could identify these men equally as well as you can I suppose? Yes, better. He knows everything, and much more than I did. He cannot speak French. Masoora was Pappodocci's partner.
135. How much did Nicholas get when Constantine sold the place? Nicholas got £150 from those people who were selling tram-tickets—I suppose the shopkeepers. Pappodocci gave Nicholas the £150. It was Nicholas who wrote the letter alluded to. I heard that he wrote it. I heard it from Nicholas himself, but I never saw Nicholas get any money.
136. Have you any witness besides yourself that Masoora shared with Constantine? No.
137. Was there any other person in the shop when these men came in to sell the tickets? No; there were no others in the shop when they did this business. They were always inside in the box. I was in the room in the yard. They objected to my being present. I know Nicholas Williams, in Wexford-street. I have heard that he bought tickets from the conductors. Nicholas is a Greek, I think. I was told the conductors were getting the same price at the other shops where they were selling.

Charles Cook called in, sworn, and examined:—

138. *President.*] What is your name and occupation? My name is Charles Cook. I am a hair-dresser, 94, Liverpool-street. C. Cook.
139. We have sent for you because we have been given to understand that you are both able and willing to give us considerable information in connection with these tramway frauds; and we may tell you that any evidence which you may give and desire not to be made public will not be made public, and we will afford you protection if any of your statements implicate yourself? My name was used in connection with Greeley and the tickets. I was going to Randwick one day, and had a bag full of tickets which we use in betting. I gave him 3d. for my fare, and I noticed that he did not ring the bell. I said to him, "You do better than going to the races," and he said, "That is a drink at the other end." I had a large bag about 2 feet long. It was full of betting tickets. 21 Aug., 1888.
140. *Mr. Brock.*] What are they like? They are $1\frac{1}{2}$ inch by 2 inches. If I had had tram-tickets I would not have taken them to the racecourse. This part of my evidence I would not like to be known: I have a friend in the detective force, who said to me, "You know lots of the talent; if you hear anything crooked about tram-tickets let me know. There is a reward, and I want to get promotion, and will try and fathom this tram-ticket business. Try if you can get me information."
141. *President.*] Do you know a man named Ferrier? I had been told that a man named Ferrier had tickets, but I never had anything to do with him. I went one day and bought £1 worth of tickets, and marked them with a lead pencil. I then took them to a shop in Elizabeth-street and sold them, getting 15s. for them. It was an Italian, at the corner of Elizabeth-street. He said this was more than he usually gave; he gave only 12s. 6d. if they were in three's, and 10s. if in two's. I watched the shop for a week, and then I told my friend. Detective Hoskison was the friend. He said afterwards that he could not get a case up. This is about six months ago; but I am not sure, it may have been six, five, or four months ago. The shop was Constantine's, at the corner of Liverpool and Elizabeth streets. Detective Hoskison said I might get a reward if I could give sufficient information.
142. *Mr. Brock.*] Do you not know any other shop where tickets were bought? I do not. I was told of a place in Waterloo, but this person would not buy them except in the usual way when I tried. I told the Italian that the tickets were bought from the guards. I met him twice or three times since, and he asked me when I was going to bring up the other tickets.
143. *President.*] Did you sell tram-tickets in your shop? I never sold tram-tickets. My shop is 94, Liverpool-street; it is one door from George-street. Some relatives of mine about six weeks ago bought a shop in Elizabeth-street; Miss Riley is her name; she is not selling tickets because she has no license. Coll had a license but did not renew it; Coll lives in the Glebe now; I know the house but not the number; his name is Frank Coll; he had the license but did not transfer it to my relatives. She was in bed with a bad leg, and could not get out to see about it; she used to sell tickets, and went to get them herself, but she was told not to sell any more; Coll does not own the place: he will not make it over because she owes him £20 yet; she was told she would be summoned for selling tickets, so she dropped it. I have no other shops now; I had one in King-street a little while ago; George, my younger brother, was in business with me; Henry, the other brother, used to keep a shop in Glebe Point Road two years ago; he is lessee of the Opera House in King-street now; he does not mix up in shops now. I know Dummett of the Glebe; I have bought wood off him; he sells tram-tickets; he bought the shop from Grosvenor, who bought it from my brother; I never had any business with Dummett; he never bought tickets off me; I told Mr. Roberts that I bought tickets for the place Dummett now has. I bought £10 worth for Coll, and £5 for Dummett's shop when my brother was in it.
144. It is said that you made an offer to Dummett to sell him tickets? No; it is a mistake. Dummett has only been in the shop three months; I was never connected with Grosvenor. He bought from my brother; we are not very friendly; he swore he would serve me with a writ for something I did to him. He had a case in the Supreme Court some three years ago. I have not sold tickets in my shop since it has been open.
145. People are prepared to swear that you bought tickets at that shop? It is a mistake. Not to my knowledge have any tickets been sold in the place. I may oblige a man with three tickets, but there are no tickets for sale. I know William Moran; I told him I knew nothing about the affair; the only man

- C. Cook. I knew was Greeley. He told me that they found a lot of used tram-tickets in his pockets; he said if he got the sack he would split on others to save himself; I did not tell Moran.
21 Aug., 1888.
146. Did you say that you had tried several conductors for tickets? I made offers for tickets to several of them, and some of them threatened to throw me off the tram. I saw Ferrier, but he would not sell me any. Hoskison said he would like to get up a case, and I bought tickets and sold them at Constantine's shop. This was the only place at which I succeeded in selling the tickets.
147. Do you know Powell of Devonshire-street? No, I know Mrs. Jeanette in Liverpool-street, I did not try whether she would buy the crooked tram-tickets. I would have no truck with women; When the conversation with Greeley took place I had a boy with me. The betting cards have a number, and my name printed on them.
148. You said you told Greeley it was not worth his while going to the races when he could make money so easily. Did you see him manipulating his register with regard to the fare? I gave him a shilling, and he gave me 9d. without ringing his bell. I intended to see whether he forgot it or not, and he said it was a beer at the other end.
149. Did you not tell Greeley that if he did what others were doing he could make £10 a week? Those are not my words; I said, "I have heard that some of you are making £10 a week. It was only hearsay. When I saw him take 3d. I thought he would take 1s. or £1. I have spoken to several tram men, and asked them to get me some tickets; some of them have cut up rough, and I have had to pass it off as a joke; some have threatened to throw me off the tram if they saw me on it again; it is about five months since I did this; this last three months I have not been very much in Sydney; I have been in the country, in Bourke, Armidale, and other places.
150. You can give us very valuable information if you like? I cannot tell you anything that I do not know. Some men have very elastic consciences and Mr. Roberts is one of them. He told me that anything I said about this affair would not go out of the room, and yet within twenty-four hours he spread it broadcast over the country and my name appeared in the papers in connection with it. The tram authorities have summoned friends of mine for selling tickets; Miss Riley is a step-daughter of mine; I am not interested in the shop; if I had wanted to buy it I could have done so.
151. You know a great deal more than this? Really you make these assertions, but I do not know how you arrive at your conclusions; I cannot tell you more; I have nothing to fear; I suppose there will be no criminal prosecution; I have never had any traffic in second-hand tram-tickets, and I know nobody who has except from hearsay.
152. Who would be the people who told you? Jockeys and others who might want tickets. I have never met a tram conductor to my knowledge in a gambling place; I do not gamble now; I used to do so. The place to which I went would not admit tram conductors; the play would have been far too high for such as they.
153. Do you know a place in Crown and Oxford Streets where gambling has been carried on? Only from the newspapers. The owner was fined £5 for gambling. I know a public-house near Carrington running ground. I have never met tram conductors there. I know the case of gambling, but I do not know the man.
154. Mr. Thompson.] How long were you working in Hoskison's interest for the purpose of trying to get up a case? I was not exactly working in his interests; it was not with his knowledge that I was doing this. I was told that Ferrier had some crooked tickets, and was selling them; but I did not come across him for some time, and I thought that if in the meantime I could find out where the tickets were being bought it might assist me to find out who was selling them. I told Constantine that I could find a good supply every week. I watched the shop for about a week, but made no discovery. I remained there till about 8 or 9 o'clock at night, and saw men go in, but they could not be recognized. I paid 20s. for my tickets, and sold them for 15s.
155. President.] You believe in these frauds thoroughly, do you not? I do not believe there are any honest officers in the Department, and I think it only human to have a drink at each end. Constantine told me that he was doing pretty well out of the tram-tickets. He said he never gave more than 10s. for single tickets, and 12s. 6d. for threes. I tried to get out of him who was selling to him, but he would not tell me. I think a man outside now was one who was in the shop when I went there. There were always five or six in the shop. I had my tickets torn into ones and twos. He made no difficulty, and was evidently accustomed to it.
156. Mr. Thompson.] If you hear anything more you will be good enough to let us know? I know nothing more now, and have not been interested in the sale of the tickets.

WEDNESDAY, 22 AUGUST, 1888.

Present:—

A. RICHARDSON, Esq., PRESIDENT.

R. W. THOMPSON, Esq., M.P.,

F. A. BROCK, Esq., J.P.

George Masoora called in, sworn, and examined:—

- G. Masoora. 157. President.] What is your name? My name is George Masoora.
22 Aug., 1888.
158. Of what nationality are you and what is your occupation? I am a Greek, and I keep a fruit-shop and sell fish, lollies, &c., at the corner of Liverpool and Elizabeth streets. I have been in it some eighteen months. I have been about four years in this country. I have not conducted this business before I bought it. Constantine was my partner about three months ago. I bought Constantine Pappadocci out. We were about fifteen months in partnership. We dealt largely in tram-tickets during that time. We bought tram-tickets of different colours and kinds. I always stayed inside the shop. My partner always did the outside work of buying tram-tickets, fish, fruit, lollies, and other things. He did all the buying, and everything was bought in his name. He had the license to sell tickets, not me. He used to say we want £20 for tram-tickets, and he took it. He then threw the 6s. commission into the till. He would say there is so much expenses for the day's sales.
159. Do you mean to tell us you did not know all the transactions that were going on? I cannot tell you anything else. He used to say so much has been sold to-day, and so much has been expended. I cannot tell you anything else.

160. Have you a license now for the sale of tram-tickets? I have.
161. Let us know how you get them? I buy my tickets from the Post Office, and give my order for £10 or £15 worth. I sometimes buy more and sometimes less, just according to what I want. Sometimes I buy on Tuesday, sometimes on Monday. On Saturday I buy £40 or £50 worth.
162. But you are now buying differently from what Constantine did;—let us know how he bought them? I do not know how Constantine bought them. He used to go out and buy them.
163. Do you mean to say he did not buy second-hand tickets? The tickets were often dirty, because I tore them sometimes after I had been opening oysters.
164. Were they not often bought in ones, twos, and threes? They were always in big sheets, some in fifties, some in twenties. I never saw tickets come in bags or in envelopes myself. I never saw any bags of tickets.
165. We have certain information as to how these tickets came into the shop and what was done with them, so it is useless for you to deny it, and I advise you to let us know all that you know about the matter? I do not understand.
166. You understand quite well what I say? I cannot quite understand. I never went out to buy.
167. Do you mean to tell us that during all the time you were in partnership with Constantine Pappodocci no tickets were sold in the shop to yourself or Constantine Pappodocci? No; I do not. If Pappodocci bought anything outside he would come in and say, "I spent £2, £3, or £4, or any sum," and he would take the money from the till and pay himself. He might steal or buy the tickets when coming from the Post Office. I used to row with him because I had been satisfied that I was not getting my proper division of profits from the business. We were always quarrelling and growling, and I bought him out altogether. I quarrelled with him just before he left. Everything was entered in the book by my partner. I examined the books myself. How do I know that he was paying the right price for anything. If he said he paid 10s. for a case of fruit, I could not leave the shop to go round to the markets and find whether he had paid only 9s.
168. The fruit and oysters you could not check, we are quite aware of that; but every tram-ticket is a penny, and every penny is so much commission to you? I do not know how you mean to check.
169. *Mr. Brock.*] Did no one else bring tickets there except your partner? I will swear that no one else did.
170. *President.*] Did you not see your partner pay other people who came and sold him tickets? No.
171. Were you always on the premises? No; sometimes I went out and left him alone and sometimes I was asleep.
172. Do you know Pietro Gaspardo? I do; he was stopping at my place, and my partner gave him a job to work for him. I gave him work two or three times. He was employed as shopman six or seven months. It might be eight months. He sold tram-tickets. The man who is in the shop now sells them. I saw tram-tickets of different colours—some white, some red. The man serving in the shop sells all fruit, lollies, tram-tickets, and everything. I have only been in the ice-cream line before taking this shop. This is the only business stand I have had.
173. Did you square up accounts with your partner when you dissolved partnership? Yes, I paid him £300 and bought him out. I had £215 of my own, and I borrowed the money to pay the balance. Constantine said he was going to Greece. I cannot say what he made. I made £200 in sixteen months. I borrowed £70 from a Jew to pay the balance of the purchase money.
174. Did you know a man named Nicholas? I know Nicholas who went home with Constantine. I did not speak to him. It is over two years ago since I spoke to him. He was never a partner with us. I would have kicked him out of the shop. He owed me 15s. nearly three years ago, and I had a row with him.
175. Do you mean to say positively that you only made £200 during the sixteen months, and that you paid £300 for the business? Yes.
176. Is it not a fact that during the time you were in partnership you shared about £2,000, and when your partner went away you received a sum of money from him? I gave Nicholas nothing. I gave Constantine £300 for the business right out. It is true. I can bring him back. I have his receipt for the money, and can produce it. I can show you my books, and you can count the money yourselves. Constantine put down the money always and made up the books.
177. Do you know Sotero? I do. I have not been in his place. He came to my place. I know his face, but he is no friend of mine.
178. Do you know what led to your partner giving up business and going to Greece in such a hurry;—what made him do it? I was always quarrelling with him, and sometimes he quarrelled with me, and he did not care too much for me, nor did I care much for him. He said to me that if I wanted to sell he would buy me out, or if you want the place you can take it. I asked him how much he wanted, and he said, "I want £300 for my share, or will give you that sum."
179. Why did he go to Greece? I cannot tell you what made him go.
180. How much money did he take with him? I cannot say. It was his business. I never asked him how much he had in the bank.
181. *Mr. Brock.*] Do you mean to say that you did not know how much he had in the bank, and yet you were partners? I do not know how much he had in the bank.
182. *President.*] You remember very well that little trouble which occurred in the shop just before he left for Greece;—tell us about it? I do not know what you mean.
183. Do you not recollect when a man was in there selling used tram-tickets that one of the officers of the Tramway Department came in, and that a great commotion took place, and the man hurriedly put away his tickets? I do not remember it. I remember a lot of conductors, engineers, and others being in drinking.
184. *Mr. Brock.*] Drinking what—rum? No; sometimes they drink milk, lemonade, or soda, or had cigars. I did not sell rum.
185. *President.*] Pappadocci went away in a great hurry, and there was a very sudden break up, was there not? I cannot say. I do not know.
186. I want you to show the difference between the way you now conduct your tram-ticket business, and the way it was conducted before? I do not know of small tickets. I used to make the small tickets from sheets. I never saw any small tickets.

G. Masóora.
22 Aug, 1888.

G. Masoora. 187. Do you know Johns, a bootmaker in Redfern, who is a brother of Sotero's? Yes; but he is no friend of mine; I have never spoken to him; I do not know if he is a friend of Constantine's; I only know him by sight.

22 Aug., 1888.

188. Was there not a great talk between Johns, Constantine, and this Nicholas before they went away? I do not know; Nicholas never came to my place; Gasparido alone came to my house.

189. *Mr. Thompson.*] We have been told that before Nicholas and Constantine went away, Nicholas said he would split on all of you if you did not give him money to keep his mouth shut, and that you and some others collected about £300 to keep his mouth shut and clear out? I do not know anything about that; it is over two and a half years since I spoke to Nicholas.

190. *President.*] We find it very difficult to believe your evidence; we have the sworn evidence of those who saw tickets purchased in your shop from men who frequently came there to sell them. It is also said that you have been present when these sales have been made. Our object is to get at those persons in the Tramway service who have been guilty of robbing the Government, and we advise you to give us any information in your power, because we are convinced that you know of these fraudulent practices, and we have further knowledge of your complicity in the matter. If however you will give us information which will convict these persons who have been robbing the Government, even though you thereby convict yourself, you have our assurance that no proceedings will be taken against you; if, on the other hand, you do not choose to give us this information, we shall endeavour to punish you. You know that Constantine was buying these tickets at less than market value, and that they were bought in your presence, and that you shared with him the profits. We want to find out the conductors who, while receiving Government pay, have been selling these used tickets, thus robbing the Government. You will not be punished if you tell all the truth? I do not understand.

191. I am quite sure you understand the question I put thoroughly, and if you do not choose to give us the information we will make use of our sworn evidence, and will—if possible—prosecute you? I cannot say what I do not know.

192. *Mr. Thompson.*] If you tell us the truth—no matter whether it makes you a party to the cheating—we will hold you free from harm; but if we find you are telling us a lie we will prosecute you, and put you in gaol. We know that you bought lots of single tickets for 10s. We had a gentleman here who went to your shop out of curiosity and offered 20s. worth for sale, and he received 15s. The man who gave him the 15s. said it was more than the usual sum—they only gave 10s. for single tickets, and 12s. 6d. for tickets in twos? If that man sold the tickets, ask him to whom he sold them—whether to me or to some one else.

193. Do you deny that it is true that on several occasions these used tram-tickets were brought to the shop once in a paper bag, once in a portmanteau, once in a case, and once in something else—and as much as £20, £40, and £60 was paid to the man who brought them? I never saw a man bring them; he never sold them to me—I never saw him selling them.

194. Are you not always in the place? I go to sleep for a couple of hours in the afternoon, and I sometimes go out for a walk.

195. *President.*] It has been sworn that you were present on some of the occasions on which these stolen tickets were brought in for sale. You must know that these risky transactions were not done in the street? I never saw them.

196. *Mr. Thompson.*] What bank did Constantine bank at? I cannot tell you; I bank at the Barrack-street and Post Office Banks.

197. *Mr. Brock.*] Will you swear you do not know where Constantine, your partner, banked? I swear I do not. He was my partner. He had some in the Post Office.

198. *President.*] Do you understand your subpoena. We want your books? Very well; I'll get them.

[Witness left, in company with Wigg, one of the tramway officials, for the purpose of producing his books.]

Nicholas Johns called in, sworn, and examined:—

N. Johns. 199. *President.*] Your name and occupation? My name is Nicholas Johns; I am a bootmaker, residing at 15, Regent-street, Redfern; am a Greek, and belong to the Greek Church.

22 Aug., 1888.

200. We have asked you to attend here because we have been given to understand that you can give us some information bearing upon the tram-ticket frauds—that you have known or know some persons who are suspected in connection with these frauds, and that from them you have obtained certain information? I will tell you what I know. About two months and a half ago a man named Nicholas Lavastosh came to my shop and asked me if I would let my wife write a couple of letters for him. I asked him what sort of letters, and he said one to the Colonial Secretary, and the other for the Minister for Railways or Tramway Department. I asked him what he had to say in his letters. He said it was about the ticket affair. As I could not write in English I asked my wife, who is an English woman, to write it. My wife refused to write it, and said these things have to be written by a man's hand. I told Nicholas that my wife refused to write it, and he said, "Never mind, I will soon get someone else to write it for me." I asked him if he could prove what he was going to write. He said, "Never you mind, that is my business; I want to write that I know something about it." On the second day afterwards I told my brother Sotero. I do not know whether the letter is written yet or not. I asked him no more. That Nicholas is not here now; he went away with Constantine Pappodocci. Constantine went to Suez, and Nicholas to Port Said.

201. *Mr. Thompson.*] Where did they go to? Constantine told me he was going to Suez, and Nicholas to Port Said.

202. *President.*] Had you any conversation with Constantine which led you to believe that he was making a great deal of money? Three years ago I was in Liverpool, England; I saw Constantine there, and he said some bank had failed. I then left for my own country, Salonica, and afterwards came on here. I know Comino who keeps an oyster-shop in Oxford-street. I heard that Constantine and Masoora were making a lot of money. I could not understand how they were making so much from what was being sold in the shop. I have heard that they have cleared over £1,000 each since they started. I know Masoora. I know nothing about him. Masoora did not tell me about tickets being sold in the shop by tram conductors. I was not good friends with Constantine, the partner of Masoora. I have not heard that

that tickets were brought under the man's vest. Comino does not sell tram-tickets. I do not know more than two conductors altogether. I will do all I can to assist, and if I get more information I will let you know.

N. Johns.
22 Aug., 1888.

203. We shall want an interpreter during the day and shall be glad if you remain and act in that capacity? I will.

Geo. Masoora recalled and further examined through interpreter (Mr. Nicholas Johns) :—

204. *President.*] What are these books? The business books of Constantine Pappodocci and George Masoora as partners. There is a day-book, a weekly ledger, and an abstract or journal. Constantine Pappodocci always kept the books. 21st May last was the last entry made by Constantine.

G. Masoora.
22 Aug., 1888.

205. *Mr. Thompson.*] Are there any entries which show the amount of money divided between the partners? None. We started business on 3rd April last year. We paid £4 per week rent. The books show the week's takings and the expenditure, as example—

April 10—	Takings,	£34;	expenses,	£23.
" 17	" "	£31;	" "	£27.
" 24	" "	£29;	" "	£24.
May 1	" "	£25;	" "	£19.

and so on. There are no entries whatever of tram-tickets either bought or sold. Always made over £1 a week profit out of the tickets. We sold between £80 and £90 a week of tram-tickets. We got 1½ per cent. commission.

206. *President.*] When you were in partnership did you have a partnership account? Yes, for myself only, in the Post Office and Barrack-street Saving Bank; Constantine did not have a Bank.

207. *Mr. Brock.*] Did you not draw cheques whilst Constantine was with you as a partner? No.

208. *Mr. Thompson.*] Did you keep a partnership account in any Bank, or what did you do with the money that accumulated all the week? We kept no partnership account in the Bank. Every Sunday we counted the money and halved it and it was done with.

209. *President.*] We see by your books that of the money taken some £30 was paid for wages. Where did you keep the money all this time? We paid the wages every Sunday. We kept the money in the desk up-stairs in a safe. Sometimes we took the till up and put it into the safe with the money for the tram-tickets and the tickets on top. We kept all the money on the premises till it was divided. The money I put in the Banks is my share of the profits. We paid cash for the tram-tickets. We sold over £50 on Sundays and Saturdays. Every second day and sometimes every third day I used to count the tickets and money received for them. I threw the money I received as commission into the till for the tram-tickets. If I buy £20 worth of tickets I got 6s. commission, and this 6s. I threw into the till. I sell £10 of tram-tickets every day, and I put these, 3d., 6d., and 1s., together, every day in the till, and then take this money to buy tickets with. I pay all this small money to the Tramway office for tickets.

210. Selling as you do so many tram-tickets in a day, there is a great chance of mistakes being made, and the profit is very small;—how do you check them; do you never concern yourself as to whether you are making or losing money? The tram-tickets are more trouble than they are worth, and less profit is made than by other things. We sell many more on Sundays when people are going to Coogee and other places than at any other time. People come in for tram-tickets and always buy something else as well.

211. How do you check your ticket accounts and know that you are not losing money, or that your man is not robbing you? I try every second night or so, and notice the number of tickets sold and remaining together, with the amount of money remaining in the till. I did the same during the partnership on Sundays and Fridays. Sometimes we were both counting them, sometimes one and sometimes the other of us.

212. Although you were doing this every second night yet you know nothing of the pounds' worth of tickets which were brought to the shop and sold to Constantine at 10s. and 12s. 6d. for a pounds' worth? No, I do not; my partner always bought the tickets himself. I have never bought them except two or three times in the fifteen months. All the others were bought by my partner during the sixteen months.

213. You remember you said this morning that you did not understand something I then said to you. I am now going to repeat it through Mr. Johns, who will interpret it in Greek, and will translate your answer to us. Tell him clearly, Mr. Johns, that we are in possession of sworn evidence which proves to us that used tram-tickets were sold to his partner—Constantine Pappodocci—and many times these used tickets were sold in his presence, that we have clear evidence of this, and that we have other evidence which makes him an accomplice in the matter of these frauds. If he gives us the information that we want, which will lead to the punishment of those concerned in the frauds, we will guarantee to him that he shall go free so far as any complicity on his part in the matter is concerned; on the other hand if he gives no information, we will, as far as we are able, put the law in force against him. I know nothing about it; it was nothing to do with the expenses. If my partner did these things I knew nothing about it; if I had known anything like that I would not have bought the shop. I cannot do any more.

214. You thoroughly understand the matter. We will give you till to-morrow morning to give us a definite answer to that question? Very well.

John Sotero called in, sworn, and examined :—

215. *President.*] Your name, nationality, and occupation, please? My name is John Sotero. I am a Greek, of the Greek Church. I live at Miller's Point and keep a shop. It is a hairdresser's and tobacconist.

J. Sotero.
22 Aug., 1888.

216. You can give us some information bearing upon the fraudulent sales of tram-tickets by conductors we understand. Will you be good enough to tell us what you know? Some time ago some of our tribe came

J. Sotero.
22 Aug., 1888.

came to my shop and said that Constantine and Masoora were making a great amount of money, and that they had divided about £1,200 between them. I asked how did they make such a large amount of money in fifteen months, for I could not do so in as many years. They said—"Well, they have made it." The next night I went to my brother's place, and we talked about it. I asked how they had made such a great amount. He said, "They are making money out of the tram-tickets." I went up to a shop in Oxford-street the next Sunday night and asked the proprietor if he had heard the news. He asked, "What news?" I said, "The news of the large amount of money Constantine and Masoora are making by selling tram tickets?" He said, "They must be stealing the tickets, or something, and defrauding the Government." I heard afterwards that on one night there was a man selling used tickets in the place. The man who used to bring the tickets was there, and the inspector came in. The man with the tickets took fright and went away. I spoke to Masoora, and asked him why his partner wanted to sell out. He said, "My partner is quarrelling and fighting every day with me, and he insults women who come in to buy. He insulted and pulled one woman about and hurt her. We are going to dissolve partnership." I asked if the shop did not pay, and he said, "It paid very well; we clear £30 to £35 per week." I saw Michael Malsiniotis, and told him. He said he could not pay his expenses, and could not understand how they made £30 to £35 per week clear. Malsiniotis is a doctor, but does not practise here. He was Greek consul. Dr. Malsiniotis told Constantine when he came up next time that if he could not stand it any longer here he had better have a dissolution of partnership—either take or give. The doctor said Constantine told him that Masoora would give £300, and he would take it and clear out. In the morning of the next day Masoora went to the shop of Comino the barber, and wanted to borrow £150; but Comino wanted too much interest, and Masoora left. The next day Masoora got the money he wanted from a Jew at less rate of interest. Masoora says now that they used to make £20, £12, and more, by selling tram-tickets.

217. *Mr. Brock.*] Do you think that Masoora knew how Constantine bought the tickets? Of course; there is no doubt about Masoora knowing all about the matter.

218. *President.*] Is it not strange that Constantine went away when the shop was paying so well? Constantine said he wanted to go home. Gaspardo was the working man in the shop, and knows all about the business. My brother says that you may look over the books and you will not find any tickets entered. There is no trace of tram-tickets in the day-book. Nicholas was bad friends with this man, and so when he found that there was something wrong he tried to make money out of him. They had to give him money to shut his mouth and to go away. They had to pay £22 for his passage money by the Messageries mail. He bought dress-coat, dancing boots, clothes, and other things to use on the road home. They had to give him a sum of money as well. There is an entry in this book (the day-book) of "Something and something, 40/3," on July 15, but no trace of tram-tickets.

Inspector Bremner called in, sworn, and examined:—

Inspector
Bremner.
22 Aug., 1888.

219. *President.*] We have asked you to attend in order to give information about the tram-ticket frauds. The information may perhaps not be very direct, but what you have we shall be glad to receive? My name is John Bremner. On the 11th of the present month, at the request of Mr. Roberts, of the Tramway Department, I went with Wigg and Moran to a public-house in Crown-street, near Oxford-street. Before we went in we heard dice being thrown. I sent Senior-constable Roberts to the back of the house. I went and found the door blocked. I forced it open and found they were playing dice, and there was money on the table. Amongst those present we found Frazer, who gave the name of Jones; and then Wigg said there were present also Ferrier, Sheehan, Brown, Shields, and Turner. The pointsman was not there when we went in. I proceeded against the publican for allowing gambling on his licensed premises. The case comes on next Thursday. One holiday I was at Bondi, shortly after the aquarium was opened. I saw a tram-conductor collect a large number of tickets, but he did not tear them up. I inquired why, but found that a day or two before the bells had again been brought into use. I saw him take either sixteen or eighteen tickets, and I went and asked him. I did not see him ring the bell. I saw him put the tickets into his satchel, but I thought it was into a side-pocket. On opening the clasp I noticed a lot of tickets in the other division. I saw him put his hand down by his side.

220. *Mr. Thompson.*] Did he put his hand into the division where the bulk of the tickets were? No, into another division. I do not know his name. The Inspector can identify him. I pointed him out afterwards.

221. *President.*] How do the conductors generally collect the tickets? With some guards I have noticed that they collect singly all the tickets before ringing, and it is impossible to know whether they ring correctly or not. They hold them all in their hand and then ring them off. I have tried frequently but I could not count them. I have had information of the improper selling of tickets. The matter was published in the newspapers and stopped us doing anything in the matter. A shop in Oxford-street was receiving them. Another shop was down the town. Constable Stove sent in a report on the matter and the very day it was sent on it was known to the tram-guards. The report was sent to the Inspector-General marked "confidential," and sent on to your Tramway Department. The same day Stove was asked on the Waverley tram who was the constable that sent in the report on the tram-tickets. I kept it locked up for a week in order to see if there was anything in it. I then sent it on to Mr. Ryland, who sent it on to the Inspector-General, and he sent it on to the Tramway Department. I cannot say whether it was sent to the Commissioner for Railways or to the Superintendent of Tramways. If the paragraph had not appeared I would have been able to have traced everything. Cook kept a barber's shop in Liverpool-street. I think Cook had several shops. When Stove told me that he had been asked about it I was very much annoyed and went to the Superintendent to complain. This was about the date it first appeared in the papers and I had had it in hand three weeks before. The report was sent along as a confidential report from the Inspector-General. I know the Tramway Superintendent had it at this time. Mr. Roberts said he did not know how it could have become known outside. Constable Stove will tell you that the conductor spoke about one of the constables having given the information. There was a clerk in the office named Colls who was a brother-in-law of Musgrave's. This information is principally to identify him as a man who knew something about the matter. I have often noticed the conductors. Some are as honest as can be, particularly those on Crown-street.

John

John Walsh called in, sworn, and examined:—

222. *President.*] What is your name, and where do you live? My name is John Walsh. I live at 151, Woolloomooloo-street, Sydney. J. Walsh.
22 Aug., 1888.
223. We have been given to understand that some three years ago you saw a tram conductor, in charge of a railway tram, pay a hotel score of £1 5s. by giving £2 worth of tram-tickets? It is so. There were two hands full of tickets, though I cannot say exactly how many there were. I should not like it to be known who gave you this information, as it might cause me trouble, and the man who took the tickets is a friend of mine.
224. *Mr. Thompson.*] You are not likely to get into trouble. We are a secret Commission, and what you say will not be known outside? I went into Harris' Hotel, in Redfern-street, Redfern. It is kept by Fred Harris. Not Belvoir and Elizabeth Streets. Whilst in the hotel I saw a tram conductor, whose name I do not know, come in and pay a score with tram-tickets. He was a man about 45 years of age, stout, full whiskers, very dark complexion, and was on the railway line. I called Mr. Harris' attention to it, and he said he would do it no more. I have not seen the man lately, and do not know whether he is in the Department or not. I do not know the man's number. The tickets were in lots of ones and twos. They were white tickets, and had evidently been used. I do not think Mr. Harris would give any information. I think he would withhold information, because a publican must not take anything in payment for liquor bills except money.
225. At this period of time he would be absolutely blameless? I accidentally caught him receiving these tickets. He must have used the tickets. He had no license to sell tickets. I suppose he found it a difficult job to get his money from the conductor, so he took it in this fashion, as the only chance of getting it. The conductor lived nearly opposite the hotel in Redfern-street, Redfern.

George Dummett called in, sworn, and examined:—

226. *President.*] What is your name and your occupation? My name is George Dummett; I keep a confectionery shop in Glebe Road; I sell tram-tickets. G. Dummett.
22 Aug., 1888.
227. You can tell us of some proposal which was made to you to get rid of tram-tickets which were not properly come by;—will you give the particulars? A personal friend of mine, named Martin, asked me one day whether I would buy some tram-tickets. I asked him who had them, and he told me Charley Cook. He said Cook asked him to see if I would take them off him. He asked Martin if he thought I would buy these tickets, and Martin asked him what he meant. He said he had a lot of tram-tickets for sale. I am under the impression that Martin told me I was to receive 5s. in the pound as commission. When Martin asked me I told him he might tell Cook I would not buy. A day or two elapsed; and on my return home my wife told me that Cook had come up to see me. I told her I did not want to see him, and when he called again I was not in. I told her what was up, and that she was to tell him that I did not want any tickets. He came again and asked my wife if I would take £7 worth of tickets, or any part of them. He told her he would allow 1s. in the pound to her; and said he was in business, but was leaving it and selling it, and having a large number of tickets on hand he wanted to dispose of them. She asked if they were in sheets or torn up. He said we keep them torn up; we have a proper ticket till, where we put them, and we must always have them in readiness, as we sell such a large quantity of them. She told him that she would have none of them. I did not see Cook at all. He spoke to my wife, and to a friend of mine, Martin, Greek-street, Glebe. My wife understood him to say he would allow 1s. in the pound, and Martin, whom I saw last night, is not sure, but he thinks it was only 1s. in the pound. I do not think Martin knows anything of Cook, except seeing him at the racecourses. I do not know any of them personally. I know George and Charley. I hear a good deal of tram talk; in fact it is all tram talk with these gentlemen. About three months ago I told them the Department was being robbed.

John Fountain called in, sworn, and examined:—

228. *President.*] What is your name? My name is John Fountain. J. Fountain.
22 Aug., 1888.
229. You were sometime ago employed as a conductor, I believe? I was in the Tramway service as conductor for four years and a half.
230. You have asked to be allowed to make a statement, be so good as to make it? Mr. Roberts and I had a few words and I tendered my resignation. I gave some information to Mr. Thompson, M.P. Some time ago I heard John M'Gregor, who was killed at Randwick, say that on one occasion when he took his bag into the office he was told by the clerk that he was 5s. short. M'Gregor said, "That, be damned!" The other said, "Yes, you are." M'Gregor said, "Did you get half-a-sovereign in my bag?" The clerk said, "No, I did not get the half-sovereign." M'Gregor said, "If you look you will find the half-sovereign rolled up in a piece of paper." He found the money, and the clerk said, "That makes your account correct." This I stated sometime ago. It occurred at the railway some four or five years ago. I did not hear him say anything about being 5s. over.
231. *Mr. Brock.*] How did he get the half-sovereign? He got it to change. When the trams first started we used to take £4, £5, and £6 in an afternoon. We used to go several times during the day to the office for change. I have taken two or three sovereigns from people coming in from the country.
232. *President.*] If we are to infer that the clerk committed fraud it was a very transparent one? I only tell it to you for what it is worth.
233. Have you no other information to give us. I thought you were going to tell us something of importance as bearing upon the tram-ticket frauds? I know nothing of the conductors selling tickets. As far as I know none of the conductors are anything but honest. I was in the service from its commencement and remained four years and a half.

Michael Malsiniotis called in, sworn, and examined:—

234. What is your name? Michael Malsiniotis. M. Malsiniotis.
22 Aug., 1888.
235. You are prepared to make a statement? I can make no statement without an interpreter.
236. How long have you been in the Colony? I have been twenty years in Australia; can speak Greek and Italian but very little English.
237. *President.*] If you will come to-morrow morning, at 10 o'clock, we will have an interpreter here? Very well; I will come.

Marcus

Marcus Alafousas called in, sworn, and examined :—

M.
Alafousas.
22 Aug., 1888.

238. *President.*] What is your name—Nicholas Williams? No, Marcus Alafousas; Nicholas Williams had the shop before me and his name still appears.
239. What is your nationality and your occupation? I am a Greek. I have a refreshment-room at 194, Elizabeth-street. The other is in Wexford-street. It runs from one street to the other.
240. We want to know something of your business in tram-tickets with Constantine Pappodoci and Masoora? I never had anything to do with Pappodoci and Masoora, and know nothing about their business in tram-tickets. I only sell about £2 or £3 per week. This last eighteen months I have done this small trade. I employ two men—one in one shop and one in the other.
241. How many tickets have you purchased from tram conductors? I know nothing of tram conductors having sold their tickets.
242. You know Pietro Gaspardo? Yes.
243. What have you said to him about tram-tickets? He has never had any conversation with me about the tram-tickets, neither has he been working for me.
244. Do you know Vaselli employed in your shop and that Moran called one day to see him? I have Vaselli in my employ now. I recollect Moran calling. I said I knew him well for years. I told Moran he lived in Wexford-street, but I did not know whether he lives there now. I cannot tell you where he lived. I know Pietro very well. I have never had any conversation with him upon the subject of the soiled tram-tickets. He comes down to me every day to sell oysters. He was keeping an oyster-shop in Albion-street, about four or five months ago. I saw him every day but he had no conversation with me about the tram frauds.
245. Did you know him when he was in the employ of Pappodoci and Masoora? Yes; but I never met him outside. He was six or seven months there. I did meet him sometimes outside and sometimes he came to my shop. He frequently came down to my shop. He never in all these times made any allusion to these tram frauds.
246. Did not a conversation take place between you on the morning the detectives came when he said he was afraid of his life as the frauds were known? No.
247. How long have you known Vaselli? About three months. He came out from the old country about that time. He is a Greek. He comes at 5 o'clock in the morning, and he lives at my shop. He is not working at Masoora's at all. Neither of my men went to Masoora's at all to serve. I have the whole of their services. I change my men often when they do not suit me. One of those I have now has been about two weeks with me, the other about three months. I have never had a man who served partly in my shop and partly in Masoora's, I do not know anything about what they do when they go out of my shop. One is paid 15s. and the other £1 per week. I cannot tell where they go when they go out. If Vaselli was in Masoora's shop on Monday I cannot say. I cannot tell you where he was at 3 o'clock last Monday. I was at my own place on Monday, I might be asleep about 3 o'clock.
248. *Mr. Brock.*] Do you not know that Vaselli was serving in Masoora's shop last Monday? No. I do not know where he was last Monday. I pay the men for their whole service. I sometimes have a sleep about 3 o'clock.
249. *President.*] Have you had tram-tickets offered to you by conductors? Never. I buy my tickets at the office. I have obtained some from Masoora. I always paid him 20s. for the £1 worth. They were sheets and not torn tickets. I used sometimes to buy off Constantine as well. I always paid him 20s. for each pound's worth of tickets. I have made a statement that I was selling between £40 and £50 worth of tickets a week. At the first when I started I used to sell as many; but since the opposition of the other shops I do not sell many. I get tickets from the grocers and other places near me, and also from Masoora. I only sell £2 or £3 per week now; sometimes less. I have had always sheets from Constantine and Masoora's. I do not know Palesi in George-street.
250. *Mr. Brock.*] What do you sell at your shop? I sell lollies, fruit, and confectionery. Sometimes children bring me tram tickets in exchange for lollies and other things, but I do not serve them. I send them away.
251. *President.*] Do you know a man named Cook who keeps a shop? I do not know Cook.

Pietro Gaspardo called in and further examined :—

- P. Gaspardo. 252. *President.*] We understood you very clearly and distinctly to say that Masoora was cognisant of these tram-ticket frauds? Yes.
253. Tell us what Masoora knew about these frauds? He was there when the tickets were sold; he was present when they were sold, and he bought some himself.
254. What was the row about one night? I was not there.
255. Did they not quarrel about something? I heard that they had quarrelled, but I cannot tell what they quarrelled about.
256. What is your opinion of Constantine going away by himself and the other man buying the business? He cleared out with a large sum of money. Masoora must have his half now.
257. *Mr. Brock.*] How long were you at Constantine's place? I was there several weeks. I cannot tell whether they kept books about the tram-ticket transactions. I was not behind the counter. One of them was in the ticket side and I was in the other side. While one of them was in bed the other was in the shop. Constantine used to keep his money in the Australian Joint Stock Bank and the Post Office Savings' Bank. I have not spoken to Johns this last five years. I saw him once in the Wexford-street shop. I have not spoken to Sotero for about five years.
258. *President.*] You are able positively to prove that Masoora was a partner, and knew as much as any one else about these tickets? Yes; I am.
259. We are talking about the partnership in stolen tickets? All the other shops and all his countrymen know that Masoora and Constantine were partners. Nicholas Williams knew it. I don't know of anybody else who can prove it. The man who was in the shop before I went there is now in Melbourne. The man who is there now came after I left. He is still there. He is a tall young man. He sometimes serves in Williams' and sometimes in Masoora's. He is a tall sickly looking young chap.
260. *Mr. Brock.*] Are you sure that Constantine had money in the Australian Joint Stock Bank? Constantine told me that it was the Joint Stock Bank.

261. *President.*] What do you know of a man named George? I only know George Peters by this name. He is a barber near a public-house in Oxford-street. I do not know his surname. I know George Caselli, a barber in Elizabeth-street. I know him because we were mates in a place in George-street. I have not spoken to him since that time. We were mates together, and he was frightened I would get his place because he could not do his work, and we quarrelled. I did not know his surname, only knew him as George. P. Gaspardo.
22 Aug., 1888.
262. *Mr. Thompson.*] All your countrymen believe that you can give information to sheet these thefts home, and you can tell a great deal more than you have told? I can say no more.
263. Who was employed in Constantine's shop at the same time that you were? There was only Epaminondas and myself employed at the same time. A young fellow whose name is Epaminondas.
264. *President.*] What are you doing at the present time? I am at present dealing in fish and oysters.
265. What wages were you getting at Constantine's? I used to get 32s. 6d. per week. These wages did not pay me, and I would not work for it.
266. Did you not tell Constantine that if he did not pay you more you would say what you knew? I did not tell them that I knew anything about it, nor did I ever threaten to give information if they did not increase my wages.
267. You did not try to put the screw on to get more? I never did.
268. What made you tell Loder? I only told Loder in order to find out if it would be worth while giving this information. He said I would only get myself into trouble and bother, and I had better leave it alone.
269. Where does Loder live, and what is he? Near Market-street. He is an hotel broker in Elizabeth-street, near Market-street.
270. *Mr. Thompson.*] What time used these men to come to sell these used tram-tickets? They came about 3.30 p.m. on Saturday, and one Sunday morning, about 9 o'clock. They came singly.
271. *President.*] How many times have they come? I have seen one man come three times. He sold to Masoora once and to Constantine twice. He sold two parcels on one occasion, another occasion a portmanteau full, and on the next time two paper bags. When Constantine was not there Masoora took two bags.
272. Do you know Nicholas Williams? Yes. His real name is Marcus Alafousas. I have known him for seven years. I made his acquaintance whilst he was working in different places. I never told him that Constantine was buying these tickets. As a matter of fact, I have never told him.
273. *Mr. Brock.*] If he says that you told him all about these cheating tricks, is it true? I never told him any such thing. He is more interested in it than I am. He knows more about them than I do, because he could tell me about them. I have heard that he knows more about the tickets than I do. Nicholas who went away with Constantine told me that he knew more than I did about this matter. I knew from another man that he knew much more about them. I never saw Marcus buy tickets at Constantine's. I am not very intimate with him. I am no more intimate with him than any one else who goes in and takes a cup of tea and pays for it. That is the way he is a friend, nothing more.
274. *President.*] Let us know what passed on the morning Moran was looking for you? The morning Moran came to find me I went into Nicholas Williams' shop. I did say to him that I was afraid Nicholas knew that you were detectives.
275. *Mr. Brock.*] Have you and Nicholas never spoken about this matter? Did he know that you could put him away? I have never spoken to him about it since the detectives came round.
276. You spoke to Williams about these tickets being sold to them? Yes, I did.
277. *President.*] Do you recollect a man being drunk in Constantine's place one evening, and they said he was only shamming, and not drunk? Yes; I heard about it. Masoora came into the place and told me about it. Constantine rushed out saying the man was not drunk, but was a detective, and went to Comino's. Masoora said there was a man drunk in the place last night. He was one of the detectives, and was going to summon him. The drunken man told Masoora that he was one of the detectives. I do not know that the man was coming in with tickets. I have not spoken to Comino since I had to pay a £30 fine for drink which I did not sell. I do not know any men who are selling fraudulent tickets. I told Williams that I would give all information, and the least thing he could do was to let out all the information he had. I was speaking to him from here down to George-street.
278. How do you know what he knows about it? I do not know what he knows. He told me he knew nothing about it.
279. *Mr. Brock.*] You say that he knows more than you do;—how is that? He knows more than I do, because I often saw him with them. I cannot say that I saw him buy tram-tickets.
280. Has not Williams told you that he knows more than you do? Of course if I were in the company of a person often I should know something of his business.
281. *Mr. Thompson.*] Do you not know that he was doing a very large business in the shop? I have seen one of Williams' men with a large roll of tickets, bringing them from the Post Office. I saw him twice in Elizabeth-street. It is a good while ago; over twelve months ago. The man is now in a shop in William-street. Johans is his name.

THURSDAY, 23 AUGUST, 1888.

Present:—

A. RICHARDSON, Esq., PRESIDENT.

R. W. THOMPSON, Esq., M.P.,

F. A. BROCK, Esq., J.P.

Dr. Malsiniotis called in, sworn, and examined through interpreter (Mr. John Sotero):—

282. *President.*] You have a statement to make, Dr. Malsiniotis. Will you proceed with it? My name is Michael Malsiniotis. I keep a shop in Oxford-street. Have been in Australia twenty years. I cannot speak sufficient English to make myself understood. Can speak a little French. Can speak Italian and Greek. Keep a refreshment-room in Oxford-street, and sell milk, lemonade, cigars and drinks. Constantine Pappodocci came to my premises, and said he could not stand his partner any more because he could not agree with him. His partner did things which were not fit or proper to be done in the shop.

Dr.
Malsiniotis.
23 Aug., 1888.

Masoora

Dr.
Malsiniotis.
23 Aug., 1888.

Masoora used to insult women and do other improper things, and so Constantine was about to dissolve the partnership. I told him he had better go away and try to settle the differences, and after a few weeks come back and let me know what he had done. After a few weeks he came back and commenced to tell me what his partner did against him. He said he could not bear it any longer, and would sell the place and go home to Greece. I asked him if the shop paid, and if it did pay what was the reason why he would sell out. He said the shop paid very well, but his partner's conduct was so bad that he could stand it no longer. I asked him what he wanted for his share of the business. He said he would take £300, or he would give Masoora £300 and keep the business himself. He went away and told his partner, who said he would give £300. He afterwards came back and said that he had settled the business and his partner had bought it for £300. I asked what was the reason of his partner giving £300 if the business was paying so well? also what was the ticket business a week? He said sometimes £10, sometimes £15, and sometimes £20 each clear was divided. I asked him what was the reason he sold for such a small amount of money; would it not be better for him to remain here and make more money? He said, "I have plenty of money to go and live in my own country." "How much do you make a week?" He said, "Sometimes £25 to £50, and sometimes £60 per week." I said, "What! do you sell fruit and make this amount? Lemon squash, lollies, and milk?" I said, "It is impossible to make such a sum in a week. I am in the same business and I cannot make anything out of it. If you divide that amount between you there must be £350 worth of refreshments sold every week before you can do so. You tell an untruth if you say so, and you must have some other way of making money." He said, "We sell between £70 and £100 per week of tram tickets." I said, "Well, if you sell £50 worth you get 15s. commission; £70, 17s.; and £100 worth, 30s. Where is the remainder got from to make up such a profit?" He could not tell me, and he turned away frightened. I told him, "You must have stolen the tickets and that is how you make the money." The next day he came back to me and went away again shortly. The next time he came I said, "Tell me the truth about the tram-ticket business?" He said that some persons used to bring tickets to him for sale, and he used to buy them. Sometimes he gave 15s. in the £, sometimes 10s., and sometimes 8s. in the £ for tickets. I afterwards told him that if the Government found out about this business he would find himself in trouble. The next morning he came back and bid me good-bye as he was going to his country.

283. *Mr. Brock.*] Have you any idea where he got the tickets? I have no idea of where he got the tickets.

284. *Mr. Thompson.*] Did Constantine tell you when he left who was selling the tickets? No.

285. *President.*] Did Constantine lead you to suppose that his partner was as much in the swindle as himself? Constantine did not give any information. He told me that they divided the money between them.

286. You only took it for granted as a man of common sense? That was so.

287. What would you judge from the fact that Constantine was not particular as to whether he sold out or remained in and bought Masoora out; if Constantine were frightened he would not have made this offer, surely? I think this was a blind in order to deceive his partner and get a better price for the business.

288. *Mr. Thompson.*] Do you know Masoora? I do. I am not on friendly terms with him, but I know him.

289. *President.*] When Constantine made this disclosure to you did you not consider it right to acquaint the authorities? I had no power to report this because I do not belong to the Government.

290. Why do you think it necessary that you should be in the Government service before you could make such a report? Because it is Government business, not mine. In all French and Greek law the Government has to go round and find things out, not the private person; I do not know what the English law is, but the Greek law makes the Government find out these things.

291. *Mr. Thompson.*] Do you know Nicholas who went home with Constantine? Yes.

292. Do you know that before Nicholas went away he got a large sum of money under a threat that he would tell the police what was going on? I never spoke to the man this last six years.

293. Did Constantine tell you how much they had made altogether, in the business? No, he did not.

294. *President.*] Apart from what you have already told us, do you know anything else? No, but if you ask me any questions I will answer them if I can do so.

295. *Mr. Thompson.*] Do you know from any of your countrymen whether any one, besides Constantine and Masoora, were dealing in these tickets? I have never heard of anybody.

Constable Stove called in, sworn, and examined:—

Constable
Stove.
23 Aug., 1888.

296. *President.*] What is your name? Robert Stove.

297. You are a constable in the Police Force? I am a senior-constable, stationed at Waverley.

298. We understand that you have something to communicate to this Commission with regard to the malpractices which have occurred on the tramways in connection with the tickets? My information is only what I have heard—not what I personally know.

299. *Mr. Thompson.*] This may lead us to obtaining a clue to something else which may be of use to us? I shall be glad to give you what I know.

300. *President.*] You are aware that a man named Musgrave tampered with his register? No; I only heard it, and I reported it to my department. I heard, on or about the 11th or 12th July last, that Musgrave was tampering with his bell, and had been doing so for the previous seven or eight months.

301. Can you give us the name of your informant? I cannot tell his name.

302. How is that? Because I have promised not to divulge the man's name who told me.

303. *Mr. Thompson.*] On a Royal Commission, under the Great Seal of the Colony, we can ask you any question? I cannot divulge the name. I am in honor bound not to do so.

304. *President.*] It is useless to say you cannot divulge the name—you will not, you mean? I say I will not.

305. We must press you to give the name? I will not give it. I am in honor bound not to give it.

306. *Mr. Thompson.*] You will have to give it? I should not be pressed to give the name in a Court, and I decline to give it here.

307. *President.*] You say you would not be pressed to give the information in a court of law, and this is probably correct. What was the object of the person in asking you to pass your word not to give his name? Because he does not wish his name to appear in connection with the matter in any way. 308.

308. Is he implicated in the wrong doing? I do not think so.

309. If he is not, what reason has he to fear? He does not want to be known at all. He came to me one day and said he could put me on a good thing if I would not tell who put me up to it. I took some time to consider before I gave him my word, and then I told him I would not give his name. So with all due respect I cannot give the man's name. The evening I got this subpoena I saw and told him I should no doubt be asked to give his name, but he pressed me not to do so, and I again promised him I would not.

310. *Mr. Thompson.*] Is he frightened on his own account? He has nothing to do with it.

311. Was he going to be engaged with these people—with Musgrave? He was going to be connected with him in business. He is a man quite outside of the Department. He had not bought any tickets. He did not buy any.

312. *President.*] We will for the present waive our right to demand his name. Meanwhile let us have particulars of what he told you? He informed me that Musgrave had to take his bells home at night, and somehow or other he came to the conclusion his bells were broken, and he inserted a small nail into it and put a piece of wire about the size of a hair-pin into the bell. He pulled the bell, it rung, but did not register. He studied the arrangement and found that he could ring the bell always without the register moving. He carried this practice on for some time before letting any one else know, and he would never use the pin except on twopenny or threepenny sections. He used to take the pin out when he wanted the bell to register. When he did not want the bell to register he would reinsert it. He got sick and could not make anything whilst sick. Another conductor, a chum of his, called to see him and he instructed this chum in the job.

313. What was this conductor's name? He did not give me the man's name. He did not know either the man or his name. This conductor told someone else, and it went on. According to my informant, he knew of only three in connection with the manipulation. He said they were, Musgrave, on the Waverley line; and I think he said another on the Newtown line; but the location of the third he did not know.

314. By this manipulation whenever he liked he appropriated certain quantities of tram-tickets? Yes. He sold them. I would have found out where in another week if I had had the time, but I was baulked by the newspapers getting hold of the information and spoiling me. I knew that it was in Oxford-street that they were sold. I knew Soper's shop. He is dead now. I do not know the shop in Oxford-street. I have been in Waverley five years. We do not come nearer town than Windmill-road.

315. We are advised that you know the man with whom Musgrave had arranged for the sale of the tickets, and the man has been refused a license? He has been refused a license. When this man gave me the information, I sent in my report to my Department, who forwarded it on—marked "private and confidential"—to the Tramway Department, and that very same night I heard that the policeman at Waverley had sent in a report about the tram frauds. I was asked who was the constable who sent in the report. It was known outside on the same evening as the report was sent in.

316. Have you any idea how it got to be known outside? It came from the Tramway Department. I do not know how it came out, but I know it did come from the Tramway Office, and I was very angry. I went in and saw my superior, and told him it was no use making reports if they were to be known outside immediately they had been sent in. A guard on the tramway told me about it on the same night, a few hours after the report had been sent in. I do not know the guard's name.

317. Would it not have been easy to find out his name? I did not ask.

318. *Mr. Brock.*] On what line was he? I cannot say. He is a great big fellow, and used to go in plain clothes; he used to go with Wigg in plain clothes; he was in possession of the information from the office.

319. *President.*] How long after your report went in was this man in possession of the particulars? The same evening he asked me who was the policeman at Waverley who sent in the report about the tram-tickets. It seemed to me to be pretty generally known.

320. Have you any further information to give? I have none. I did not give the information about the person who had arranged with Musgrave. Soper had bought tickets from conductors. This man applied for a license and has been refused. It is Wigg who gave you the information, I think, and he must have misunderstood me in the matter.

321. *Mr. Thompson.*] Can you tell whether he had applied for a license before? I cannot tell you.

322. Where does he live. You are pledged not to tell his name, but you are not pledged not to tell where he lives? I do not know where he applied for his license. I do not know in what district he applied. If I told you his address I might just as well tell you his name.

323. *Mr. Brock.*] In what district do you think he applied? I cannot say in what district.

324. *President.*] That is no answer. We warn you that we will not allow you to trifle with us? I knew when he gave me the information where he lived and where he lives now.

325. *Mr. Brock.*] If he were living at Waverley is it not likely that he would apply for the Waverley district, and not for Forest Lodge? But he was not always living at Waverley.

326. So far you have been allowed to keep your promise so far as the name is concerned, but you promised nothing else? Mr. Inspector Bremner was here, and he knows the name as well as I do.

327. *Mr. Thompson.*] Perhaps you do not know our powers and their extent, that by the Act we have full power to compel a witness under penalty to answer any question that we may put to him? I do not doubt it.

328. *Mr. Brock.*] What is the man's name who gave you the information? I will not give it. I have given every possible information except the name and address.

329. *President.*] I put it to you plainly, whether this man desired his name to be kept back because there was any complicity between him and Musgrave; if so, it seems to me that in the interests of justice you may fairly forego your promise and give us his name? I cannot.

330. You must know that this man was actually gaining his living by fraud? I only inferred it.

331. *Mr. Brock.*] And you, a police-constable, want to screen him? I do not; and if the Inspector-General advises me I will disclose the person's name. You hardly understand, I think, the motives which impel the police to give promises of this kind. If they did not adopt such a course much crime would go unpunished, for we should not get the valuable information which we get from this class of person. This man has already enabled me to bring several important cases to a successful issue.

Constable
Stove.
23 Aug., 1888.

George Read, Esq., called in and examined :—

- G. Read,
Esq.
23 Aug., 1888.
332. *President.*] Mr. Read, we have asked you, as Inspector-General of Police, to attend on account of the refusal of Constable Stove to give us the name of a person which, in the interests of justice, we think it desirable he should disclose to us? I will see him alone, and find out what his reasons are for declining to disclose the name.
333. *Mr. Thompson.*] The reason, as explained by him to us, is simply that he has made a promise to the person giving him certain information that his name should not be allowed to transpire? I will speak to the constable, and advise him as I think right.
334. *President.*] You have now conferred with the constable, will you favour us with the result, Mr. Read? I have advised him to disclose the name; but as the person in question has been of great use to the police, I shall be glad if you will not make use of his name if you can possibly avoid it.

Constable Stove called in and further examined :—

- Constable
Stove.
23 Aug., 1888.
335. *President.*] You are now prepared to give us this man's name? Yes; the Inspector-General has advised me to give it up, and I will do so if you still press it.
336. It is quite possible we may decide to summon him as a witness? If so he is bound to know exactly who gave you the information and we will get nothing further from him.
337. *Mr. Thompson.*] We will not summon him directly? I can give precisely the same information as he can. His word would go nowhere in a Court of Justice. His name is Dominic Lacerdo; he is a barber. It is a positive fact that he does not know the name of the other conductor. When he applied for a license he applied in the name of Parkes, and it was refused. I have no further information to give at present.

Detective Hoskison called in, sworn, and examined :—

- Detective
Hoskison.
23 Aug., 1888.
338. *President.*] Your name and calling please? My name is John Hoskison, and I am a detective in the police force.
339. We have considered it very probable that you may, in the exercise of your official duties, have come across information with regard to the tram-ticket frauds, and that you will no doubt be willing to impart it to us; and independently of this your name has been mentioned to us by a man of a somewhat questionable character—Charles Cook,—who alleges that you have made use of him to endeavour to obtain for you information as to where tramway-tickets were being fraudulently sold? As regards Cook, some time ago, I cannot recollect the date I met him, and he told me about certain matters in connection with the pilfering of tramway-tickets. He said that pilfering was going on, and told me how it was done. It was done by the guards on the trams. I instructed him to find out if he could where these tickets were being disposed of. He promised to do so, and he asked me if I thought I could get him some reward for doing so. I mentioned the matter to Mr. Roberts, of the Tramway Department, but it came second-hand. The Department had already got the information. It is some two or three months ago. I mentioned it to my superior officer first and then to Mr. Roberts. Mr. Roberts told me they were aware of the fact, and the men were under surveillance at the time. I therefore let the matter drop, as I had plenty other work on hand. I met Cook some time after. I reported the matter, and asked for a reward of £25 if I succeeded in getting up a case for pilfering. I did not succeed in getting the offer, so the negotiations I had with Cook fell through. I think the names of Ferrier and Musgrave were mentioned in connection with the pilfering. Cook did not know where the tickets were being sold at that time, but the mode of manipulating the registers was by using a piece of wire, a pin, or something. I have known Cook for five or six years. He was under committal for a large jewellery robbery in Melbourne, but got out of it. He was in trouble here, and received a sentence for stealing, but he appealed, and the conviction was quashed.
340. Have you any idea whether he has been dealing in these tickets himself? I could not say. I have not gone into the matter.
341. Cook says he did take the matter up, and sold some tickets at an oyster-shop? He was to get some tickets. That was the understanding. He did not do so, because the thing lapsed.
342. Is this all that you know in connection with these frauds;—have you not known others in connection with the matter? No.
343. Have you had no communication with the Greeks, Italians, and other foreigners on the subject—Do you know Pietro Gaspardo? I have known Gaspardo some seven years. He is an associate of thieves and prostitutes. He is no good, but has never been convicted.
344. Do you know Masoora? I noticed Masoora in a shop.
345. *Mr. Brock.*] Did you know Constantine Pappodocci? I did not. I have never been in his shop.
346. *Mr. Thompson.*] Did not Cook tell you that tickets were bought at these shops? Yes, he did.
347. He gave you a list of places where these tickets were being sold? No.
348. We understood him to say that he did so, and that he told you he had sold tickets at Constantine's? No, he did not.
349. What conductors were spoken of as doing the pilfering? Only Ferrier and Musgrave. I have heard since of Fraser. I go a good deal into gambling-houses. I have never met any of these tramway men in the gambling saloons. I have never been in the "Evening Star" hotel, Crown-street; I cannot get into a regular gambling den or gaming-house; they keep men posted on the look-out, and I am well known to every one.
350. *President.*] Do you know a man named Hunt, a tobacconist, in Crown and Devonshire streets? Yes; I know him by sight.
351. Have you seen Fraser in that house? No; I have not been there since I left that district.
352. Do you recollect Cook speaking to you about a man who was keeping his mother and whom he wished you not to follow up? No.
353. Do you know a man living in East-street who is connected with these frauds? No.
354. Do you recollect Cook telling you not to follow up this man? No; I do not think this was mentioned. He said the man had a lot of tram-tickets but did not say how much. He did not mention the man's name. I never met Cook at the corner of Redfern and Elizabeth streets. I met him about the 23rd July coming from the races. I know Marshall's shop in Market-street, near Elizabeth-street. I only

only know Dick Marshall. There is a shop opposite Punch's hotel. I never heard that £10 worth of tickets had been sold there for £8. I did not hear it in an indirect way from Detective Cockingham. I do not know a Chinaman named Ah Ping or Ah Lung. I do not know a jeweller in Waverley named Morgan. Cook has been up several times for welshing. He is no good; he was arrested on a warrant for clearing out his goods without paying his rent, and he had to pay. He was in Lyndhurst-street or Talfourd-street, Glebe.

Detective
Hoskison.
23 Aug., 1888.

Alfred Martin called in, sworn, and examined:—

355. *President.*] What is your name and the nature of your employment? Alfred Martin. I drive a cart. A. Martin.
23 Aug., 1888.
356. Do you know Charles Cook, who keeps a shop in Liverpool-street? I do.
357. Have you had any dealings with him in tramway-tickets? Not as far as I know.
358. Have you never bought tram-tickets from him or sold them to him? No.
359. You had some conversation with him about tram-tickets? I met Cook somewhere about tram-tickets.
360. Where was it, do you recollect? I think it was at the Rosehill Races. Dummett was with me. Cook said to me, "You know Dummett," and I said, "Yes; I am well acquainted with him." "What sort of a fellow is he," asked Cook, "Do you think he would buy any tram-tickets?" I said, "I did not know." I thought nothing more about it until I saw Dummett again. I then told him about it. I told him I had been talking to Cook, and Cook asked me to mention it. Dummett told me he would have nothing whatever to do with Cook.
361. Do you know any of the tram conductors? I know none.
362. *Mr. Thompson.*] Did you not say to Dummett that Cook had some crooked tickets which he wanted Dummett to sell, and did not Dummett say, "Can a duck swim?" No, I did not say so, nor did Dummett use that expression. He said "I would not touch them with a 40-foot pole."
363. How did you know the tickets were fraudulently come by? Knowing the sort of man Cook is, I thought they were crooked tickets. The stables are at Waverley, and I live at the Glebe.
364. Where are the stables? Just opposite the park gates.
365. What did Dummett say when you told him about Cook wanting him to buy these tickets? He said he would not have anything whatever to do with them.
366. Did he not say, "Can a duck swim?" I cannot say whether he did say so or not. I took no notice of it.
367. Do you know a man named Grosvenor? Yes, I do. He kept the shop that Dummett is in now.
368. Do you know whom he was in partnership with in that shop? No.
369. Were you ever in the shop during his time? Yes.
370. Do you know a man named Coll? No, I do not.
371. Have you met Dummett in a gaffing school? I have never seen him in one.
372. Do you know a man named Ferrier, whose name has been mentioned in connection with these frauds? No.
373. Have you been in Cook's company at various places? I have never been in his company.
374. Did not Cook call you on one occasion one of his "ready bucks?" Never.
375. How many of the Cooks do you know? I only know Charley Cook.
376. How did you know him? Because he was fighting one day; I was never in George-street with George Cook; I never stood anywhere with George Cook; I only know Charley; I do not know where he lives.
377. Do you often call in at Dummett's? Sometimes I go up to Dummett's on Sundays; I am out at 5 o'clock to walk to my work, and by the time I get back again at night it is nearly 7 o'clock, and time to go to bed, and I am quite ready for bed; I can play cards, euchre, and cribbage.
378. Can you play poker? I cannot play poker; I cannot play pak-a-pu; I do not know what it is.
379. Do you know Detective Hoskison? I only know him by sight, and have never spoken to him.

George Masoora called in, and further examined through interpreter (Mr. Sotero):—

380. *President.*] We gave you until this morning to consider whether you would make a further statement; what is the result? I cannot tell you anything more than I did yesterday.
381. The information which we advised you yesterday was in our possession has since been strengthened by other evidence? I cannot understand what you want, I have already told you all I can tell you.
382. Do you deny having had any share in the proceeds of the sales of fraudulent tram-tickets? I know nothing at all about it. A lot of engineers, drivers, and conductors used to come in for drinks, but they did not sell me tickets.
383. You persist in denying all knowledge of your late partner Constantine's transactions? Yes, I deny it all.
384. You clearly understand that we have positive evidence that these purchases were made in your presence, and yet you deny it? Yes, I deny it.
385. *Mr. Thompson.*] We were told that you made large profits from stolen tickets and nothing else, and that you and Constantine divided the profits? I know nothing about it.
386. *Mr. Brock.*] How much did you get as your share? I took £200 clear for sixteen months. I paid £300 for one half of the property. I pay £4 per week rent. I built the place myself.
387. *President.*] It would take two years before you could get your money back? How can it take two years? It is only half of this.
388. We shall not give you another opportunity of coming before us? You can do what you like. If you like I will bring Constantine here.
389. How are you to get him? I do not know whether he would come back or not. He might be back in six months, or in three years, or not at all.

G.
Masoorā.
23 Aug., 1888.

Letteras Epaminondas called in, sworn, and examined, through interpreter (Mr. Sotero):—

- L. Epaminondas.
23 Aug., 1888.
390. *President.*] Your name and occupation? Letteras Epaminondas; I work at Comino's shop in Oxford-street.
391. How long have you been working there? About four months.
392. Where did you work before that? At Summer Hill.
393. For how long? Five months.
394. Did you work in Constantine's shop? I worked four days in Constantine's shop, when I pricked my finger with a fish-bone and left.
395. What do you know about the tram-tickets sold there by conductors? I do not know about selling of tram-tickets. I was in the kitchen cooking fish and prawns. I never served in the shop. I never was in where they sold. I never was in the shop when any one came to sell tickets. Masoora used sometimes to go and sell tickets. He has no license now. Have been working at other places. Was sent with £1 to buy sheets. They gave no commission. That is all I have had to do with tram-tickets.
396. Whilst you were at Constantine's or other places did you hear any talk about tram-tickets? Know nothing about it,—never heard it talked about.
397. Do you know Nicholas Williams? I know Marcus, who succeeded Nicholas Williams; I have often been there; I have a cousin living there; they sell tram-tickets; my cousin is there now; he has been there about three weeks.
398. *Mr. Brock.*] Do you know Mr. Sotero's brother? Yes.
399. *President.*] Have you told us all you know? Yes.
400. *Mr. Thompson.*] You will be held harmless if you speak the truth? This is all I know.

Janopolis Vaselli called in, sworn, and examined, through interpreter (Mr. Sotero):—

- J. Vaselli.
23 Aug., 1888.
401. *President.*] Where are you working? Working in Marcus' (Nicholas Williams) shop for three and a half months.
402. Do you work all your time there? Yes, always there; came out from home and went there.
403. Have you not been employed in Constantine and Masoora's shop? I have never worked for either Masoora or for Constantine.
404. Is it not a fact that you are half-time at Masoora's? No.
405. Were you not on Monday last serving behind the counter at Masoora's? A man was leaving Masoora's on that day, and I went up to bid him good-bye, and came away again in my slippers and with my coat off.
406. Where did you buy your tickets on that Monday? Bought no tickets on Monday last,—only went up to see them; used to buy them there before, but since the license was cancelled have not bought any more tickets.
407. *Mr. Brock.*] Where did you buy your tickets? Used to buy tickets from Masoora, paying him £1. Sometimes used to buy from the grocer at the corner of the street; when out to get tobacco used to call round.
408. *President.*] Why pay full price instead of going to the office and getting the discount? Never had time to run to the office; always paid full price (£1) for them.
409. Did you not get a pound's worth at Masoora's for 15s. or 17s. 6d.? I gave a sovereign.
410. You know something about these tickets sold by the conductors—give us the information? Never heard of such a thing.
411. Have you not had many conversations with Marcus about these frauds, or with Gaspardo? I do not know anything at all about it.
412. Did not Marcus find fault with you yesterday for coming into the shop when Moran was there? We know all about it, and you had better tell us, therefore. Do you not know that Marcus denied you to Moran yesterday, and that you just then dropped in? I was in the kitchen when Moran came, and he came in from the kitchen.

Marcus Alafousas called in and further examined:—

- M. Alafousas.
23 Aug., 1888.
413. *President.*] Do you know Wigg and Moran? I know them.
414. For whom did they ask when they came yesterday? For Vaselli first. I told them I had not seen him. It was 5 o'clock.
415. Did you not say that Vaselli had not been near the place all day? I never said so. I could not understand who was wanted. I recollect Moran describing him. I will swear I never said I did not know him. I said nothing to him when he came in.

Janopolis Vaselli called in and further examined:—

- J. Vaselli.
23 Aug., 1888.
416. *President.*] Do you know Gaspardo? I do.
417. Did not Gaspardo tell you all about these tickets being bought from the conductors? He never told me anything about it.
418. Did he not speak about Wigg and Moran? No.
419. Did he not say they were two detectives from the Tramway office? No.
420. Did he never speak to you at all about them? No.
421. Did he tell you he was afraid of his life? No.

Pietro Gaspardo called in and further examined:—

- P. Gaspardo.
23 Aug., 1888.
422. *President.*] What did you tell Vaselli last Monday in Marcus' shop? I do not recollect telling him anything.
423. Did you tell him that Moran and Wigg were detectives from the Tramway Department? I do not recollect.
424. You told him something about these little goings on? I do not recollect.
425. You did or you did not? I am not sure I did nor I did not. I told another man, not this one. This has come through Rochoaix. I told Moran I would come down and see him in a few minutes after I got dressed. I went in Wexford-street.

426. Did you not tell them that Marcus and his man, Vaselli, were watching them, and said that they were detectives? I do not know. P. Gaspardo.
427. Did you not tell them that you were afraid of your life as Marcus and others suspected you of giving information to the detectives, and that if your countrymen knew it you would not be able to stop in Sydney? I cannot say I said it or not. 23 Aug., 1888.
428. What did you tell Rochaix? I told Rochaix that it was a thing I could not prove and I cannot say anything.
429. Do not Vaselli and Marcus know all about these ticket frauds? Marcus knows all—Vaselli nothing.
430. *Mr. Thompson.*] You told us the other day, before you gave us the information fully, that you could give us all the information in three or four days. Can you give us more information now. Tell us what Marcus knows? I told you Marcus knew, because he was always talking about their business with Masoora and Constantine, and Constantine was often at his place.
431. When you were there and they were all talking together what did they talk about? They never talked about this affair in my presence.
432. *President.*] How long were you with Constantine? Five weeks I worked there. I was there more than seven months but not constantly. I slept there at night, but was never there during the day-time. When I had my own shop in Albion-street I was not there at all. I was dealing outside in the day-time after I gave up my shop, and was at Constantine's at night. These fraudulently obtained tickets were brought in in broad daylight—in paper bags, a portmanteau, conductor's bag. The tickets were thrown down under the table.
433. *Mr. Brock.*] What time of day used they to bring these tickets? It was during summer and winter at 3:30 p.m., and at 9:30 a.m. on Sunday. I have seen these times. They came three times.
434. What do you think they divided between them? Constantine, Masoora, and the conductor divided between them £2,880.
435. *Mr. Thompson.*] £20, £40, and £60 per week would make only £1,000 but you made it £2,880? I cannot swear that they come to more than £1,000. It is quite guess work.

Frederick Harris called in, sworn, and examined:—

436. *President.*] Your name, occupation, and residence? Frederick Harris, hotelkeeper, 77 Morehead-street, Redfern. F. Harris.
437. We have been informed, and I may as well tell you at once that our information is of an absolute character, that you some time ago accepted a number of tram-tickets in payment for a grog score. Our desire is not to punish you; in fact after this lapse of time you are not punishable by law, but we want the name of the conductor who paid his score with these tickets? I am not sufficiently acquainted with the tram conductors; I do not know any but Cates, who lives near me. 23 Aug., 1888.
438. The man lived nearly opposite your hotel at that time, three years ago? I do not know any one who lived there then.
439. *Mr. Thompson.*] You recollect receiving the second-hand tram-tickets in payment of your score? I never received any tram-tickets in payment for a grog score.
440. Second-hand tram-tickets? I never received second-hand tram-tickets; it is a lie; it was not done.
441. *President.*] The grog score was 25s., and the payment was 40s. It is really useless to deny it? It is a lie; I never allow more than 2s. to run a week, and I never take tram-tickets.
442. It is very difficult, I expect, sometimes to collect grog scores, and for this reason you were doubtless glad to get paid in any shape? I have now and again taken a tram-ticket in part payment for a drink, but these are the only tram-tickets I have received in my life, and even this I have done against my will; I have no use for tickets; I use the 'bus much oftener than the tram. Will you say who the person was who gave you this information?
443. *Mr. Thompson.*] No; we have exactly the same objection to doing that as we have to giving the conductor your name. How long have you been in your present house? Eleven years.
444. Where were you previously? In Waterloo. I have never allowed a man to run up 25s. for liquor.
445. *President.*] Did you not keep an hotel at the corner of Elizabeth and Belvoir streets, Redfern? No.
446. Do you recollect speaking to Mr. Roberts about a dog? I did not keep that public-house when I spoke to him about the dog.
447. *Mr. Brock.*] Give us the name of the man who gave you the tickets? I never got them.

Thomas Mulligan called in, sworn, and examined:—

448. *President.*] What is your name? Thomas Mulligan. T.
449. How are you employed? I am working for myself. Mulligan.
450. We are given to understand that you know something about these tram frauds? I have heard about them, but I can give you no information. I have told no one that I could give information. 23 Aug., 1888.
451. *Mr. Thompson.*] Who asked you to give information? Mr. Roberts asked me. I have never mentioned to Conductor Laney that I could give information.
452. Do you know Musgrave? No.
453. *President.*] Do you know Marcus? Yes. I have worked for Marcus,—serving in the shop, opening oysters, running messages, or doing anything that was wanted. I left about twelve weeks ago. He got his tickets from Hardy's, the grocer. I do not know why he got them there. I went to get them sometimes. I have never got any at Constantine Pappodocci's. I have never got any tickets from the post office. I always paid full value for the tickets, and got no commission. He simply got them because customers asked for them. I have never heard the Greeks or Italians talking about the frauds. I never saw anything there to lead me to suppose that anything improper was being carried on. I never saw anybody there selling tram-tickets. I left there on some holiday, about thirteen weeks ago. It was about Queen's Birthday. I was there about the early part of April. I never saw any tickets sold there by anybody. I do not know any of the Greek fellows. I never met or associated with the Greeks. I know no language except my own. Marcus kept a lodging house. People paid for beds and went away in the morning. I used to sleep in the shop. I know a lot of the conductors. I have heard several of them talking about it, saying that there was nothing in it. They said, "I have heard so-and-so
- was

T.
Mulligan.
23 Aug., 1888.

was making £10, £9, or £8 per week. These were different conductors whose names I am not acquainted with; I know them by sight on account of my travelling on the trams to solicit orders for wood and coal. I cannot identify any of them. I have never taken any interest in the matter, and I have never noticed any of the conductors humbugging their registers.

454. *Mr. Brock.*] Do you not know anything more about it than you have told us? No.

455. Do you know any conductors who are selling tickets? No.

456. Can you not identify some of those whom you have heard speaking about the frauds? No.

457. *President.*] You have frequently seen conductors at Marcus' shop? I have seen conductors having refreshments in the place and then going away afterwards. I have never seen Musgrave. I know Ferrier; have seen him once. I know Fraser and Greeley; I have seen them on the trams. I have never seen Gaspardo with Ferrier. I saw one man, but I do not know his name; he is a tall, dark man, shaved, about 36 years of age, but I cannot say what line he travels on. I go a good deal on the Waverley line. Ferrier was not on the trams when I saw him in the shop. This was about fourteen days before the 24th May.

Marcus Alafousas called in and further examined:—

M.
Alafousas.
23 Aug., 1888.

458. *President.*] Do you know Pietro Gaspardo? Yes, I know him well; about 11 years.

459. Have you had any conversation with him on the subject of these tickets? None.

460. *Mr. Brock.*] We are told that you spoke a good many times to him about the frauds? Never had any conversation with him nor with Constantine about them.

461. Do you know Constantine? I knew Constantine well but had not been in his shop for some time before he went away.

462. Have you had any conversations with Masoorra about this matter? No.

463. *Mr. Thompson.*] What was your license stopped for? I have my license yet and I do not know that it is stopped.

464. *Mr. Brock.*] Is your name Nicholas Williams? No. My name is Marcus Alafousas. I have no license now. I went by the name of Nicholas Williams, because that was the name on the shop.

465. How long is it since the license was cancelled? About three weeks.

466. Do you know why the license was cancelled? No. I got a paper and I cannot read English. A gentleman who was there said it was to stop the license and I could sell no more tickets.

467. *President.*] It was cancelled because you were selling these improper tickets? You used to buy these tickets from Constantine and Masoorra and you sold a lot of loose tickets? No. I do not remember selling a lot of loose tickets to Moran. I cannot say if he tore the sections or not.

468. Did not conductors come in to your place late at night for coffee and oysters? They might do so but I do not remember them.

469. *President.*] You have made up your mind to tell nothing; now we know exactly what information you can give? I know nothing more.

470. *Mr. Brock.*] We know you have committed perjury, and you may be sent to gaol? I do not.

471. *Mr. Thompson.*] There are no less than two witnesses who deny what he says, and say that he knows all about this matter—and if he does not tell the truth he may be sent to gaol? I know nothing about it.

472. You were very often at Constantine's shop? I only went about once a week.

473. Why did you buy tickets at Constantine's instead of going to the office? Because I sold so few, and lately only about £1 worth a week. Since the other Italian shop in Elizabeth-street and the barber shop came in opposition, I have sold very few.

474. *Mr. Brock.*] How long ago is it since you bought tickets from the Post Office? About eighteen months. I have bought all my other tickets from the shops; the grocer's at the corner, and other shops. I have not sold tickets this last three weeks.

475. *Mr. Thompson.*] We are going to examine all the conductors and guards, and if we find from them that you do know anything and have had anything to do with these frauds, you will surely be prosecuted for perjury? I cannot help it.

FRIDAY, 24 AUGUST, 1888.

Present:—

A. RICHARDSON, Esq., PRESIDENT.

R. W. THOMPSON, Esq., M.P.,

F. A. BROCK, Esq., J.P.

Ah Lum called in, sworn, and examined through interpreter:—

Ah Lum.
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476. *President.*] Have you been naturalized? Yes.

477. Are you able to understand the nature of the oath you have taken? Yes.

478. What is your occupation? I am a storekeeper.

479. How long have you been in the Colony? It is over twenty years since I first came here, but I have been backwards and forwards.

480. Yet you are unable to speak English? I can speak a few words.

481. Only a few words—yet you have been here twenty years? I understand a little of business language that is all.

482. We have sent for you because we understand that you can give us some information as to tickets having been sold by a tram conductor either to yourself or to others of whom you may know? I do not know of any tickets having been sold to any other Chinaman, but I met a man in the street and bought some off him once.

483. How long ago? About two months ago.

484. Where did you meet this man? In Bathurst-street, near the Park.

485. Will you tell us exactly what took place on the occasion to which you refer? I had come in from Waterloo in the tram, and I got out at Park-street. A man walked up to me and said, "Do you want any tram tickets?"

486. Had the man who spoke to you come in with you in the car from Waterloo? No.

487.

487. Then we are to understand that you saw nothing of this man until you got off the tram at Bathurst-street? Yes.

488. Without any previous conversation or previous knowledge he came up to you and asked you to buy tram-tickets;—is that so? I was not previously acquainted with the man, but no doubt he had often seen me riding in the tram.

489. Why is it likely that he would have seen you so often riding in the tram? Because I have come in and out from Waterloo in the tram very often.

490. Did you know the man who spoke to you to be a conductor of a Waterloo tram? I know that he was on the Waterloo line.

491. You say he asked you to buy some tram-tickets;—did he show you how many; did he ask you how many you wished to buy, or what did he do? He showed me some tram-tickets. I asked him how many there were, and he said 200.

492. Well, what did he want for them? He asked me 18s., and I said that I would not give him more than 12s. I then walked away, but the man came after me and said that he would take the 12s., as he wanted money particularly.

493. Did you conduct the transaction in the street or did you go inside anywhere? We stood by the side of the street.

494. How much money did you hand him? 12s.

495. For the 200 tickets? I do not know exactly how many there were. The man said there were 200, and I took his word for it. I do not think he counted them; I think he guessed the number.

496. Did you not count them afterwards? No; I used them from time to time as I wanted them.

497. Were the tickets single. Were there two together, or how were they? They were in fours at the most, but many were in ones and twos.

498. Do you really mean to tell us that this was the beginning and end of your transactions of this character? I have bought no tickets since then. I have been up the country a good deal.

499. When you got on to this conductor's tram again, did you not have some conversation with him on the subject? No.

500. Did you not even say good morning or good evening to him when you saw him again on the tram? Sometimes; but I may not always have been upon his tram.

501. Did you not remember the man at all. As a matter of fact what did happen when you got on to his tram again? When I got on to his tram I could see of course that he was a conductor.

502. Will you swear that you did not know that before? I did not. He was wearing plain clothes when I bought the tickets from him.

503. What do you imagine led this man to offer you tram-tickets for sale? I suppose he had often seen me riding on the trams.

504. Do you know whether this conductor is still upon the Waterloo run? I have not seen him during the past few days.

505. When did you last see him? A few days ago.

506. Would you have any difficulty in pointing him out to us? It was between 9 and 10 o'clock at night when I bought the tickets, and it is quite possible that I might make a mistake.

507. But was it night time when you saw him a few days ago? A few days ago when I saw him I said to myself, "That is the man who sold me the tickets."

508. Had you not seen this man frequently before you bought the tickets from him? After I had bought the tickets when I first saw the man I imagined that he was the same.

509. You saw him afterwards several times, and the last time a few days ago? He has looked to me to be the same man, but I have never spoken to him.

510. Will you describe him? He is not very stout.

511. What is the color of his hair. Is it brown or black? I could not say what color his hair is.

512. Yet you say that you have often seen him on the tram? Yes; but he has always worn his hat.

513. What was the colour of his beard. Had he a beard? He had no beard. I think he had a moustache, but I forget whether he had any hair on the chin or not.

514. But you say you often saw the man before you bought the tickets. Surely you must have noticed these things? I do not remember the man well before I bought the tickets. I did not remember that it was the same man until I saw him again on the tram. Then I noticed that he looked like the man who had sold me the tickets.

515. I must remind you that you have taken an oath to tell the truth, the whole truth, and nothing but the truth. Now do you not know perfectly well that it was the same man? I have not seen the man during the last few days, but a few days ago I saw a man on the tram whom I thought very like the man of whom I had bought the tickets.

516. That is not answering my question. We expect you to tell us the truth. Do you not know perfectly well that the man you saw on the tram was the man who had sold you the tickets? If I saw the man again I might be able to point him out.

517. Now please describe to us the man you saw a few days ago. Was he tall or short, stout or thin. What was the colour of his beard, and so forth? The man was pretty tall and thin. He had a thin face. I believe he had no hair on the chin, but I am not certain.

518. About what age was he? I should think between 30 and 40.

519. Is he a red-faced man or a pale man? I did not take particular notice.

520. Do you know Gouldtown? Yes.

521. Is he a red-faced man or a pale man? I did not notice.

522. Do you know a man whom Gouldtown summoned? Yes; I might know him.

523. You have not been speaking to him? No.

524. Would you know him if you saw him now? I think I might.

525. Do you know a conductor named Paddy? No; I do not know the name.

526. Do you know Ah Ping? There are a number of Ah Pings. I do not know which one you mean.

527. I mean the one at Pitt Place? There are two Ah Pings at Pitt Place; one a tobacco agent, and the other a storekeeper.

528. With whom do you live at Pitt Place? I sleep at Ah Ping's, the tobacco agent's, and board with Ah Ping, the storekeeper.

529. Are you in the habit of selling tram-tickets to your own countrymen? No; I used all the tickets I bought for myself, and I have bought many sixpence and shilling's worth besides.

- Ah Lum. 530. Have you not been in the habit of buying tickets from three conductors at the rate of 30s. worth for £1? No.
- Aug., 1888. 531. Have you made any overtures to three tram conductors to sell you tickets? No.
532. We are in possession of evidence to the effect that you did do so? Then it is not true.
533. We have also heard that you wanted these tickets in order that you might sell them at fan-tan houses? I used all the tickets I bought for myself.
534. Do you mean to swear that you have bought no tickets at the rate of £1 for 30s. worth? Yes, I do.
535. Is it not rather strange that having made one purchase of tram-tickets in this way you should not have been on the look out for any more? I am often travelling to and from the country on business, and I have not required the tickets.
536. But you said just now that you used a large number of tickets, and that you were constantly buying 6d. and 1s. worth? Yes, that is true; I have bought many tickets from the fruit-shop down below here.
537. When you had found such a convenient market is it not rather strange that you should not make use of it again? I did not want particularly to buy tickets, but they were offered to me cheap and I bought them.
538. The object of this inquiry is not to reach you in any way; it is to bring to light persons who have been robbing the Government? I cannot say that I have bought more tickets than I have bought. I cannot speak of things I know nothing about.
539. Is it true that you are a gambler? I have a store at Mundala, and if you do not believe me you can go to people in Sydney with whom I deal. I can refer you to Sullivan and Norton Bros.
540. Did you ever sell any tickets to Lee Kee? No.
541. What name did you give to Moran at the police court? I understood that he wanted my address and I told him to inquire at Ah Ping's.
542. We want you to identify the man who sold you the tickets? Then it had better be within the next fortnight, because I shall be returning to my business in the country at the end of that time.
543. The Commission are not altogether satisfied with your denial that you speak English. We have every reason to believe that you can speak English very well indeed? I can speak a little.
544. You understand it perfectly well? I understand some of the questions I have been asked to-day but not all.

Driver John Graham called in, sworn, and examined:—

- Driver J. Graham. 545. *President.*] You are not surprised, I presume, that the Commission should have sent for you having in view the evidence which you have already given before the Department? No.
- 24 Aug., 1888. 546. You have already given evidence which goes a long way to convict certain of the employees of malpractices? Yes.
547. By what we have heard from other sources as well as from your own evidence we are of opinion that there is a great deal more that you could tell us. Now I have to request that you will give us the fullest information; that you reserve nothing. If you do so your own chances and your own case will be all the better. As your evidence now stands there can be no doubt whatever that you did not at once and immediately give information to the officers of your department that you knew that frauds were actually going on; that is to say, you knew of frauds going on for a considerable time before you gave any notice of them; and it is not clear that at last you informed the Government detective from the very purest and best of motives. We have an idea that you gave the information to a certain extent, because you thought that if you did not everything would be found out, and that you yourself would be found to be in complicity with others; however that may be, your wisest and best course with us, is to give us all the information you possibly can? I shall be glad to do so.
548. I may also say that if in your information you disclose facts which connect you with the frauds or render you liable for complicity in them, the Commission have power to say that no criminal prosecution will be made against you. We do not say that your position is such, but we think it well to let you know how you stand. We advise you to give us the fullest information in your power. It will be better for you I think to give us the story in your own words, with, if possible, more explicit information than you gave before the departmental inquiry; will you for instance give us the dates? That is what I cannot do; I did not take any particular notice of the dates.
549. Will you tell us what you know? When I first became aware of what was going on I was on the Waverley run.
550. How long ago was that? It might be seven or eight months; I could not say within a short time.
551. What did you then discover or see? Conductor Musgrave came on to my engine and asked me for a piece of wire; I gave it to him, and he put it in the bell-pull. I asked him what it was for; he had put it in a little hole between the pull and the register itself.
552. What is the hole there for? I do not know. It is a little oblong hole, and it is connected with something inside. I think I asked him what the wire was for. He did not altogether tell me then. In a subsequent conversation he told me that it stopped the bell from ringing or registering.
553. How long afterwards was it that he told you? On the same day. He illustrated it to me. He collected a car-full of tickets just to show me how it was done. He put the wire in in my presence and the pull only registered one. When he had collected the car-full of tickets he came up to the engine just to show me that the register had not moved although he had collected all the fares.
554. Did he show you the tickets he had collected? No; but I know that he had them in a separate part of his bag.
555. Did he tell you what he was going to do with them? He told me that they were as good as 16s. for a pound's worth to him.
556. He came to you for this bit of wire because he had not the pin which he had been using? Yes, I suppose so.
557. Not having his piece of wire with him he could not go on with his trade and he wanted you to give him a piece to serve his purpose? Yes.
558. Did he say how long he had been up to this business? He did not tell me then, but afterwards he told me that he commenced to do it after he had been on the tramways a fortnight.
559. Did he say what he had made by it up to that time altogether? He never told me what he had made. At one time he was dismissed with some other hands for a short period, and he told me that during that time his being off was as good as £400 or £500 out of his pocket.
560. When did he tell you that? When he was on again.

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561. Did he tell you of any others in the same thing with him? He never actually told me of others; but I was led to believe from his talk that there were some more in it.
562. Did you never ask him? I did not ask him, but I felt pretty certain that Fraser was in it. I suspected Fraser myself and Musgrave did not say "yes" or "no."
563. You named Fraser to him then? Yes; but he did not give me any answer; he merely smiled.
564. But you were satisfied that your conclusion was correct? Yes.
565. Did you catch Fraser at it? No.
566. Did Musgrave name any other men to you or did you name any others to him? I mentioned none, but Ferrier was named by him.
567. Did he name any one else? Not that I can remember. I think I can say no to that. But he often asked me if I knew of any one else who was doing it.
568. Where are you running now? On the Waverley line.
569. Did Musgrave name O'Donnell to you? No.
570. Do you know him? Yes.
571. What line is he on? He is a spare conductor.
572. Have you ever observed anything of this kind when you have been running with O'Donnell? No.
573. Have you ever had any conversation with O'Donnell on the subject? Only since the frauds have been made public. Hearing that I knew something about them he asked me what I really knew of the matter.
574. Thinking that something might come out about himself, I suppose? That did not occur to me then.
575. Well, what did he tell you? He was talking about the registers. He said that there was a little spring inside and that wanted bending about the 32nd part of an inch, and that if a pin were then put in the hole the machine would ring without registering.
576. You are not referring now to O'Donnell are you? No; I am referring to Musgrave.
577. And can you swear that Musgrave did not mention O'Donnell to you? Yes; I think I can.
578. You knew that this thing had been going on for some months before you mentioned it to one of the detectives? I do not think it was many months.
579. How long do you suppose? Perhaps a month or six weeks; I am not positive.
580. Musgrave gave you his full confidence? Yes.
581. What do you think made him do so? That is what I could not say.
582. Did he make you any offer? No.
583. He did not offer to share any of the takings with you? No.
584. You were never a conductor? No.
585. What do you think caused Musgrave, a conductor, to come to you, a driver, and give you his confidence? I being a young fellow, I suppose, and we being always chums together in the Department.
586. Have you met him outside in the evening? Only on one occasion.
587. You know it could not have been the fact of Musgrave wanting a piece of wire which led him to speak to you, because he could have done this thing as he had done it before, with a pin? I suppose he thought that I would not say anything about the matter.
588. Why? I could not say.
589. Merely because you were friends, you think? I suppose so.
590. You will swear that he never made you any proposal or offer—that he did not, for instance, say to you: "Now, Jack, of course you won't split on this thing"? Not in that way. He may have said: "Mind you never open your mouth about this."
591. He did not go on to say, "You keep this secret, and it will be all the better for you"? He never made any such proposition.
592. You think that this confidence had been going on for about six weeks before you made any disclosures? Something like that.
593. Something then led you to make a disclosure to one of the detectives? Yes.
594. What led you to do it? I had been talking over the affair in spare time.
595. With whom? With other drivers and firemen.
596. Then you broke your confidence almost at once? Well, I did not disclose any names. I was talking to driver Hadwell and his mate one night in the yard. We were talking about one thing and another, and it then came up about the trams not paying. I then said that I knew what was carried on—that I knew all about it.
597. What did Hadwell say? He said that if he knew he would give information.
598. But he did know then? Yes.
599. What did he advise? He advised me to tell someone—to put someone on the track.
600. But you did not do so then? Not at once.
601. You cogitated over the matter for some time longer? Yes.
602. We should like to know what made you decide to take this action after thinking the matter over—had you any quarrel with Musgrave? No.
603. Did you mention the matter to anyone else? I told conductor Keen.
604. What did he say when you told him? He did not believe me.
605. Had you any conversation with other drivers on the subject? Yes, I remember speaking to driver Bennett and to driver Frost.
606. When? About the same time—that is, within a few days.
607. After six weeks or two or three months, as the case may be, you suddenly made up your mind to disclose the matter? Yes.
608. You spoke, I believe, to Mr. Moran? Yes.
609. *Mr. Thompson.*] But something must have pressed upon your mind at that particular time inducing you to break your confidence? I had been talking to some of the men in the department about the trams being placed in the hands of a company because they were not paying. I had often heard Musgrave remark, in conversation with others, "No wonder they don't pay," and I thought I ought to tell.
610. *President.*] When you heard Musgrave make this remark, as you say in conversation with others, did they not prick up their ears and want to know what he meant? They did not seem to take particular notice of it.
611. They did not ask Musgrave why the trams did not pay? No.
612. During these six weeks when you were keeping this matter not altogether to yourself but from official report how often did Musgrave see you and converse with you? Only occasionally.

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613. He was your conductor? At times. I was then a special driver.
614. How often did he come to you and say, "Now, whatever you do, Jack, don't be pitching?" Not once.
615. Did he himself never appear anxious to know if you were keeping the thing to yourself? No. At different times he told me more in connection with the matter—how they were doing it, and how long they had been doing it, and so forth.
616. Did he tell you in these conversations how much he was making on particular days or how much a week? No; but I remember that he once held up the wire and said that it was as good as a tanner a week to him.
617. This was while you were keeping his confidence? While he thought I was.
618. You have not said how it was that you came to make this statement to Moran? Through talking to so many others about it I knew how the frauds were carried on, and they all advised me to say something about it. My fireman, Reid, and myself were always talking about it. I did not like to take it to the Department myself. I thought to myself, "I will do it quietly. I will put the detectives on the track and let them discover it for themselves, so that I should not be brought into the affair."
619. Why did you not want to be brought into the affair? Because Musgrave had told me about it.
620. Did he tell you about it in this ready manner without making you promise or swear that you would never divulge it? Not then. He has since said to me, "Never, for God's sake, tell anyone." He may often have said that since, and I have said in reply, I dare say, "Oh, that's all right," or "I have nothing to do with it," passing it off in that way.
621. Did it never occur to you that in answering him in that way you were placing yourself in complicity with Musgrave? No.
622. Suppose that a man came up to you and confessed that he had committed a murder or had robbed a bank, what would you do? I should tell somebody about it.
623. If you did not would you not consider that you were liable to be taken up as an accessory? I do not think so. Why should I, because a man told me that he had committed a crime?
624. Perhaps you would not be an accessory in the eye of the law, but in this instance you actually gave Musgrave an instrument, with the aid of which you knew that he was about to commit a fraud? Yes.
625. Knowing that you had done that you did not hesitate an hour or a day, you hesitated weeks, and I think I shall be able to show months, before you considered it necessary to disclose the fact to the authorities? Yes.
626. And you saw Musgrave robbing the Department again and again? I cannot say that.
627. But you knew that he was doing it? Yes.
628. Now, as a matter of fact, did not Moran himself bring up this subject of the frauds in conversation with you, and was it not that which led to you making the disclosures you did? I do not think so. I think I told Moran that there was something crooked going on in the Department, or words to that effect.
629. Did not Moran come to you and say, "Graham, some crooked things are going on in this Department, and I believe you know something about them"? I do not remember.
630. Will you swear that he did not say that? I will not swear it.
631. But you do not think it was so? I do not think so. The conversation to which I am referring occurred in a car when I was on my way out to Waterloo. Moran was going the same way.
632. You perhaps remember that he commenced to talk to you about crooked dealings and frauds in the Department, and did he not afterwards say to you, "Graham, I believe you know something about it"? I do not recollect his saying so.
633. You told Moran, either on his suggestion or on your own suggestion, what you have told us—what happened further, do you remember? Nothing more than that. I knew that the thing was going on just the same as it had been before, that was all.
634. You knew that the frauds were continued? Yes.
635. For how long were they continued to your knowledge? Until the whole thing came out.
636. Seven months ago you were asked for this wire to enable these men to rob the Government? Musgrave did not say that the wire was to enable him to rob the Government.
637. But you knew that he did rob the Government? I found it out afterwards. He showed me what he did with the wire afterwards.
638. About six months afterwards you told Moran? About that.
639. How long after that did these frauds go on to your knowledge? Until it came out.
640. How long ago is that? About a month ago.
641. This was going on about four months after you told Moran about it;—you knew that it was going on? Yes.
642. During that time were you not seized with the feeling that although you had given information, and nothing had come of it, you might have done something more in the matter; did you give any names to Moran? I thought that when I had mentioned the matter to Moran that was all that was necessary.
643. Although you had not given any names? I gave the names afterwards. I first suggested a plan to Moran by which he might find out what he wanted.
644. How long afterwards was it that you told Moran the names? I do not quite remember.
645. Did he ask you for the names in the first instance? I do not think he did.
646. Can't you give us some idea of how long afterwards it was when you gave him names? It might have been a few days or a week afterwards.
647. You still saw this business going on? I did not know that it was going on.
648. But you saw the pins in the registers; you must have known that it was going on? Yes.
649. You saw this repeatedly going on, yet it never occurred to you to press the matter further and see what could be done so that this continual robbery might be stopped? I thought that when I had told Moran that that was all that was necessary.
650. But you saw the robbery still going on, so that it could not have been all that was necessary; you saw the pin used; you saw the different compartments in the bags; you knew that Musgrave was making so much money out of the Government every day of his life, and yet you took no further steps? I thought I had done all that was necessary. At first I suggested to Moran that if he tried some of the bells he would find that they were defective, but he said that the bells would be tried in the office.
651. You being so much in Musgrave's confidence, when did he first know that you had broken that confidence and had split on him? He did not know until my name was published in the papers.

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652. Till you had given your evidence before the Department? No.
653. Do you ever see him now? No.
654. Have you seen him since giving your evidence? No.
655. He never challenged you with meanness or anything of that kind? No one knows what I have said beyond what has been seen in the papers. But one morning, just after the thing came out about Ferrier and Greeley, he came to me on the engine and said, "Ferrier has been making a mess of it."
656. That was before he was dismissed? Yes; he was not dismissed until I had given my evidence.
657. What interval was there between Ferrier's dismissal and Musgrave's dismissal? Musgrave was dismissed about a fortnight afterwards. I think I had not given my evidence.
658. Did he tell you that he had told Mr. Roberts something about the matter? He said he had gone to him about two months ago and had told him that the bells could be rigged. He knew before it was publicly known in the Department—I suppose from someone in the office—that Ferrier had been caught, and, before the matter came to him, he wanted to tell Mr. Roberts. Musgrave must have got the information out of the office—I think he got it from Colls—that is, that Ferrier had got into trouble.
659. And to make himself right, as he imagined, he told a cock-and-bull-story to Mr. Roberts? I have heard him say that he could not get caught, because if anything went wrong he could always get a wink from the office.
660. You have told us of your last interview with Musgrave; he has not been near you since? No; but I have heard that he has been inquiring for me. Since I gave my evidence before the Department I have been away on my holidays.
661. I want to know now from you have you seen Fraser since he left? Several times.
662. What have you conversed about in connection with this business—what have you said together? We have had various conversations about it.
663. Briefly, what has been the purport of those conversations? I never told him that I had told anything about him. He knew that I knew something of the affair, but he did not know that I knew he was implicated in it, and I did not tell him.
664. You are sure he did not guess that you knew? I am almost sure he did not.
665. Did he not ask you to be most careful about what you said of him? No.
666. Will you swear that? I will swear it.
667. Has he sought these interviews with you or have you sought him out? They have been accidental meetings.
668. Where have you met? At the Botany handicap, and at the Crown-street points in Oxford-street on one occasion. Last Saturday night he came to me and asked me a question.
669. What question? He asked me if I had told Moran that I went to a shop with him when he was going to sell some tickets.
670. That was not an accidental meeting? No; he came to me on the engine.
671. What line was Fraser on? He was a spare conductor.
672. He often ran with you? Occasionally.
673. When did he commence this game? That I cannot say. Musgrave told me that he had given him £50, or one half of the first £100 worth of tickets, to know how it was done. Musgrave put Fraser's register so that it would cheat, but he did not give him the cue. He did not give him the secret because if he had done so Fraser would have been able to use it as often as he wanted. Of course Fraser could always have done it with the same bell once the bell had been rigged—that is, if it were not altered at the office.
674. But there was always the risk that the repairer would get the bell into his hands, and would put the spring right? Fraser would then be unable to manipulate the bell until he had been to Musgrave again, so that at last there was an agreement that Fraser was to be put in possession of the same information as Musgrave possessed? Yes.
675. And for this information this payment of £50 worth of tickets was to be made. Is that how the matter stood? Yes; I think so.
676. How long is it since Musgrave rigged Fraser's bell for him? That I could not say.
677. How long is it since Musgrave told you that he had done so? He did not tell me when he did it; but sometime afterwards he told me that Fraser was doing it.
678. You want us to believe that being in the habit of selling this secret for £50 he imparted it to you for nothing? I suppose he did not think that I was sufficiently interested to take any notice. He told me afterwards that he had been to Mr. Roberts' office and had told him; but that Roberts would not believe him.
679. When you yourself told Moran about it did he refuse to believe you? No, I do not think he did.
680. Do you know what steps he took? I do not.
681. You had subsequent conversations with him had you not? Yes. When I told him the names of those whom I knew were implicated, I said that at any time he liked I could point out Musgrave to him with his pocket full of tickets.
682. You told Moran other names than those you have yet mentioned to us; we should like to have those as well? I cannot remember any more at this moment.
683. We have the names of Musgrave, Fraser, and Ferrier. You told Moran of others you suspected;—will you give us the names of those other persons? I could not rest my suspicion on any one in particular.
684. Did you not tell Moran that you suspected certain persons? I do not remember it.
685. Do you often meet Fraser at night? No.
686. Do you know what Fraser frequently does at night? No.
687. Are you not aware that Fraser visits gambling rooms? Yes; I believe he does occasionally.
688. Have you never met him in such places yourself? Never.
689. You are sure of that? Positive.
690. *Mr. Brock.*] Do you know, as a matter of fact, that Fraser has lost large sums of money in gambling rooms? I have heard so.
691. You yourself bet pretty heavily at the Botany handicaps—do you not? No.
692. You are there continually? Yes; but I generally go there with the engine.
693. *President.*] Did you express sorrow to any one with regard to Fraser having heard that he would be implicated? No.
694. Did you not say that you were sorry for Fraser, because he had been dragged into it by Musgrave? I do not remember saying anything of the sort.

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695. You know pretty well what Musgrave did make out of it? I do not know altogether; I could not say.
696. Did you not say that you thought Fraser had made as much money out of it as Musgrave? I do not remember saying so.
697. How long was it from the time Musgrave was paid off at the reduction of hands until the time he was taken on again? I could not say.
698. Have you any idea of the time? It was some months.
699. You knew that he could make £500 in that period? I did not know that, but he said that his being off during that period was as good as the loss of £500 to him.
700. How long was he altogether at the work? He told me from a fortnight after he joined the Department.
701. Estimating then that he could have made £500 during the period of his dismissal, we can form some idea of the sum he made? He told me at one time that he was thinking of purchasing a public-house at the corner of Regent-street and Parramatta-street, and that there was only £100 or so difference between his offer and the sum wanted.
702. Did he make a cash offer? I think so.
703. Do you know what the price asked was? I could not say. He told me he thought of taking a public-house. This was before he left the Department.
704. Was he not interested in some shop in Newtown? He said so.
705. What shop—do you know? I could not say.
706. Did you never find out? No.
707. In fact you took very little interest in the matter, either as regarded yourself or the Department? I did not think I could be brought into the matter.
708. You knew that the Government were being systematically robbed? Yes.
709. And yet you did not think it any concern of yours? Of course I knew that it was my concern as well as anybody else's concern.
710. You seemed to think that the Government might lose the trams and that you might be thrown out of employment—that was all you cared about the matter? Seeing that the trams were not paying, and thinking of the advice of others, I thought I would tell all that I knew.
711. Did Musgrave ever tell you that a man named Scott had shown him how to rig the bells? No.
712. Did you know Scott? I knew that he was one of the Waverley conductors.
713. Did you not tell Moran that you suspected he was in it as much as any of the others? I do not remember it.
714. You must know what you thought about it. Had you not a good idea that Scott was in the thing—that he was one of those who had been defrauding the Government? No.
715. You had no reason of any kind for thinking so? No.
716. You know a man named Yelland? Yes; I have been told since that he has made a good bit out of it.
717. Who told you? Greeley.
718. How did Greeley know? He said he had seen him off by the boat when he went down to Fiji.
719. Do you know anything of Greeley's connection with this matter? No.
720. Have you any idea that he is connected? I believe that he is not—that is, any further than has been described.
721. Do you remember when the tram-tickets were found in his pocket? Yes.
722. Were you the driver he spoke to? No.
723. But you remember the circumstance? Yes.
724. What was the general opinion—that some one else had put the tickets into his pocket, or that he had put them there himself? I think the general opinion was that he had put them there himself.
725. Do you know of any drivers who saw tickets in his hand? I think one was Jack Frost.
726. Have you now given us all the names you can call to mind? Yes.
727. You are sure you know nothing in regard to Scott? Yes.
728. Have you never been told by anyone that Scott was in the thick of it? Yes; I believe I have.
729. Refresh your memory and see if you can tell us who told you? I was talking in the yard to a shunter (John Saunders), and he mentioned Scott's name. He had heard that he was one of those who were in it.
730. On what line was Scott running then? On the Waverley line.
731. That is your particular line? It was only last month that I went to Waverley permanently.
732. I understood that you were driving upon the Waverley line when the disclosure was made to you by Musgrave? Yes.
733. That is seven months ago? Yes.
734. When was Scott on that line? I do not know, exactly. Saunders mentioned his name to me when the thing first came out.
735. Is that the first time you heard Scott's name mentioned in connection with these frauds? I think it was.
736. Did Musgrave not mention his name to you? No; I am sure of that.
737. Were they friendly? Yes.
738. Were they on the same trams? Well, Musgrave would be working with Scott as an assistant conductor.
739. Could he commit these frauds without Scott knowing it? Yes; I think so.
740. But you could see him doing it from the engine? Yes; but then I knew that he was doing it. How should Scott know?
741. How could you tell, at that distance, that he had the pin in? I could see his bell. He was on the car next to the engine.
742. But at that distance could you see whether the pin was in? Very easily.
743. Yet you say that there was no chance of his fellow-conductor seeing it? Well, he told me one day that he handed his bell to Murray, in the office, with the wire in it, and that the man did not find it out. He found out, afterwards that he had forgotten to take out the wire, and he was telling me how he felt. He said he felt as-if he was going to faint, and that he was in such a state that when Murray asked him on what line he was running he could not answer him,

744. Is it not strange that Musgrave should have been so very confiding with you, and that he should not have confided in Scott, who was on the same line, if he did not think there was any danger in taking a man into his confidence, is it not strange that he did not go to Scott and say, "We will make a nice little haul together?" He was only occasionally with Scott, not regularly.

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745. Are you sure that you have not heard anything about Scott frequenting gambling-rooms? Not to my knowledge.

746. Do you know a conductor named MacMahon? Yes.

747. Have you heard anything of him in connection with this matter? No.

748. What does he do apart from being a conductor—does he not keep a shop? I do not know him out of the Department.

749. As far as you know, his name has not been mentioned in connection with these frauds? As far as I know.

750. You have not heard it said that he was a receiver of these tickets at his shop? No; I do not know him out of the department.

751. You sometimes go to oyster-shops, do you not? Very seldom.

752. Do you know an oyster-shop at the corner of Elizabeth and Liverpool streets, kept by a man named Masoura? Yes; I have noticed the name.

753. Have you ever been in there? Yes.

754. What have you seen there; have you ever seen anything suspicious going on? No; I have only been in for a plate of oysters after the theatre.

755. Have you not noticed the selling of tickets there? No.

756. Have you ever seen Fraser there? No.

757. Or Musgrave? No.

758. Or any other conductor? No.

759. That you are certain of? Yes.

760. How often have you been in there? Only about three times. On two occasions I was with another driver named Branch.

761. Did you not know that this man was buying their tram-tickets? No.

762. You had not heard that up to the present time? No.

763. Do you mean to say that Musgrave never told you how he was getting rid of the tickets? I asked him, and he evaded the question by saying that he had an interest in a shop at Newtown.

764. And you never found out where that shop was? No.

765. Did he say that he sent tickets out to the shop at Newtown to be sold? No; he did not take me altogether into his confidence. He told me a little, and then I asked him questions.

766. You know that you have not the slightest interest in keeping anything back; you must see that it is to your interest to make the cleanest possible breast of it? I will tell you anything that I absolutely know.

767. Do you know absolutely nothing as to where these tickets were taken, to after they had been dishonestly obtained by the conductors? I do not know where they went to.

768. Have you never heard? I have heard that they are sold at the rate of 16s. for a pound's worth, and that is all I know.

769. Have you never had the curiosity to ascertain? Yes; I have asked Musgrave questions, but he has evaded them.

770. Does not Fraser now know that you knew of his connection with the business? He might know from some one else, but I have never told him that I knew anything about it.

771. You are sure that you have told us the nature of your conversation with him the other night? He asked me if I had told Musgrave that I had gone to a shop at the Glebe with him, and that he had offered to sell tickets there in my presence.

772. What shop was that? He did not mention the shop. I said, "No, I did not tell Musgrave anything of the sort."

773. You were never in a shop with Fraser at the Glebe where he offered to sell tickets? No; I have met him accidentally—that is all. We may have had a drink together.

774. Do you know a conductor named Connors? Yes.

775. What do you know of him in connection with this matter? Nothing at all.

776. Have you ever had a talk with Branch on this subject? Yes.

777. What happened between you and him? I told him, as I had told the others, that I knew what was going on, and that I knew who was carrying it on.

778. Do you think that any of the drivers are pecuniarily interested in this thing? None that I know of; those I have told of it would not credit it.

779. You do not seem to have taken much pains to impress it upon them? I told them exactly how it happened, and explained to them the way in which it was done.

780. You say that what principally led you to make the disclosure was that the trams were not paying, and that the Government were about to hand them over to a company? No; that was not the principal reason.

781. Your fireman put it to you in that way, did he not? Yes; he said that we ought to put them away; that we had a good position here; and that they were only robbing the public.

782. He urged you to tell them? Yes.

783. Have you given us a complete list of those to whom you mentioned the matter? Yes.

784. *Mr. Brock.*] Was Musgrave a drunkard? No.

785. Was he a very sober man? He was a very fly man; a man who never took enough to make himself drunk if he was in company. He often told me that the Department could never get at him, because he never had anything in his own name.

786. Whose name was it in? I could not say.

787. Do you mean to say that he banked the money in someone else's name? Yes. I have often told him that he would be getting caught, and he has said, "There is no fear of that; I have nothing in my own name. The only chance of my being caught is when I take my bag in. They might search me then." I suggested to Moran how he might catch him with his pocket full of tickets.

788. You never heard him say that he took the name of Reegan? No.

789. Did he not tell you several times that he could always get the office from head-quarters, and that he knew

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- knew all that was going on? Yes. When I have said to him, "You will be getting caught at it, Tommy," he has said, "No fear; I can get the wink from above if ever they move in the matter."
790. *President.*] Do you know a conductor named Doolan on the Waterloo line? Yes.
791. Don't you know that he is connected with this business? No.
792. What do you know of him; is he a gambler? Not to my knowledge.
793. Is he a steady man? Not altogether a steady man.
794. Is he a single or married man? Married.
795. He goes out to the handicaps and bets on them, does he not? Very likely.
796. You have never heard that he manipulated his register in this way? No.
797. But you heard that he got out in his tickets somehow, and that he could not account for it? No.
798. You have no reason to suspect him? None whatever.
799. But, at the same time, you would not be surprised if you heard that he was implicated? I should not.
800. What was your reply with regard to O'Donnell? I never knew anything about him.
801. Did Musgrave ever tell you how he found out how to do it? No, he did not.
802. He told you distinctly that he made Fraser aware of it? Yes, and Ferrier.
803. Was he the one who gave it to Ferrier? Yes.
804. Did Ferrier give him anything, do you know? No; he was a particular mate of Ferrier's.
805. Ferrier was as fly as he was? Yes.
806. You have no idea as to how Musgrave got the information? I think he got it from the office.
807. Can you not explain that further. Did he not tell you who in the office gave it him? He told me that Colls would always put him fly to anything that was going on.
808. And you inferred that he got the way to do this thing from that man? Yes; Colls being his brother-in-law, and they living together.
809. He did not say absolutely that Colls told him. No; but he did say absolutely that he was told by someone in the office? Yes.
810. How would Colls know when a confidential report was sent from the Police Office to the Tramway Department? It is easily found out. Is not Reegan always in Mr. Roberts's office?
811. Who is Reegan? He is Mr. Roberts's messenger.
812. And you think that he knows as much as Mr. Roberts knows? I do not know that; but he is always in Mr. Roberts's office.
813. And you conclude from that that Reegan told Colls, and that Colls told the others? It might be so. Perhaps Colls could find out for himself.
814. We have strong evidence that a confidential report from the Inspector-General of Police was spread all over the town in a few hours. That would have been addressed to the Superintendent of Tramways privately. Colls and Reegan would have no access to it. How could it get out? I do not know; I could not say. But suppose Mr. Roberts opened it and left it on his table.
815. Suppose that he locked it away in his drawer? At any rate it came out of the office, and Musgrave got it before any action was taken, and he went up and confessed to Mr. Roberts.
816. But he did not confess. Did he not affect innocence of his share in the work? He told Mr. Roberts of the matter, so as to put the scent off himself.
817. Did he tell you that he had confessed? No; he told me what he had told Mr. Roberts.
818. *Mr. Thompson.*] Where does the confessing come in then? He confessed that he knew the thing was being done, from what some man had told him two months before.
819. You are perfectly frank in this matter? You really do not know how this thing came out of the office—but you believe that they got it through Reegan and Colls? I would not say they went to Reegan, but I think Colls might have given it.
820. How do you suppose that Colls got the information—would Mr. Roberts tell him? Very likely, he being a man in the office.
821. Don't you know that Reegan is a colleague of Musgrave's? No.
822. Have you any reason to suppose that Reegan knows anything of these frauds? No; no reason whatever.
823. Now I will ask you another question: Do you know anything more of Colls' connection with this matter? No.
824. You know all about this fly business—how he tells Musgrave directly anything happens? Yes; I think from what Musgrave has told me that he gets it from Colls.
825. *President.*] He confided in you and never offered you anything—from Fraser he received £50. What was the nature of his transaction with Colls—that is what we should like to know—how has Colls benefited? I could not say.
826. Did not Musgrave tell you that Colls was paid for giving him the information? No.
827. You are sure of that? Yes.
828. You say that Musgrave was going to purchase the good-will of the "New England Railway Family Hotel"? Yes.
829. Have you any idea that Ferrier is well off? No.
830. He is a great gambler? I believe so.
831. And you think he has lost all he has made? Yes; and perhaps more. That is why he went to Greeley, I suppose. He was getting hard up. Musgrave told me how it was the cat got out of the bag. Ferrier went to Greeley and said, "If you will give me £10 I will show you how to rig your register."
832. What did Greeley say? "All right"—at least so Musgrave told me, and they then made an appointment at Greeley's house.
833. Did he go to Greeley or did Greeley go to him? Musgrave said that Ferrier went to Greeley and said that he would buy the tickets off him.
834. You know Ferrier? Pretty well.
835. You have had frequent conversations with him? Not lately.
836. What has he disclosed to you? He does not know more than Musgrave has told me.
837. You have had conversations with Ferrier about the frauds? None whatever.
838. Has not Ferrier often talked to you generally about the state of his finances—about his want of money and so forth? No.
839. He has not told you that he could get sums of money if he wanted them out of certain conductors to get him to hold his tongue? No.

840. You are sure of that? Positive. All I know of Ferrier was through Musgrave—that is as to the frauds.
841. When did Musgrave tell you that Ferrier was in the business? About the same time that he told me about Fraser.
842. Did he tell you about Yelland at the same time? No; I heard that otherwise.
843. And you are perfectly certain that Musgrave did not tell you about any others besides himself, Ferrier, and Fraser? That is all.
844. Now I dare say there is a good deal more which you can yet tell us? Nothing I can think of. I know that Ferrier could not rig the bell himself, and that Musgrave would never let him know how it was done.
845. Who rigged Ferrier's bell then? Musgrave.
846. But how was he going to tell Greeley how it was done? He must have got Musgrave to do it and Musgrave must have reaped the benefit; Musgrave himself would not have anything to do with Greeley.
847. You think that this teaching as to the manipulation of the registers came from the office? Yes.
848. You are sure of that? I am sure Musgrave told me so.
849. Did you never hear that a man employed in the railway workshops did this thing for them? No.
850. You never heard that? No. Musgrave told me it came out of the office, and from what I learnt afterwards I think it must have come from there.
851. Can you tell us how long ago it was that Fraser paid this £50 for this knowledge? I could not say.
852. How long is it since Musgrave told you? At the beginning.
853. So that Fraser might have been at it further back than nine months ago? Yes. Musgrave often asked me if I knew of anyone else who was carrying on the business.
854. These frauds were committed on the Waverley line chiefly—not on the Coogee line? They happened wherever these particular conductors happened to be. They were not more particularly on the Waverley line than on any other line, but the assistant conductors would be more on that line.
855. On what line was Greeley? On the Waterloo line.
856. Is there anything more you can tell us? Nothing that I can think of at present. Other things might occur to me if you were to ask me questions.
857. If anything further occurs to you will you attend and give the information? I shall be glad to do so.
858. You quite understand that you are not to repeat the evidence which you have given here to-day? I quite understand that.
859. The more you do for this Commission, representing the Government, the better will it be for yourself when your own case comes up for consideration—that is, as to how far you are connected with this matter yourself? I can think of nothing more now. As I told you at first I did not take particular notice of the dates.
860. *Mr. Thompson.*] Can you remember whether it was winter or summer when you first came to know of this thing? I think it was in the summer. I know that it was fine and warm weather at the time.
861. Was it holiday time do you think? I think it was just after some holidays.
862. On what run were you when Musgrave came to you for the pin? I was running between Queen-street and Regent-street. It was in the afternoon.
863. Do you think it was near to the 26th January? I think it was after that. He first asked my fireman for a piece of wire, and the fireman sent him on to me.
864. Did he give your fireman the confidence he gave you? Certainly not.
865. Anything that the fireman might know he would have got from you? Yes.

Robert Reid called in, sworn, and examined:—

866. *President.*] You are employed as a fireman in the Tramway Department? Yes.
867. How long have you been in the Service? Going on for six years.
868. When did you first hear of these irregularities in connection with the tramway-tickets? It must be going on for five months now, as nearly as I can remember.
869. Are you saying that with any degree of certainty? I could not say for certain.
870. Do you not think it is more than five months? It may be; I cannot exactly say.
871. Will you tell the circumstances within your knowledge? I was oiling the engine when someone came on and said, "Have you got a bit of wire, Bob?" I said, "Go round to my mate." I did not look up. Afterwards I said to Graham, "Who was that?" He said, "Musgrave." Graham was my driver.
872. You did not recognize the voice? No, and I did not look up. I am frequently asked questions when I am oiling the engine. People come up and want to know what time the tram goes, and so on. I do not know whether it was on the same day or on the day afterwards that he told me there was a robbery going on. At first I doubted it, and I said, "How?" He said, "By putting a bit of wire in the bell." I said, "Are you sure?" and he said, "Yes." I said, "How do you know?" He said, "Tommy Musgrave can do it." Some time afterwards we spoke about it again. I said, "Why not let it out?"
873. How long was it after Musgrave came for the wire that you said that? It was either on the same or on the next day.
874. It was not on the day that Graham told you that Tommy Musgrave could do it? I am not sure whether it was on that day or on the next.
875. What was his reply to that? He said, "So I will."
876. Did you say anything more to him? I said, "It is taking our living from us. The tramways will go into a company. These men will have got the benefit, and we shall get our wages reduced." Some time afterwards—it might have been two months or more—he told me that he had told Moran.
877. During that two months, or it may be more, how often did you impress upon him the necessity for reporting the matter? We often used to speak about it.
878. Did it not appear to you that apart from Graham altogether you had a duty in the matter? No; on the engines we always leave it to the driver. He is the head man on the engine, the firemen is second.
879. No matter how great a wrong may be going on on the engine it would not be the duty of the fireman to bring it under the notice of the authorities? Oh yes.
880. But don't you look upon this as a great wrong? I do.
881. And you merely advised Graham to report the matter? Yes.

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Fireman
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- Fireman
R. Reid.
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882. You found that he did not do so for two months or more? Yes.
883. Did it not seem to be your duty to say to Graham, "If you do not bring this matter up I shall?" He said, "I shall do it." He knew how it was done and was told all about it. All that he told me was that he knew the whole lot of it.
884. Did he not tell you the whole lot of it? He told me that it was done with a bit of wire. He told me no more.
885. You knew that a fraud was being perpetrated by the use of a bit of wire. You could have told that much? I cannot reply to that.
886. How often did you bring this matter under your mate's attention? I may have brought it up more than once. We spoke of it more than once.
887. Did you ever say to him, "Graham, if you do not at once report this I shall"? No, I did not.
888. You did not consider that a part of your duty? In one sense it was a part of my duty, but as he said he would do it I left in his hands. It may have been some days after when I spoke to him again. I did not know whether he had done it or not.
889. But it was over two months, if anything, before Graham told Moran? Yes.
890. Did you not recognise the fact that the Department was being robbed? I could only go by what he told me.
891. Did you not recognise the fact when you made the remark that the trams would be leased. Why did you think they would be leased? Because they were not paying.
892. Why were they not paying? Because if they were being robbed they could not pay.
893. You did recognize the fact, then, that the tramways were being robbed, but you did not deem it important that you should inform the Government, in order that the robberies might be discontinued, until it occurred to you that your wages might be reduced in consequence of the trams being leased to a Company? Well if Graham had not told I would have soon done so. I had made up my mind to that.
894. How many months would you have allowed to pass over? I would not have let it go so long. If he had not have told I would have out with it. I would have told the head of the Department what he told me. At first I was rather doubtful of such a thing being done. I did not believe it could be done. I thought that the bells were made in such way that no one could tamper with them. I had never seen the inside of one of them.
895. During these two months did Graham ever say to you, "There he is; at it again"? I do not recollect that.
896. Are you sure? I would not say for certain, but I do not remember his saying that. He might have said it.
897. Do you mean to say that there was any doubt in your mind as to the thing being actually done after you had had these interviews with Graham? I was doubtful at first, because I did not believe they could tamper with the bells.
898. Then how could you say what you said just now—that you knew the Department was being robbed? Well it was if the thing was being carried on.
899. You said that you knew it? If it was I knew that the country must be getting robbed. My greatest suspicion was that Graham had said, "Musgrave won £40 last night, and went to bank it."
900. In what way did that excite your suspicion? I did not think that Musgrave could so easily win £40.
901. You thought it was the result of the sale of tickets? Yes.
902. Was this after you thought that Graham had informed? I think it was after Graham told me that he had told Moran.
903. You are sure Graham knew how it was done? If he did not show me he told me it could be done.
904. Had you ever told anyone else about this until you told Mr. Vernon? No. I do not remember telling anyone about it.
905. Did you never tell anyone about the thing from the hour you first heard it until that date? I remember being present when Graham was telling Keen.
906. When did you hear Graham tell Keen? I cannot say for certain when it was.
907. Was it after he disclosed the thing to Moran or before? Before.
908. Who is Keen? A conductor.
909. What did Keen say about it? I do not know what remark he made.
910. Did you hear Graham tell anyone else besides Keen? I heard him telling Hadwell the driver.
911. Was that before or after he told Moran? I could not say whether it was before or after.
912. Apart from your conversations with Graham, did you not know something of these frauds otherwise? I know nothing at all except what I have been told.
913. Do you know Musgrave? He has been with us with specials; but he is no particular friend of mine; I have spoken to him in passing, that is all.
914. Are you a married man? Yes; I may say that if Graham had not have told I would have out with it, I did not intend to see the tramways robbed.
915. Still you left it alone for over two months? That is all right, because Graham knew all about it; if I went to give information they may have said, "How is it done?" I could only have referred them to the driver. Of course I did not see anything—nothing was shown to me; Graham was so confident that the thing was being done that it began to dwell in my mind.
916. Did Musgrave never mention the matter to you? I was in the yard one day standing at No. 5 pit. I said, "Why don't you do some Parliamentaries, Tommy?" He laughed, and said, "I do very well without Parliamentaries." We get time and a half for that work; that is, if we do six hours' work we get nine hours' pay.
917. Was it in his power to get Parliamentaries? We all get a turn, but we are never compelled to stop. I took Musgrave to mean that there was something in it; he laughed and winked at Graham; I thought that Graham knew something.
918. Was that after Graham had told Moran? I think it was afterwards; Musgrave did not know that I knew anything about it.
919. As you have mentioned the subject, we should like to know a little more about these Parliamentaries; who arranges who shall stop and who shall not for these trips? It is left to the Traffic.
920. Who is the Traffic? Either Mr. Halliday, or Mr. Saunders the shunter.
921. What would the shunter have to do with it? He is left in charge when Mr. Halliday goes home.
922. He is in charge at night sometimes? Yes.

923. And allots the work? Yes.

924. Does he say, "I have so many Parliamentaries to run, and I want so many men," or how is it arranged so that there shall be no squabbling or anything of that kind? If he tells you to stop and you don't want to, you need not.

Fireman
R. Reid,
24 Aug., 1888.

925. Suppose four men wanted to stop, and he only wanted two? I do not know how he arranges that.

926. Do the men take it in turns? I do not know. A man may stop two nights sometimes; or, if my driver should say, "I have done sufficient work to-day, I want to get home," he is not compelled to stop. Some of the men do not care about stopping.

927. This is all you can tell us about these frauds? I do not remember anything else that I can tell you.

928. I suppose—so far as the Parliamentaries are concerned—that if a man were a friend of the shunter's, and there were only two men required, and four ready to go, he would stand a good chance of getting the work? I cannot say; it all lies with the Traffic—I am only a fireman, and I have to do as I am told. If I am told to stop I have to stop; the driver can object to stopping but I cannot.

John F. Saunders called in, sworn, and examined:—

929. *President.*] You are employed as a shunter in the Bridge-street yard? Yes.

930. How long have you been in the employ? About five years.

Shunter
J. F. Saunders.
24 Aug., 1887.

931. When did you first become aware that there was something wrong in connection with the tickets received by the tram conductors? Only about three weeks ago.

932. At the time that the general public were made aware of it? Yes.

933. Did you become aware of it by the same means as the general public became aware of it? Only through the papers.

934. Have you not had some conversation with driver Graham on the subject? Only after I read it in the press.

935. What conversation had you with driver Graham. Will you give us particulars? When I heard that he had been before the department on the subject, I asked him what he knew. He said that he had been in the company of Musgrave, and that Musgrave had told him that the registers had been manipulated, but how I did not ask.

936. Is that all the conversation that passed between you? That is all.

937. You are quite sure of it? Quite positive.

938. You know the conductors, I suppose? Yes, every one.

939. Did not the name of Scott come up between you and Graham? No.

940. You are quite sure of that? Positive.

941. I may tell you that in Graham's sworn evidence he has said that you told him that Scott, you believed, was in the thick of it? I do not remember saying anything about conductor Scott.

942. Do you know him? Yes.

943. What is his character? I do not know his private life at all. I do not know him out of the Department.

944. There is no reason why, if you had mentioned the matter at all, you should have mentioned his name? I have always respected him as being an honest man. I have never dreamt of him as being in any way concerned in the matter.

945. You are quite sure that you never mentioned Scott's name to Graham? Yes.

946. And on reflection you say that you would have no reason to mention his name? No; because I know nothing of the man except from working with him.

947. Before these disclosures were made public, had you no conversation with any of the men on the subject? No; I never associated with any of them off duty, and on duty only so far as my work was concerned.

948. And up to the time you became aware with the rest of the public that these things were going on, you had no idea of the fact? No.

949. You did not even hear the men talking about them? No.

950. You are never in the conductor's room? No; only when I have to go in to call a conductor out.

951. Have you been all your time in the Bridge-street yard? No.

952. Do you take shift about doing morning work one week, and night work the next? I am down at the bottom of the yard.

953. Were you in the habit of having conversations with Graham when you met him? Never on tramway matters, and we never met outside the Department.

954. I mean in the shunting yard? No; never.

955. Did you not do so occasionally? Well, merely passing remarks.

956. What sort of remarks? General remarks, but not on tramway subjects. Being engaged in shunting I always had to tell them when to go out.

957. How many shunters are there? There is one at the top points, and I am down below.

958. You have said that you did not mention Scott's name to Graham, but you did have a conversation with Graham on the subject of the frauds? I did one day; but only for a few moments. I asked him what he thought of them, and he told me that he knew of them long ago. I asked him who he suspected, and he said "two or three." He mentioned Musgrave's name and Fraser's.

959. Did he mention Ferrier? Yes; and Yelland also. That was all, I believe.

960. That was after the matter had been published in the newspapers? Yes.

961. Did you ever hear of his mentioning it to anyone else before he mentioned it to you? No; I did not.

962. You really gave him no information—he gave it to you? He gave me the information; I knew nothing about the matter until it came out in the papers.

Albert Keen called in, sworn, and examined:—

- Conductor
A. Keen.
24 Aug., 1888.
963. *President.*] You are a conductor? Yes.
964. How long have you been in the Service? About four years and four months.
965. When did it first come to your knowledge that there were irregularities practised in connection with the tramway-tickets? I could not say exactly; but it is about six months ago.
966. Will you tell us how it came to your knowledge? Yes; driver Graham told me.
967. Will you narrate the circumstances under which driver Graham told you—where you were, and so forth? We were coming in from Randwick on a tram; Graham told me that he knew how to fake the bells. I said, "I don't believe you can." He said, "I could show you." I said, "How is it to be done?" He then showed me.
968. How; had he a bell? He used the bell I had. He said that if a pin were put in the little slot you could pull and it would register once, and that you could pull it as many times as you liked afterwards but it would not register again.
969. In what sort of way did he tell you of this? In a very earnest way. He said he thought he would like the Department to know of it. He said he thought it a great shame, and that he knew of two or three men who were robbing the Department.
970. What else passed between you? I said, "I don't believe it can be done." He said, "It is right enough because one of the men showed me how to do it."
971. Did he tell you which man showed him? He said Fraser.
972. Are you sure he said Fraser? I am almost sure; there were three men he mentioned altogether—Ferrier, Musgrave, and Fraser.
973. Which of these three had told him? Fraser. He said again that he saw the same man Fraser at the time of the Centennial celebrations with his pocket crammed full of tram-tickets.
974. Did he say on what run he was? I believe he said the Leichhardt run.
975. Do you know yourself on what run he was? On any run; he was an extra conductor.
976. *Mr. Brock.*] Do you know Musgrave, Ferrier, and Fraser? Yes; they have been fellow conductors of mine at different times. When I went home that day after Graham had spoken to me about the matter, I thought I would see if the thing could be done, and I made up my mind that if it could I would speak to Mr. Roberts. Having tried it I found that it could be done.
977. How did you do it? I did it with a scarf-pin.
978. In what way? By putting the pin in the slot.
979. Without interfering with the inside at all? Yes.
980. How long had you been in possession of the bell with which you succeeded in doing it? I cannot very well remember.
981. *President.*] Cannot you give us any idea of the time? About three months, I believe. I do not think it could have been much more.
982. That is about six months ago? Yes.
983. Do you know who had them before? I could not say; the registers are taken from us, and we are given new ones.
984. I suppose there is an account in the office as to who had the register before you? I suppose there is.
985. This register you had must have been put out of order by some one, and it might have an unfortunate bearing on yourself if we cannot trace the person who previously had it. You succeeded with your register, and you did then—what? I put it in my bag, and I went down to Mr. Roberts on that evening; he was not there. The next day I saw him, and told him, as Graham told me, all about it. I said I had tried it, and had found that it could be done. He then brought in Mr. Tyrer and Mr. Primrose. Then he brought a pair of registers and tried it, and said that it could not very well be done.
986. What about the register with which you had succeeded? He did not ask me for mine, and I did not say a word about it.
987. They did not test the register with which you had succeeded? No. Several days after I had found out who were the men who were doing this, Mr. Tyrer told me he did not believe it because the register had to be out of order very much before it was possible.
988. He had no anxiety to see the register with which you had succeeded? None at all.
989. You say that Mr. Roberts sent for another pair of registers;—what happened then? He tried it on them. He used a piece of copper wire and he could not do it. Mr. Primrose said the registers were new or had just come from the repairer; that they were in good order.
990. Did no one say: "Where is the register you did it with?" No.
991. Did it not suggest itself to you to say: "Here is the register I did it with?" No.
992. Where was it at the time? In the box at the yard or at home.
993. Did it not occur to you to say to Mr. Roberts: "I did it with mine; I will bring them to you and will show them to you?" It did not occur to me; I thought it could be done with every register.
994. When Mr. Primrose said that the register was new you might have told him that you could do it with yours but you did not? No.
995. Did it not suggest itself that if the one register would not do it because it was in good order, the other register did it because it was in bad order? Well it did not.
996. How long did you use your register after you knew it was in this state? A month afterwards.
997. What became of them then? They were put in the office and they gave me a new pair; they failed and they were taken in. Sometimes the conductors have two pairs a day which fail, and they have to be taken into the office. When they fail they do not ring at all.
998. Do you solemnly swear that you did not meddle with the inside of your register? I do.
999. You did no more than put the pin in? I did no more than that.
1000. Did you ever open it at all? I never opened it.
1001. How long were you with Mr. Roberts and Mr. Tyrer when you first spoke to them about it? About a $\frac{1}{4}$ of an hour or 20 minutes.
1002. That, we understand was on the day after you had tried it with your own register? Yes.
1003. Did you tell them from whom you had obtained the information? Yes; I said from Graham.
1004. Did your register ring when you gave it in? No; not when I handed them in to be repaired. The ticket bell had gone wrong.
1005. *Mr. Thompson.*] When was it you exposed those who were playing this game? It was nearly a fortnight before I could get the information out of Graham.
- 1006.

1006. You pumped Graham in the meanwhile and then disclosed the names as he had given them to you? I promised Mr. Roberts that I would tell him if I possibly could who the persons were, and I asked Graham.

Conductor
A. Keen.

24 Aug., 1888.

1007. Whom did you name to Mr. Roberts as being the parties? Musgrave and Fraser.

1008. *President.*] This, you say, is six months ago? About that.

1009. You have some further information which you can give us;—what do you know about Fraser? Some time before Graham spoke to me about this faking of the bells Fraser saw me one day coming out of a shop, and jumping on to one of the Newtown trams, he asked me if I kept the shop. I had been into the shop to pay my rent. He asked me if I had the shop in a kind of joke. He did not say it seriously. I said, "Yes." Of course I told a lie, but it was only in joke; so he said, "Do you?" He added, "Do you sell tram tickets?" I said, "No." I was going to jump off at the next stopping place, and he said, "If you want a pound or two's worth I can let you have them," thinking all the time, I suppose, that I really kept a shop; I then jumped off the tram, and Fraser went on in it.

1010. How long ago is that? I dare say that is about eight months ago.

1011. Did you not press him to know what he meant by selling tickets to you? I did not take much notice of it; there were often jokes like that passed on the runs.

1012. As to selling tickets? Well, not exactly that kind. I did not think much of it until Graham spoke to me.

1013. You did not think that Fraser had the tickets? I did not think he was speaking in earnest; I did not know what he was giving me.

1014. Had you no suspicions of your own before Graham mentioned the matter to you? I had my suspicions of Fraser after Graham had told me that he was one of those who were faking the bells, but not before.

1015. We should like you to try to fix your memory as to the dates. We do not say for a moment that you can remember them, but will you refresh your memory as to when Graham spoke to you coming down from Randwick? It was on a light engine.

1016. What sort of weather was it? It was summer weather. The pocket-book I now have with me I got on the 20th February last; I will look in the book which I previously had, and see if I can find anything there which will enable me to remember the date; there may be some memorandum which will fix the time.

1017. Your opinion is that it was not far from the 20th February when Graham spoke to you? I think it was about that time; I will look in the other book, and let you know if I find anything.

1018. Is this all you absolutely know about this matter? That is all that I know—all that I can possibly tell you.

1019. We must ask you to give us the fullest information in your power? Yes; I understand that.

1020. Any deduction you have drawn from anything you have seen or heard may be of value to us? I can think of nothing at this moment.

1021. *Mr. Thompson.*] If there is anything which you have kept in your own mind in reference to the matter let us know of it, please, so that honest men may get their due, and others may get their deserts? I should be quite willing to tell you anything I knew.

1022. What is your age? I am 24 next birthday.

1023. Are you a married man? Yes.

1024. Do you ever frequent gambling places? No. I remember that I was speaking to Musgrave the other night. I forget the date, but it is since his services have been dispensed with—and he said, "Have you been up at this inquiry yet?" He also said, "They have given me no show yet" and "They won't do anything with it. If they had gone the right way about it at first they might have done something." Then he got off the tram at Simonds-street, Newtown.

1025. That is all Musgrave said to you? That is all.

1026. Have you seen anything of Fraser lately? Not since he has left—the morning I was up before the Department. He took my tram to Marrickville while I was up there, and I have not seen him since.

1027. Are there any other persons you have reason to suspect in connection with these frauds beyond those you have mentioned? None whatever.

1028. Do you know a man named Scott? Yes; well.

1029. What run is he on? Woollahra, Waverley, and Bondi.

1030. On the same line as Musgrave? Yes. I never speak to Scott now. I lent him half a sovereign seven years ago, and he has never repaid me. He was in the ticket office at Ashfield, and some money was missing; I think he got dismissed for it. He said there was £4 missing out of his cash, and that he got dismissed for it. That is what he told me.

1031. But you had no reason to suspect him in connection with these frauds? No.

1032. Have you heard anyone say that they suspected him? No.

1033. Have you any reason to think that he is not honest? I do not think he is honest, or he would have repaid me my half sovereign. He is a flash kind of fellow, and I never speak to him.

1034. Does he frequent gambling saloons and racecourses? I believe he does a bit of betting on the racecourse, but I do not know about his frequenting gambling saloons. I know nothing about them myself.

Ah Lum recalled and further examined:—

1035. *President.*] We understand that you have put this little matter to the test as to the conductor who sold you the tickets on the night to which you have referred? I have pointed out to Mr. Wigg the conductor who sold me the tickets.

Ah Lum.

24 Aug., 1888.

1036. Is there the slightest doubt in your mind that the man you have pointed out is the man? I think I am not mistaken.

1037. You have no doubt in your own mind? No doubt.

1038. Have you had any conversation with Gouldtown about Greeley since you were here this morning? No.

1039. Have you seen Gouldtown since this morning? I saw him over there just now.

1040. Had Gouldtown any connection with your identification of Greeley? I told him how the man I pointed out had sold me tram-tickets.

1041. Did you see Gouldtown before or after you had pointed out Greeley? Afterwards.

Walter

Walter Wigg recalled, and further examined:—

- W. Wigg. 1042. *President.*] You have heard what the last witness said? Yes.
 1043. You did not hear his evidence this morning? No.
 24 Aug., 1888. 1044. You have heard him say that he has pointed out a man as being the conductor who sold him some used tram-tickets some time ago; will you be good enough to name the man pointed out by him? Conductor Greeley.
 1045. You were there when Ah Lum pointed him out? Yes.
 1046. Was there any hesitation in his manner? No.
 1047. What did he say? I do not know; he spoke in Chinese to the interpreter.
 1048. Was he sitting there waiting, or was Greeley there first? He was sitting there waiting. First, conductor Tunks came along in a Waterloo tram, and he said something in Chinese to the interpreter. I then said to the interpreter, "Is that the man?" and he said "No." About a quarter of an hour afterwards Greeley came up to the platform in his tram. I told the interpreter that the Botany tram was pulling up. Ah Lum then looked at Greeley and then spoke to the interpreter in Chinese. I said, "What did he say?" and the interpreter replied, "He says that that is the man."
 1049. Did he wait for you to ask him? Yes.
 1050. He did not say at once "That is the man?" No.
 1051. We have heard of Gouldtown;—is he a Chinaman? Yes.
 1052. When did you see him to-day? About 5 minutes after he had identified Greeley.
 1053. Where did he come from? From the lower part of Bridge-street.
 1054. You are quite sure that Ah Lum could have had no conversation with Gouldtown from the time he saw Greeley until he recognized him? No; I am quite sure that he could not.

TUESDAY, 28 AUGUST, 1888.

Present:—

A. RICHARDSON, Esq., PRESIDENT.

R. W. THOMPSON, Esq., M.P.,

F. A. BROCK, Esq., J.P.

John Graham recalled and further examined:—

- Driver J. Graham. 1055. *President.*] I understand that you have come here to day in order to add to your statement of yesterday something which you had forgotten? Yes, in reference to the reason why I thought Musgrave took me into his confidence in this business. He asked me if I had any friends who could do a few pounds worth of tram-tickets per week. Another thing which I noticed happened on a race-day; Musgrave was conducting on the cars in the morning and I noticed that he was taken off the cars when the rush commenced.
 28 Aug., 1888. 1056. He was taken off the cars as a conductor? Yes, he was taken off as a conductor and placed in the yard car-cleaning. I asked him in a joke was he promoted, and he said, winking his eye, "yes, there is something on the board." The next thing I heard was at Randwick when I was told that they had dropped upon two of the conductors who were caught keeping fares back.
 1057. Who had dropped on them? Two outside detectives.
 1058. Do you know the date when this occurred? I do not know the date, but it was the same day that one of them, Hendy, was dismissed, and O'Donnell was the next.
 1059. What drew your attention to Musgrave's being taken off on that day? Being a very busy day I noticed it, as all the others were doing overtime, and, Musgrave being a smart young fellow, I thought it strange that he should have been put car-cleaning on that day.
 1060. Do you mean to say that the officers put him off the cars so that he might not be caught by the detectives who were at work on that day? Yes, I took it so.
 1061. Were these special trams on which a special charge was made? Yes—Musgrave was always a special or spare conductor.
 1062. Was he in the habit of acting as conductor on the race trams? Yes.
 1063. Was he taken off at any other time? Not that I noticed.
 1064. Had you any conversation with him afterwards about it? I had.
 1065. You had. Well let us know how it came about? It came about in talking about Hendy being caught, and he said he did not think Hendy was such a bloody fool.
 1066. Did he say how he happened to be taken off the trams on that day? No, he did not.
 1067. Did it not seem a strange thing to you? Yes.
 1068. Who could take him off? I can't say.
 1069. Who could arrange that he should be taken off? I do not know.
 1070. Do you think the yard foreman could take him off on a day like that? I do not think so.
 1071. *Mr. Brock.*] Who do you think did it? It must have been some one in authority,—I believe Mr. Roberts did it.
 1072. *President.*] Why do you think Mr. Roberts did it? I think so, because he is always about the yard when anything special is done.
 1073. Had information been given to the Department by the Police which led to Hendy's being taken? Not that I know of. I knew nothing about it until he had been taken.
 1074. *Mr. Brock.*] Might he not have been taken off the cars to prevent his having anything to do with this matter, as they already suspected him? Yes, I think so.
 1075. *Mr. Thompson.*] When was this: was it before Musgrave made his so-called confession? It was some time before that.
 1076. *Mr. Brock.*] I would like to know the exact date on which Hendy was dismissed? I find it was April 7th last.
 1077. *President.*] I am not satisfied yet with this. You, Graham, gave us distinctly to understand that Musgrave was taken off the cars on this particular occasion for the purpose of saving him from the fate which overtook Hendy? Yes, I did.
 1078. And you go on to say that Mr. Roberts took him off to save him? This is assumption on my part.
 1079.

Driver
J. Graham.

28 Aug., 1888.

1079. As far as you know was the Department aware that some one would be caught manipulating the registers on this particular occasion? Yes; I am sure of it.
1080. And you think that Mr. Roberts was moved to take Musgrave off the cars on that day to prevent his being caught? I am positively sure that something moved Mr. Roberts to take Musgrave off to save him from trouble.
1081. How was the swindle done with the wire in the bell which Hendy was using? I do not know how it was done.
1082. Do you know how Musgrave did his swindling? I do.
1083. Do you think he did it often? I believe he did it on every race-tram. It could be done on race-trams just as well and in the same way as on others.
1084. Have you not some certain information which you are not fully giving us as to the way Musgrave was drawn off this particular tram? I presume from the way he was taken off that it was done to save him.
1085. *Mr. Brock.*] Did Musgrave not tell you afterwards what it was done for? No.
1086. Are you sure? Yes.
1087. *President.*] Did he not tell you that if he had not been taken off he would have been caught? No.
1088. You stated positively that Musgrave was taken off by design in order to save him from being caught, and you went further and said that you were sure that he was taken off by Mr. Roberts who had been moved by someone to do it in order to save him? I know that he would most likely have been caught if he had not been taken off.
1089. Do you know anything further of Musgrave on the day Hendy was dismissed? No.
1090. You only know that he was taken off the car and put car cleaning; is that your reason? I put the two things together and formed my opinions.
1091. Was he in charge of a tram again on that day, do you know? Not to my knowledge.
1092. Have you anything else to tell us in the matter? Nothing further.
1093. *Mr. Brock.*] Was there anybody else in the yard on that day who would have the authority to do this? No. I think no one would have the power on these occasions except Mr. Roberts.
1094. Why would it be Mr. Roberts? Mr. Roberts is always in the yard on these occasions.
1095. *President.*] Did not Musgrave confide in you a great deal as to what he was doing? Yes.
1096. Did he tell you that the race-tram was a good thing for him? I believe he did. I remember him remarking that he wanted one day to get off, and he asked the foreman to let him off, and he passed the remark to me that it would be a damned sight better for the Department to let him off altogether. I have made this remark in another place.
1097. *Mr. Brock.*] There is a special tram on which the charge is 3s. 6d., and you must get tickets. Does Musgrave go with this tram? He never was on that tram, and could not defraud in connection with it. It is a special ticket, and there are two men who go regularly with this tram.
1098. Do you think that Musgrave was cheating on the race-trams as well as on other trams? I am sure of it.
1099. Have you any other information to give us? I have told everything that I can think of now.
1100. *President.*] I cannot see what you can gain by suppressing information? I do not know anything more positive than I have stated.
1101. I cannot understand that Musgrave had no conversation with you about this. It is contrary to human nature? He told me afterwards he knew that they knew bloody well in the office that he was carrying on this game.
1102. When was this? This was in the course of a few days afterwards.
1103. When he called out to you and said there was something on the board did he appear angry or sorry? He did not seem to care a bit.
1104. Did he not tell you this was a loss to him? No he never passed any remark. He did not have any opportunity to pass any remarks as I was only passing him coming into the yard.
1105. Do you know Seddons, a barber, at Waterloo? No. One day I was in a barber's shop in Botany Road, and there were two chaps sitting on a chair, reading in the *Evening News* about the tramway frauds. This was in Powell's, 91, Botany Road. They said they thought as much, as whenever you go to Seddon's you always get tickets in ones or twos.
1106. Does Powell sell tram-tickets? No it is a barber's shop and he does not sell tickets.
1107. Did they say anything more? No; the conversation dropped at that with them.
1108. *Mr. Brock.*] Was Musgrave always put on on the race-days? Generally he was.
1109. Was he a conductor or an assistant? He was an assistant conductor; spare conductor is the proper name.
1110. *President.*] Was there any gambling going on at Powell's? Gambling for cigars.
1111. At what time does this gambling generally take place? It goes on at any time there are two or three chaps there.
1112. Have you taken part in it? I have.
1113. How do they gamble—with cards? They play euchre and cribbage for cigars instead of money.
1114. What do you play for if you play euchre? You play for three cigars.
1115. Do you take cigars every time you win? No, it is only to see who pays for them.
1116. *Mr. Brock.*] What do they charge for them? Threepence each and we pay the owner for the cigars.
1117. *President.*] How long do you play? A couple of hours is the longest I have played.
1118. How much have you won in that time? I have gained eight or nine cigars in the time.
1119. Does this gambling as you call it go on late at night? No.
1120. When used you to go to this place? If I were on the evening shift I went in in the morning, and perhaps if there were two or three chaps there we had a game; but perhaps we might not.
1121. Are there any other tramway men who go to this place? James Dixon, fireman, and James Frost, driver.
1122. *Mr. Brock.*] Did Musgrave play there? Not to my knowledge.
1123. *President.*] Have you anything more to tell us? No.
1124. *Mr. Brock.*] Do you not know conductors now in the Service who are carrying on this cheating, or who did carry it on? No. About Scott, Saunders was the first one to say to me, had I heard about Musgrave, Ferrier, Greeley, Scott, and a lot more doing this thing. He said he did not know for certain about Scott.
1125. Was Musgrave the first who spoke to you about manipulating the bells? Yes.

1126.

Driver
J. Graham.
28 Aug., 1888

1126. Any one else? No one.

1127. *President.*] You told us about Yelland. He has gone away with a good sum of money. How did he manage it? He did it by booking his register; then reading it the same as they do in the office and then filling in what was wanting.

1128. *Mr. Brock.*] How do you know that this was the way? Musgrave told me this was the way, but that he was the only one who could do the ringing business. You must recollect I did not get all this information in a day or two. I got snatches of it now and then, and it took very many weeks.

1129. *President.*] Did you ever tell anyone that Musgrave received instructions as to how to do it from the office? I do not recollect it. In conversation I said "I believe it came from the office."

1130. Did you say that the information given to Musgrave as to how to doctor the bells got out from the office? That is what I said. I did not inquire any further into the matter, knowing that Colls is his brother-in-law, and is in the office. I thought he told him how to do it, and from his telling me he knew it and did it from a fortnight after he went on.

1131. Is he a mechanic? He is not a mechanic, neither is Colls.

1132. Did Colls and Musgrave divide the proceeds? I have no information as to this. Colls is married, and is Musgrave's sister's husband. Mr. Oakes is something in the ticket-office. I have not said that he was mixed up in the mess. I have not said so nor have I any reason for supposing it.

1133. What is he? He now reads registers.

1134. Have you any reason to suspect him in any way? I have no reason whatever to suppose that he has in any way interfered with the bells, or shown the conductors how to manipulate them.

1135. You know Mr. Colls, I presume; have you had no conversation with him on the subject of the ticket frauds? I know Colls, but I have never had any conversation with him about these things.

1136. Is it not strange that you did not speak to Musgrave again about being shifted into the yard? That is just the reason that I would not speak to him.

1137. Why? Because it would have told him that I knew.

1138. You are sure you have not spoken to Colls? I did not know Colls sufficiently well to speak to him.

1139. Musgrave was in the Department when the ticket-tearing method was in force was he not? I believe so. If I said anything to Colls I take it for granted he would have told Musgrave.

1140. *Mr. Brock.*] How did they manage when they were tearing the tickets? Just as easy as they do now, only that they did not do it in the day-time.

1141. *President.*] How did they do it? They did not tear them at all, but got them lengthwise, that is how Musgrave gave me to understand he did it.

1142. When he gave the information first the registers had been back for some time? Yes.

1143. *Mr. Brock.*] When did Musgrave tell you about tearing the tickets lengthwise? He told me after the tearing had been abolished. He told me that he had been doing this since he was a fortnight in the service.

John Charles Frost called in, sworn, and examined:—

Driver
J. C. Frost.
28 Aug., 1888.

1144. *President.*] What is your name? My name is John Charles Frost.

1145. How are you employed? I am a motor driver.

1146. We have sent for you to attend because we understand that you are able to give us valuable information in connection with these tramway frauds? I don't think that I can tell you much.

1147. *Mr. Thompson.*] We are given to understand that you have been offered tickets for sale on one occasion, if not on more? No.

1148. Absolutely no? Absolutely no.

1149. *Mr. Brock.*] No one has offered to sell you tickets? No.

1150. *President.*] Is it not a fact that when you were about to buy tickets on one occasion, Graham said you had better buy them from him? No.

1151. Will you swear that? I will swear positively that it did not occur.

1152. Will you swear you did not tell Greeley so? I will swear positively that I did not tell Greeley anything of the kind.

1153. Do you remember tickets being found in Greeley's pocket? Yes; we had been to get a drink, and when walking back he took some tickets out of his pockets, and said he had often heard that swindling was going on, but he had never seen or believed it until now.

1154. How did he bring them out? He dragged them out with his left hand, and showed them to me.

1155. Did he think you saw them first, and, under that impression, show them to you? I do not think he saw me looking at them.

1156. If he had not shown them to you would you not have noticed them? I do not think I would; we were walking alongside each other, and he brought the tickets out of his left-hand pocket, and showed them to me.

1157. Was it not when he came to pay for the drinks in the hotel that he pulled the tickets out of his pocket? No, it was not.

1158. Are you quite sure of that? I am quite sure it was not; it was after we had left the hotel, and as we were walking down.

1159. When did you first hear about these frauds? I was told about them some five or six months ago, when going from a Parliamentary tram.

1160. Who told you? Graham told me.

1161. What did he say? We were walking home; he told me that there were chaps on the job who were making £10 per week.

1162. Did he name them? He would not say who they were.

1163. Did you ask him to give the names? I tried to get the names, but he put it off, and would not say; he did not tell me any of them.

1164. Did you threaten to report the matter if he did not? I did not.

1165. What did you advise him to do? I said, "Well, I would lay somebody on to them," or something to that effect.

1166. When Greeley took the tickets out of his pocket, what did he do with them? He handed them to me to mark, and I did so. I told him to put them into his bag. I told him that he had taken these tickets, and was trying to put the blame on some one else. When he drew them out of his pocket they did

did not come out whole, they were together, as if they had been collected; they came out altogether in his hand. I do not believe that he put them there. If I do not believe that he put them there, somebody must have put them there to trap him. He told me that a man had had his coat for some time, but he did not tell me who it was.

Driver
J. C. Frost.
28 Aug., 1888.

1167. *Mr. Brock.*] Did Graham refuse to give you the names of the persons he said were making £10 per week? He did not actually refuse, but said, "Ah! that's hardly good enough!" or something to that effect. How the conversation came about was about the trams not paying, and then he said about the £10 per week.

1168. *President.*] Is that all you know about the frauds? Yes, I think so.

1169. *Mr. Brock.*] Do you think somebody borrowed Greeley's coat, and put the tickets in the pockets? I have formed no opinion on that matter. I thought it a very mysterious thing, though.

1170. *Mr. Thompson.*] Did you never have any conversation with Graham on the subject of the frauds, except on that one occasion? Not for months. I think it was about two months ago, when the thing was beginning to spread; he then told me that he had told the detectives. This was about five, six, or seven months ago—the night of the Parliamentary tram.

1171. *Mr. Brock.*] What did Greeley mean by the expression he made use of to you when he drew the tickets out of his pocket? I should think it did not mean that he took the tickets himself.

1172. *President.*] When did this occur? It was about three months ago.

1173. When Greeley spoke to you about swindling, did you not tell him what you had already heard from Graham? I did not. Greeley is a great man to talk, and I say very little to him. I did not tell him when he told me about the frauds being perpetrated that I left Graham to do that work.

1174. In connection with the matter of Graham offering tickets to you, the statement made is very clear, and it seems impossible to us that it could have been dreamt by the man who made it. The statement made by Greeley is that you told him that on one occasion when you were going to buy tram-tickets Graham said you might as well purchase them from him; also, that you saw a large number of tickets in Graham's possession at the time? I positively swear that such a thing never took place.

1175. Do you know Powell, a barber? I do. He is also a tobacconist.

1176. Does he sell tram-tickets? I have never seen tram-tickets there. I do not know whether he sells them or not. I went there because I found that he was in the habit of supplying a pot and brush.

1177. What else did you go there for? I have had a game of euchre there. Graham, Dixon, Powell, my father, John Frost, of Botany, and some others, who I do not know, used to go there. I used to be intimate with Graham, but did not knock about with him. I have never been in Powell's at night. It was when I was on my holidays last week that I was there. It was between 10 and 11 o'clock in the morning.

1178. *Mr. Brock.*] Have you never been in the place after dark? No, never. I played for drinks and cigars, never for money.

1179. *President.*] Did you play for tickets? Never for tickets. I do not know whether the man has a license to sell tickets.

1180. *Mr. Brock.*] How long have you been in the Service? About six or seven years.

1181. I cannot understand you not giving information when you knew about this. All you had to do was to have gone to Mr. Roberts and told him. Whatever your information had been worth he would have been the judge? My information was worth very little, and it would have placed me in an awkward position if it had been incorrect.

1182. *President.*] Did you mention it to anyone? I told my father the day after I heard it from Graham.

1183. Is your father, John Frost, lately a railway engine-driver? Yes, my father was about thirty years in the service. I am 32 years of age. My uncle, Charles Frost, has been many years in the Service. I have a young brother in the drawing office. Beyond mentioning to my father, I have never mentioned it to a soul.

1184. Is it not a fact that at first you were going to take the tickets from Greeley and make use of them? No.

1185. But on reflection you considered that it might be a trap and you returned them? No. I marked the tickets. It was not after we thought it might be a trap that I returned them. I did not think about it.

1186. *Mr. Brock.*] How many tickets were there? Twenty-two. I think I marked up to that number.

1187. *Mr. Thompson.*] Why was he to put the tickets in his bag again. What did you tell him to do that for? It is such a foolish thing to be putting tickets into the man's pocket.

1188. Your first impression was that he had stolen the tickets and he was making a profession of innocence to you? I hardly know what I thought.

1189. *Mr. Brock.*] Were you in the habit of buying tram-tickets? No, my wife does generally if we go out any place together.

1190. Were you going to buy tickets when Graham said buy them from me? I have never been out of a holiday with Graham. I have never been in Graham's company in a shop when I was going to buy tram-tickets.

1191. *President.*] Where did you go with Greeley for a drink when the tickets were found in his pocket? It was Gibbons' hotel where we, Greeley and I, went for the drink. After coming out Greeley pulled the tickets from his pocket. It was not his uniform coat from which the tickets were taken. It was a big overcoat.

1192. Is there nothing more that you can tell us? I can assure you on my word as a man, let alone the oath which I have taken, I know no more than I have told you.

1193. *Mr. Brock.*] It is a pity you did not strike sooner? Well it has been published in the papers frequently. No one has made the remark to me that it was no wonder the trams did not pay.

John E Loder called in, sworn, and examined:—

1194. *President.*] Your name and occupation? My name is John Eli Loder. I am a general commission J. E. Loder.
agent at 147, Elizabeth-street.

1195. We have sent for you because we understand that you can give us some information about these 28 Aug., 1888.
tram frauds? I do not come to make any statement about them.

1196. Do you know a man named Caspar or Gaspardo? I know a man named Gaspardo. He came to me
thinking

J. E. Loder. thinking that I could give him some advice as I had been in the police. It was in reference to some business which he termed "coining money." I asked him what he meant and he said robbing the Government. He would not give me the details. He asked me if I knew whether the Government allowed anything to informers. I told him I did not think so. I told him I did not think there was any reward for coining, that is, if they were really false coiners. I took it literally that they were coining money.

28 Aug., 1888.

1197. He gave you certain numbers or figures did he not? He stated how much a week they were making and so many months, and asked me to make up how much it came to. I believe I ran him up some scribble or another. He said that they were robbing the Government of £30 to £40 per week.

1198. *Mr. Brock.*] Coining money would not be robbing the Government? He told me it had been carried on for three or six months. I made a calculation for him, but not carefully.

1199. You made your calculations to the £10, so you worked it out to a nicety? I gave him a rough idea and said that is near enough.

1200. *President.*] When did this occur? In the early part of the year.

1201. Were you not interested, from your previous connection with the Police Force, in finding out what this robbery was; that is, its details? I was not. Living as a citizen I did not think that I should interfere in the duties of the police. I thought they might go on coining money. It had nothing to do with me.

1202. *Mr. Brock.*] Did he not tell you all about it? No, he did not.

1203. Nor where it was going on? No.

1204. *President.*] You did not consider it your duty to take any notice of it? No. He wanted me to give him advice as to how to go, to work to get a reward. I said, "Go to the Inspector-General of Police, and no doubt he will make arrangements for a reward if your information is good enough."

1205. *Mr. Brock.*] I would not call coining money robbing the Government? I thought he meant coining money.

1206. *President.*] You actually told him if he wanted to lead a peaceful life to let it drop? I told him to go to the Inspector-General of Police. I was trying to get the information for myself, and I can prove this by one of the detectives; but I said I was not to be mixed up in it.

1207. *Mr. Thompson.*] What detective? Detective Power.

1208. *Mr. Brock.*] How long were you in the force? About three years.

1209. Why did you leave it? I object to answer that question.

1210. Why did you leave it, sir? I tendered my resignation.

1211. Why did you resign? I resigned to attend private business of my own.

1212. What was your object in not answering my question? There are many unnecessary questions.

1213. I think you must have been a very indifferent sort of constable if your duties were carried out in the same way that you carry out those of a private citizen. I am very anxious to know how you left the Police Force. Why did you not take the man to the Inspector-General of Police? I do not think there is a bad mark against me. What would I have benefited by taking him to the Inspector-General? I told the police and Detective Power that if I could get particulars of the case I would tell them, but I was not to be named in it. I would not be an informer. I reckon a man is an informer who would take the reward as a means of living.

1214. If you saw a man killing another you would not interfere then? I would.

1215. But you would be an informer if you told of him? That's different.

1216. *Mr. Thompson.*] How did you come to know Gaspardo? In my ordinary course of business. He is a man always in little businesses in town, and I have places to let.

1217. *President.*] Where did you first know him? He was in a fish and oyster saloon, and then he came to my office several times to inspect different hotels for a lady. I have seen him in the oyster-saloon; I had the letting of it; it was in Albion-street. I was walking by the shop in Liverpool-street when I saw him, and said, "So you have taken this place." This was a long time before he told me anything about the frauds. I saw him for the first time when he asked me to value the things in the place for him. I did not value them, because it was too far for me to go for so small a job. I believe he and the owner came to arrangements. I have seen Gaspardo in the shop at the corner of Elizabeth and Liverpool streets. I do not know who keeps that shop. I went into it for a cup of tea, and he was serving behind the counter. It was after he had left the Albion-street shop. It was after I saw him in this shop that he came to me for advice. It did not strike me that he was alluding to this shop. He said, "Coining money."

1218. *Mr. Thompson.*] Is it not a fact that you were in that shop continually? It is not. I may have been twice or once a week. I do not know the proprietor of the shop.

1219. *Mr. Brock.*] Was it Gaspardo? I do not know.

1220. *President.*] Did it not occur to you that Gaspardo's statement was in connection with the shop? No; I did not think of it.

1221. *Mr. Brock.*] He came to you for an express purpose? He would not tell me anything. He wanted me to tell him whether there was a reward. He said, "What is the use of me putting any one away without I get something for it?"

1222. *President.*] Do you know the shop of Nicholas Williams, running from Elizabeth-street to Wexford-street? Yes.

1223. Have you been in there? Yes.

1224. In company with Gaspardo? No, not in company with Gaspardo. I met him there; not by appointment. I have been often in Williams'. Early in the morning, about 8 o'clock, or late in the evening, 6 or 7 o'clock.

1225. *Mr. Brock.*] Do you know the lady for whom Gaspardo wanted to inspect the hotel? No.

1226. *Mr. Thompson.*] Did it not strike you that he was rather a peculiar person for a lady to employ as an agent? I knew he was a good business man in an hotel. I knew he was running about with a fish-barrow. I did not go to Elizabeth-street to find the lady for whom he wanted the hotel.

1227. *Mr. Brock.*] Have you seen women in the shop? Yes.

1228. Were they employed in the shop? No.

1229. Who kept this shop? I cannot tell.

1230. *Mr. Thompson.*] Did you not go to these shops much more frequently now than before—were you not

- not often there? I used often to call at Williams' for a cup of tea, because I believe in running a man up to do business if I see a chance of doing it. What I could understand was that the lady was worth money.
1231. *Mr. Brock.*] You have not told us how this money was being coined? I do not know. I only heard for the first time last night from Wigg and Moran what was meant. I had not the slightest idea of where it was being coined. Of course I read the newspapers, but I do not know anything myself.
1232. *President.*] Do you know a shop in Market-street where tickets are being sold? I have obtained tickets from many different shops.
1233. One near Elizabeth-street, into which you went with Gaspardo? Marshalls'! I was not in there with him that I am aware of. I do not know whether they have a license to sell tickets. I have been there for postage stamps, but only about half a dozen times. I think the first time I ever saw Marshall was last night. I was with a person who was going to Marshall's, but said he did not know where it was. Neither did I; but as we went along the street we came to the shop, and Marshall was standing at the door. I asked him if this was Marshall's, and he said "yes." The man then went and did his business. The first tickets I ever saw sold there was last night. I never saw tickets offered to Marshall. I do not know Ferrier who used to be a conductor.
1234. Do you know Charles Cook? I know one of them. I have been in the shop, 94 Liverpool-street. I do not know them except through business transactions. Cook was never in my office in his life; not any of the Cooks. It is not a fact that Cook and Ferrier have been at my office. I do not know Ferrier at all. I know Cook by a transaction in filters, for which I was agent, and as I could not sell them I gave one to Cook to try. He said he had no money, and I said all right. Before this he was living in Elizabeth-street, and is now in Liverpool-street. Cook never had money when I went for it, and I said "The best thing for you to do is to shout cigars and I will make you a present of the filter."
1235. *Mr. Brock.*] What kind of a filter was it? It was a nickel-plated filter for fixing on a tap. I have never seen him outside this transaction. Ferrier I do not know.
1236. *President.*] When did you see Gaspardo last? I have not seen him this last six weeks.
1237. Did you not have a conversation with him last Saturday night? No.
1238. If we are told that you had a conversation with him at that time, is it absolutely untrue? I will swear that I have had no conversation with him during the last ten days.
1239. You have had a conversation with him about this matter? I have not.
1240. I am speaking of this last ten days covering the sitting of this Commission? No.
1241. *Mr. Brock.*] Do you know Constantine Pappodocci? No.
1242. *President.*] Have you had a recent conversation with Nicholas Williams on this matter? No.
1243. But you know him very well, I believe? Yes; I know him very well, but I have had no conversation with him on the subject of this inquiry.
1244. *Mr. Thompson.*] What did you drop off going to Nicholas Williams' in such a sudden manner for? Well, a person can please himself.
1245. *President.*] You know a number of the conductors? Yes; I know a number of them by sight.
1246. Do you know Musgrave? I do not.
1247. Have you not had negotiations about the lease of the "Southern Cross Hotel?" I cannot recollect.
1248. You may be able to give us the probable price of the place? If I knew the length of the lease I could give you an idea of its worth.
1249. *Mr. Thompson.*] If the lease were eight years and the rent £8? It would be about £2,000.
1250. *President.*] What would he be required to pay down? I believe the amount would be about £1,000 or £1,200 to go into it.
1251. *Mr. Brock.*] Do you know Masocra? I do not know him by name, but might know him by sight.
1252. Do you know anything about the tram frauds? No; I know nothing about them.

Alfred Weston called in, sworn, and examined:—

1253. *President.*] What is your name and your occupation? Alfred Weston; I keep a little shop in Stanley-street. A. Weston.
28 Aug., 1888.
1254. How long have you been in business there? I have been in it two and a half years.
1255. Have you a tram-ticket license? I have never had a license to sell tram-tickets.
1256. Have you ever applied for one? I have only applied once for a license—a short time ago.
1257. But you have been selling, have you not? I have been selling tram-tickets in a very small way ever since I have been there.
1258. Are you still selling? I have not sold since I applied for the license. I have always been aware of the law. I am liable to a fine for selling without a license. At first I was selling without the knowledge of the law.
1259. *Mr. Brock.*] Where do you get your tickets from? The schoolboys from the Grammar-school come for biscuits and other things, and give tickets instead of money.
1260. What is the largest number you have ever had in stock? The largest number I have had on hand is two dozen.
1261. Are you certain of this? It might be more—it fluctuates—sometimes it is less.
1262. We want to know the largest number you have ever had? I have had perhaps three or four dozen at one time.
1263. Where do you keep them? I keep them in a small box in the till. The box was there when I went into the shop.
1264. A cigar-box, is it not? It is not so large as a cigar-box. It is a small box and kept in the till.
1265. Will you swear it is not a large cigar-box, and that you keep it on a shelf behind you? I will swear that it is not, and that I do not keep it on a shelf.
1266. How long do you say you have been there? I have been in the shop two and a half years.
1267. On the 22nd September, 1887, I bought tickets from you, and you took them from a box—a 500-cigar-box—and you took it from a shelf at the back and put the box on the counter in front of me. I paid you 1s. I deny that it was a 500-cigar-box. I must have taken the till out.
1268. The box was on the counter, and full of tickets? You make a mistake.
1269. *President.*] Where was the box? I swear that the ticket-box is in the drawer in the till.
1270. *Mr. Brock.*] Do you recollect my coming and buying tickets, the day after a tall, dark lady, had

- A. Weston. had bought tickets at your shop? I do not recollect you. I do not remember a tall, dark lady, coming in and buying tickets.
- 28 Aug., 1888. 1271. The lady was my wife, and she saw the big cigar-box; when she came home she told me; I then came on purpose to see it for myself? I have never bought a ticket from anybody but the boys and I would not tell a lie.
1272. *President.*] My opinion is that there may have been a misunderstanding as to the position, but I cannot see how there can be any mistake as to the large cigar-box? It is a drawer.
1273. *Mr. Brock.*] I went with an object in view. I had heard about the cigar-box, and I went and saw it. The officers of the Department also saw it; the box was nearly full when I saw it? You make a mistake in the size of the box.
1274. *Mr. Thompson.*] Did you take the tram-tickets as money? Yes; as pennies.
1275. *President.*] You have done general dealing with them? They come and buy goods in the shop; I have not done other dealings beside tram-tickets.
1276. It is not a fact that the boys have given you paper—foolscap, writing, cartridge paper, &c., for fruit? No, it is a deliberate falsehood.
1277. Did you give full value for the tickets, that is equal value to a boy who gave you tickets as to one who gave you coppers? Yes; equal value.
1278. *Mr. Thompson.*] You must have taken four or five shillings worth of tickets during the day;—how do you get rid of them? I never take that amount in a day nor half of it. The boys may forget their dinners, and I often give them cakes on trust; I also often give them tram-tickets if they have none.
1279. *Mr. Brock.*] How long have you been doing this? Up till about six weeks ago, but not to the extent I did before.
1280. *President.*] Why did you give up selling? On account of a man being fined.
1281. When you recently applied for a license to sell tram-tickets did you volunteer any information? I told them what a lodger told me, that the conductor did not collect tickets from Camperdown to Bathurst-street. The lodger's name is Barker, and he lives with me at 2, Stanley-street. He works at Westlake's, the harness maker. He said he got off and walked away without paying. All the passengers were wondering why he did not collect the tickets. I gave the information in order that the Department might find out for themselves. I have gone on the trams and have not had my tickets collected, and have got off before I paid. My lodger said he did not pay, but got a cheap ride. It would be an advantage if I had a license, because people now have to cross the line at Liverpool, Bathurst, and Park streets before they can get tickets.

Spero Magray called in, sworn, and examined:—

- Spero Magray. 1282. *President.*] What is your name, and where are you employed? Spero Magray. I am working for Mr. John Black, oyster-shop, Botany Road.
- 28 Aug., 1888. 1283. Were you previously employed at Constantine's shop? I have been sometimes at Constantine Pappodocci's shop, but never worked there.
1284. You know Constantine and his partner? I know both Constantine and Masoorah.
1285. What do you know of their transactions in tram-tickets? I have seen them coming along the street from the office two or three times with tickets.
1286. When? It was last year I saw them fetch them.
1287. How did they bring them? They brought them open in their hands.
1288. Have you not seen them buying loose tickets? I have never seen them buy loose tickets.
1289. Did you not tell anyone you had? I did not tell anybody that I had.
1290. *Mr. Brock.*] Where else have you worked? I worked for Nicholas Williams last year.
1291. *President.*] Did you not see loose tickets bought at his shop? No.
1292. When were you employed there? I was there last year, about three months, and all I know is that he sent me down to the office sometimes to buy tickets; sometimes he gave me £5 to buy them.
1293. You are not telling all you know about this? I know nothing more. I am telling the truth.
1294. Tell all you know, and no harm will come to you, or to anybody belonging to you? I do not know anything. If I knew more I would tell it.
1295. Can you give us the dates on which you went to the office to get the tickets? No; I can get them. Last year, about this time.
1296. We must have the month, if nothing nearer? It was about April, May, June, and July, or between these four months.
1297. *Mr. Brock.*] What name did you give? I suppose Nicholas Williams.
1298. Who wrote it? It was written down for me, and I gave the paper in and got the tickets? I cannot read English. Somebody else wrote it down for me.
1299. *President.*] Did you not tell them at the office that these tickets were for Nicholas Williams? No I never told them; I used to take a form signed by Marcus.
1300. How many times did you go for tickets? I went about ten or twelve times during those four months. It might have been twenty times.
1301. Do you know in what name these orders was signed; was it a long or a short one? I think it was in the name he was called by everybody—Nicholas Williams. I took no notice of the name.
1302. *President.*] We have been told by Gaspardo that you have seen tickets bought by Marcus at his shop; if we find out that you have kept this back from us you may expect to be punished? I am telling the truth. All right, sir; all I say is what I know.

Constable Stove re-called and further examined:—

- Constable Stove. 1303. *President.*] I understand, Constable Stove, that there is something further you wish to communicate to us? The only fresh thing that I have been able to gather from Dominic is that it was during the time Musgrave was out of the Service, having been discharged during reductions, that he told the man on the Newtown Road how to work his register, but Dominic does not know this man's name.
- 28 Aug., 1888. 1304. *Mr. Thompson.*] Do you suggest that Dominic might be of service to us? No; I asked him, and he said he could tell you nothing more than I have told, as he had told me everything.

1305. You might suggest to him that as we know so much about it he might give us evidence which, whilst we will not make use of except to punish the guilty, and which will not be used against him, might be of use to us in connecting other links together. He will be paid for his time; we would not like to force him? I do not think he would be of any service; I put it to him that I had been called and questioned, and that I am likely to be fined if he does not let me give his name, and I asked him if he would let me be fined. He said he would sooner let me tell his name than that I should be fined. Personally I think you would get nothing more from him if you did call him. He said he could sell very few tickets in a week so it was not worth his while getting a license.

Constable
Stove.
28 Aug., 1888.

Walter Bennett called in, sworn, and examined:—

1306. *President.*] What is your name and how are you employed? Walter Bennett; I am a motor-driver.

Driver
W. Bennett.
28 Aug., 1888.

1307. We want to know anything and everything you know about the tramway frauds; when you first heard of them and what you heard? I heard nothing of them until I saw an article in the *Evening Star*.

1308. Did you not hear of them from a less public source? Yes. Graham told me.

1309. When did he tell you. I cannot say when it was that he told me, except that it was about the time that one of the first letters, "Reasons why the trams do not pay" appeared.

1310. When did the letter appear? It was on one Saturday. The article went on to say that there was systematic fraud going on in the Service and the tickets were appropriated and sold. It is about two months ago since these articles appeared. It must be more than a month ago since they appeared, because I went on my holidays and I relieved Graham. I heard a driver was connected with the business and that it was Graham, so I asked him. He said he had no hand in it, and I said you had better be careful or you will be implicated. He then said that he had told Moran some months before.

1311. *President.*] If Graham has sworn that he told you about these frauds some months ago? It would be untrue.

1312. Graham's statement is that he told you and others some months ago, and before he told Moran? He did not tell me. He said he had put the matter in the hands of the Department, and afterwards he was brought up before the Commissioner. He told Keen several months ago, soon after having told Moran. He said he had told Moran that he would give him the tip in time to catch these men at work.

1313. What did he tell you about the frauds? He said he had seen Musgrave go away with his pockets chock-a-block with tickets, and he knew no reason why Moran did not catch this man.

1314. Did he say he had pointed Musgrave out to Moran when the former was going away from a tram with his pockets full of tickets? No; he did not say that. He said that he would show Moran any time the man going away with his plunder.

1315. What more did he tell you? He told me the first time he saw anything was when one day Musgrave was standing on the apron behind, when, on looking back, Graham saw Musgrave with a piece of wire and his bell. He said "Halloo Tommy! are you putting the jigger on?" and time after time he learnt a little bit.

1316. Did he say how Musgrave had learnt to rig his bell? He told me he did not know how Musgrave learnt it, but he thought Coll showed him how to rig the bell. Musgrave told him a little bit at a time; was very cunning; showed no one how to do it, and would do it himself.

1317. Did he tell you how long it was after he had seen this wire business before he told Moran? He did not say.

1318. Did you ask him how long ago it was since Musgrave told him? No, he did not tell me all that I have told you at one time. Sometimes he told me very little, and sometimes nothing for days.

1319. When did he first tell you? He told me nothing about it until it came out in the *Star*. I think it was one Saturday night we read it in the paper. This was the first I heard of it. The chaff went round pretty freely amongst us, and some one said, "I hear that your mate is mixed up in the affair." When I came to relieve him I asked him if it were true that he was in the affair.

1320. You are very confident in saying that when Graham first told you he gave you to understand that he had told Moran several months before? I am particularly sure, for he said he could not understand how it was that Moran did not catch this man.

1321. But you are quite sure that he had not mentioned it to you before? I am perfectly sure that no mention was made, and that no suspicion had crossed my mind until the article appeared in the evening *Star*.

Giacomo Vita called in, sworn, and examined, through interpreter (Pasquale Torzillo):—

1322. *President.*] We understand that you have been selling some tram-tickets to Mr. Elliott. Where did you obtain them? From the boys when they have bought fruit. They get the fruit, throw the tickets into the basket, and run away; they take the fruit first, and then thrown down the tickets; they always do the same thing.

Giacomo Vita.
28 Aug., 1888.

1323. You understand English well enough; we are not going to be hoodwinked by you; we know how many tickets you had and how many you sold. How many have you sold altogether? I do not remember whether it was six or seven; I do not know how many I have sold altogether.

1324. How long have the boys been giving you tickets? About two months.

1325. How many in the day? One or two a day.

1326. How did you resell them or get rid of them? I got rid of them by riding on the trams.

1327. What made you sell them to this gentleman, who has given us information? He happened to be near the tram, and he asked me for them.

1328. How came you to sell eight tickets for 6d.? The gentleman did not give me time to count them, as the tram was coming.

1329. Are you a rich man? No.

1330. Can you afford to lose 2d. on each bargain? No, I could not afford to lose 2d. every time. I was confused on this occasion by seeing the tram so close, and I had not time to count them; this is the first time I have sold tickets—all the others I used myself.

1331. We do not believe the running away part of the proceedings: in parting with the fruit for the ticket.

- Giacomo Vita. ticket did you give full value? Yes, just the same value. I would not know when the boys took the fruit whether they would give money or tickets.
- 28 Aug., 1888. 1332. Your statement is incorrect; this gentleman states that he was not waiting for a tram? That is all I have to say.
1333. Are you sure that you did not get these tickets from the tram conductors? I am quite certain that I did not.
1334. *Mr. Brock.*] Have tram conductors ever given you tickets for fruit? No; I hardly know a tram conductor.
1335. *President.*] If you have not told us the whole truth, and we find out that you have not done so, you will be liable to be punished? I have never bought tickets from conductors, and I am telling you the truth.

Portrase called in, sworn, and examined:—

- Portrase. 1336. *President.*] You are a Hindoo fruit-seller, I believe. We want you to tell us truthfully where you got the tickets you sold to Mr. Elliott? I got them from boys who have no money, and give me tickets for lollies instead of money.
- 28 Aug., 1888. 1337. How do you get rid of them afterwards? Sometimes I go on the tram to the Markets, and use them.
1338. *Mr. Brock.*] How much fruit do you give for 3d. How many apples or oranges? Sometimes a dozen and sometimes two dozen oranges.
1339. *President.*] If I come to you and have a penny or a ticket, will you give me the same quantity of fruit for each? I will give you two bananas for a penny. I will give you the same number for tickets.
1340. How do you manage to sell five tickets for 4d., and twelve tickets for 9d.? When I have no money and I want to get home by the train I sell the tram-tickets.
1341. This gentleman asked you how much you would take for twelve tickets, and you said 9d.? I have none to-day. Sometimes I pick up tickets. I do not know the tram conductors to speak to. One day I picked up a large number.
1342. After you got rid of one lot of tickets you offered another lot? I said, "If you want more tickets you give me the money, and I will go and buy them."

Joseph Powell called in, sworn, and examined:—

- J. Powell. 1343. *President.*] You keep a fruit-shop in Devonshire-street. We understand that you have seen instances of the improper sale of tram-tickets, and can give us particulars of those sales? Yes; they have been principally by women and children. I have taken eight or ten at times from women who wanted money. They were not broken up into ones and twos. I gave full value for the tickets. I have had children offering them in exchange for fruit, but I have never taken them. I have had postage stamps frequently offered me, and at half their value. Persons, generally women, bring twopenny stamps, and offer them for one penny. These women bring them, I think, principally with the intention of going and getting drink. They are mostly of the vagrant or depraved class. At one time it was a frequent occurrence; that is, women coming into the shop and wanting fruit or something in exchange for tram-tickets. I have declined to buy tickets from them, and do not have any dealings with them. I have never had tickets offered to me by conductors, nor by any men. I am not acquainted with any tram-conductors.
- 28 Aug., 1888. 1344. *Mr. Thompson.*] About what would be the outside number of tram-tickets you know to have been offered you? I have never taken them as a sale. I think the ten spoken of before is the greatest number that has been offered. I have not had a license, and I would not begin to sell tickets until I saw whether people would be likely to require them. I, however, bought a few at the railway station, thinking that my having them would tend to increase my trade in other things. I gave full value for them when buying. I had to sell every day, and on holidays I got no rest. My trade did not increase, as people only came in for tickets, and seldom bought anything else; and as I got no rest, and tram-tickets did not pay, I am glad that I have done away with their sale. I used to get about £2 worth at a time, but I got nothing for them, and have given up the sale of tickets altogether, as I thought my rest was worth more to me than tram-tickets.

William Moran recalled and further examined:—

- W. Moran. 1345. *President.*] We left off on the previous day with my question to you of whether you considered Greeley was an honest man? I am inclined to believe that he is honest.
- 28 Aug., 1888. 1346. *Mr. Brock.*] Do you think that the tickets were placed in Greeley's pocket as a trap? I cannot understand it.
1347. *Mr. Thompson.*] What did Greeley say to you about it? He said he had lent the coat to Tunks, who was his relieving mate, and it was after his return that he found the tickets in the pockets.
1348. Do you think Tunks placed them there? I do not think so. I think he is honest, and would not do so. The reason I have for believing Greeley is honest is that he is always fond of giving information.
1349. What first made you think that there was something wrong? The hints of the men themselves; then the information that some man at the Sailors' Home was selling tickets; next the report that a conductor was carrying a man free, but receiving newspapers in return. In the first instance I thought these were only rumours and could not be followed up. My first thought that Cook was doing something wrong was caused by his way of meeting Musgrave and Fraser, coupled with Cook's character, which is by no means good. This led me to watch Cook. I saw him jump on the tram with Greeley, travel as far as White's, the baker, and get off.
1350. *Mr. Brock.*] Do you believe they were tram-tickets Cook had with him on the day at Randwick? He was not going to Randwick this day, but to Waterloo, and he was talking to Greeley on the way down, and Greeley told me he had shown him a lot of tickets made up in twos, fours, and sixes, all ready for use. Greeley's statement was that they were in a bag—that they were all small tickets and separated. This is what Greeley told me after I had asked Cook about them. 1351.

1351. *President.*] With regard to Musgrave: how is it possible to find out whether he was taken off on that particular day in order to save him? My own impression is that he was not taken off for that purpose.

W. Moran.
28 Aug., 1888.

1352. Who is it that arranges the order in which these conductors go out? Yard-foreman Haliiday and Yard-foreman Gamgee.

1353. *Mr. Thompson.*] Is there no record book of the day's work? There is a service book which should show who was in charge of the yard at that particular time.

WEDNESDAY, 29 AUGUST, 1888.

Present:—

A. RICHARDSON, Esq., PRESIDENT.

R. W. THOMPSON, Esq., M.P.,

| F. A. BROCK, Esq., J.P.

Gustave Adolphus Kopsch called in, sworn, and examined:—

1354. *President.*] You are I believe instrument mechanic to the Telegraph Department; we have sent for you because we are anxious to have a practical opinion from a person outside the Railway Department. We are given to understand that the registers of these bells have been tampered with, the springs weakened, and wire inserted in the foot of the bell in such a manner as to prevent the register working though the bell rings. It has been said that the putting of these registers out of order has the same effect as a lengthened period of wear; that the bending of the spring one thirty-second part of an inch is sufficient to put them out of order, and that this is equivalent to the wearing of the springs by constant usage. The tampering with the bells has probably been done by the conductors when at home at night. It has been found impossible, without employing six or seven extra men, to prevent the registers from being taken home? It will be necessary for me to go and bring my tools in order to open the bells and see the inside of them to make the examination.

Gustave A. Kopsch.
29 Aug., 1888.

Robert Maher called in, sworn, and examined:—

1355. *President.*] You are I believe a motor-driver on the Waterloo line; we want you to tell us all you know about these tramway frauds? I know nothing whatever.

1356. Have you had no conversations with anybody about them? Only what Patrick Greeley told me of the night Ferrier was at his house. That is all I have heard about the frauds.

1357. Have you not had a conversation with Graham about these frauds? No.

1358. Did you not tell him that frauds were going on in the Department? No.

1359. Do you know Saunders? Johnny Saunders, the shunter—yes.

1360. Have you spoken to him about the frauds? Not to my knowledge, except to ask him how the frauds were getting on. I know him well. I have had no conversation with him as far as I can remember. I never knew of the frauds until the disclosures in the newspapers. I have been on the Waterloo line since the day after Easter Monday. I was on Crown-street for four years. I have never suspected anything going wrong. I know nothing of Saunders except as a shunter, and I very seldom speak to him, as I have no time to do so. I have never spoken to him about this matter, and I know nothing about him.

Driver R. Maher.
29 Aug., 1888.

1361. *Mr. Thompson.*] Have you never grumbled about certain conduct of his? Not to my knowledge.

1362. But in connection with the overtime for Parliamentary trams? Oh, yes. I have always asked him not to put me down for these. I have had a bad cold this last twelve months, and Frost used to take the Parliamentary tram for me.

1363. Was there never any complaint as to the distribution of this overtime, and the appointment of the particular men to do the duty? I cannot tell; I have heard no complaint to my knowledge. I have heard that he has taken men for overtime whilst others should have had the turn. I was not in Saunders' shift until Easter Monday. I have had no one complaining to me about the overtime. Beyond what I have told you now I know nothing.

1364. Did not Greeley tell you how he managed to let the detectives know? He told me about the night Ferrier was at his house, and the detectives were there also.

1365. *Mr. Brock.*] Did he mention any other name besides Ferrier? He mentioned some one, but I do not recollect who it was, although I think it was Musgrave.

Patrick Greeley called in, sworn, and examined:—

1366. *President.*] Your name is —? Patrick Greeley. I am a tram-conductor on the Botany and Waterloo line. I have been in the Service five years next January.

1367. We want to know from you everything you know in connection with these frauds? The first information I had about it was by a Chinaman wanting to buy tickets. He said he had been buying tickets before from men. He asked me again sometime afterwards, when he was going to Botany. His name is Ah Lum. On December 23rd last, I was in Siddons the barber's shop getting a shave. Howard came in and said he had made a grand harvest. Siddons asked me if I had any tickets or if I could get some. He said he was giving 20s. for 30s. worth of tickets. I said, I would see what I could do on Boxing-Day. He came again to me and asked if I had the tickets. I said that I had not, and that I was a staff-man and had no opportunity of doing anything; but if I had a chance on New Year's Day he could come again. He said, "I am giving a man as much as £3 10s. per week"; I said I could not see how it was done. He said the man used to miss registering the tickets, keep an account, and then take the tickets first thing in the morning. I said I did not think the game worth the candle, but a man might make a few tickets in a day, not a hundred a week. He said, "You have nothing to fear. As long as no third party knows it they can all go to hell. I will take good care not to have too many in the drawer at one time, and I will see that no service tickets are in with them; if I come across any I will destroy them."

Conductor Greeley.
29 Aug., 1888.

Conductor
Greeley.
29 Aug., 1888.

1368. *Mr. Brock.*] Where was the drawer he alluded to? In his shop. He did not tell me who the man was to whom I alluded in the early part of my narrative. I told this to Moran who reported it and I was taken to Mr. Vernon and Mr. Roberts, and was introduced as the man who gave the information about the tickets. Moran tried very hard to get me leave to entrap Siddons, but it was not granted. This was some time at the latter end of January, or the beginning of February. My coat was taken out of the locker in Bridge-street yard and was away about six or seven weeks. On the following Friday, after its return, the weather being very cold I used the coat, and on putting my hand into the pocket I found a lot of tram-tickets. This I also reported.

1369. *President.*] What did you report? I reported having found the tickets in my pocket. I was in company with Driver Frost when I found them. We were coming from the hotel after having a drink. I put my hand in my pocket and found the tickets. I think I said, "Good God! what is this?" When I pulled them out I said, "I am convinced now; this is sufficient proof; there is something wrong about the tram-tickets." I told him the history of the coat. He said, "Give them to me; they will do for the old woman"; I gave them to him at first but then said to myself "This may be a trap," and took them back saying that I would report it.

1370. Will you swear that Frost took them and said they would do for the old woman? Yes. I am prepared to swear it. He put them in his pocket.

1371. Did not Frost say, "I would advise you to put the tickets into your bag?" No, not when I showed them to him. I have some idea that he did advise me afterwards to do so.

1372. You say that he wanted to take the tickets and was going to give them to his wife to use them, and that he actually did take them. How do you reconcile this statement with the statement that he advised you to put them into your bag? I am not sure about the way it occurred. He asked for the tickets first and I gave them to him for the old woman. I think I then said to him that it might be a trap. I am quite sure I took the tickets from him, but I do not perfectly remember his saying "put them in your bag." When I said I would report it he agreed with me that it was the best thing to do. I did give them to him in the first instance.

1373. *Mr. Thompson.*] How many were there? Twenty-two.

1374. *President.*] Was it not in the hotel when you were pulling out money to pay for the drinks that you pulled out the tickets? No, we were walking down the lane.

1375. Are you sure that you were walking down the lane, and that you were not at the time in the bar of the hotel? I am quite sure that it was not in the hotel, and that I did not drag them out to pay for drinks.

1376. Who paid for the drinks? Frost paid for the drink. I gave the tickets to Moran on the same day.

1377. Do you know Cook? Yes. He came on to the tram on two or three occasions and asked me if I knew where he could see Ferrier or Musgrave.

1378. *Mr. Brock.*] Was Musgrave on the Waterloo line then? He was an assistant on any line. On Saturday, the 23rd June, Cook came on my tram at Liverpool-street and rode as far as White's, the baker, at Redfern, and when he got down he asked me where he could see Musgrave or Ferrier. I said, "If it is anything I can tell them I will do so, as I may see them." He said it was something very particular. I said, "Go to the yard at 12:30 in the day and you will see Musgrave. Ferrier is not on the trams now, but Musgrave will be in the yard." He said he could not do that as he was going to the races; and he asked me if I had any "dead birds," and said, "If I were in your place horseracing would trouble me very little; I would make a lot more than you can make going to the races." I asked him what he meant, and he said, "I am giving a man on the place not less than £10 per week." I said, "You are one of those very smart fellows that we hear so much of; I would like to see how this is done; I do not think there is a man on the job making 10s. a year." He said, "I don't care what you think about it." He then promised to meet me at 7 o'clock at night. I met Ferrier and asked him about it, and told him that a man told me he was making £10 per week, and that he might let me into it. Ferrier said, "You do not mean to say that you have been on the job all this time and that you do not know how to do anything." Moran, who had got on at Liverpool-street and ridden to Castlereagh-street, remained there till I returned, and got up again and asked me what the game was. I told him. On the following evening I saw Ferrier again, and he told me he knew men who were making lots of money at the game, and that I could do the same, but that he would advise me to get a change to the Waverley or Randwick line, and he said, "I will take the bells for you." From what he had said I was convinced that there was wholesale fraud being carried on. This was all that took place on that occasion. I afterwards saw Cook again, and said to him, "I wish you would let me know how this thing is done; I would make one in it." He asked me when I should have some slack time. I told him any time after 7 o'clock, as I was on the evening shift; he said "Very well; I will come out and meet you." On the following Monday, the 25th, as I was coming in from Waterloo, Ferrier got on my tram at Boundary-street. As he got on I said, "I thought you had made enough on the trams to keep you from having to go to hard work." He said, "I did not make much." I said, "It is no use you telling me that yarn, for the man who has been asking several times for you tells me that he is giving men on the job not less than £10 per week." He gave me no more information on that evening. On Tuesday evening when he came he said to me, "Do you mean to tell me that you have been all this time on the job, and made nothing out of it?" I said, "Yes; I am not in the secret, and I cannot find out how it is done; you might show me how it is done, if it can be done." He said, "It can be done and it is done to a great extent. £10 a week is nothing to make. It is very 'cronk,' but I will tell you as I know that I can trust you. You have been in trouble with a Chinaman, and they have got you set, so you had better make as much as you can while you are in the department. You had better get off this line and get on to the Randwick and Coogee lines; you get better tickets and more in number, and they are always cleaner." I said, "I believe that it is done by the bells being faked." He said, "Yes, I know how to fake them; when is your Sunday off?" I said, "I never have a Sunday off." He said, "What time do you go to work next Sunday?" I told him—I think I said 1:57. He said, "I will come and get your bells on Saturday night, and take them home with me and fake them, and bring them back by 11 o'clock on Sunday morning." This I communicated to Moran, and we arranged that he should get a pair of extra bells from the office, and that when Moran brought them to my house he should secrete himself under the bed and watch Ferrier when he came. At 7 o'clock Ferrier put in an appearance and I went down to open the door, leaving Moran secreted under the bed. When I opened the door I said, "Come upstairs, Harry." He said, "I won't do it to-night; things are cronk; I got the straight 'griffin' from the office that Moran and Wigg have got hold of it." He also said

said that the other conductors had knocked off doing it for the present. He said, "Let it go for a day or two and I will come some night and get the bells when things have blown over; I will either bring them back or leave them in a basket with my mother, and tell her that a gentleman will call for them." The date of this interview in my bedroom was Saturday 30th. He also told me in the room on this evening that there were others much higher than conductors in it, and that if they did not mind themselves and treat him properly he would round on them. He said, "You have nothing to fear. I always get word from the office when they are going to do anything. When they were going to catch a man some time ago at Randwick I got word about it and went right away and told him, so he was on the alert." I have not the slightest idea to whom he was alluding. I asked him how the business was done and who was doing it. He said he would not tell me who was doing it, but he said that they were parties the Department never would suspect; that there were ten or twelve in the Department who knew about it, but he would not tell me who they were. On the following Tuesday night, 3rd July, Ferrier got on my tram at Park-street. I asked him when he was coming to take the bells. He said, "Not if you gave me £50; I have heard something fresh from the office."

Conductor
Greeley.
29 Aug., 1888.

1379. *President.*] You are quite certain that it was Tuesday on which you met Ferrier again, and when he said he would not have anything to do with it because he had got fresh information from the office? Yes.

1380. Then if you are told positively that July 7th was the date on which Ferrier came to the bedroom when Moran was concealed, the further interview with him must have taken place on the 10th I suppose? Yes; in the morning of that day I was talking with Moran at the office, and Musgrave, when passing, saw us talking. Moran gave me a hint to go away; but I did not understand it, and Musgrave saw us. In the evening Ferrier came to me and said he had heard something fresh and would not touch the bells if I gave him half a hundred.

1381. Do you think Ferrier came to you owing to Musgrave having seen you speaking to Moran? I think Musgrave must have told Ferrier, because Ferrier seemed to have come specially. That is all that has passed between Ferrier and myself.

1382. You know something of a publican at Redfern having been paid a grog score with used tram-tickets? Yes; Walsh told me that he knew a man who had run up a grog score of 25s. and who had paid it with 40s. worth of tram-tickets, and I understood Walsh to say that 15s. change was given, and that full value was given for the tickets. Walsh would not mention the name of the hotel-keeper. He said that he was a friend of his. I think he said it was the "Man of Kent Hotel." He said he could swear to the thing as he had seen it with his own eyes. That is all I can think of in connection with the matter at present.

1383. You have mentioned in your evidence that Ferrier told you there was no occasion for fear as he always got the straight "griffin" from the office? Yes.

1384. Did you ask him what he meant? Yes, I asked him to explain what he meant, but he refused to give me any further information.

1385. Did you ever find out what he meant by the statement that he got the straight "griffin" from the office? I have never found out what was meant.

1386. You remember that they were going to catch somebody at Randwick one race-day? Yes; Ferrier told me that he told the man that he was to be taken off his regular tram at 10 o'clock and be sent to Randwick, and he also told the man that they were going to catch him. The man went on the Randwick tram but took care not to be up to tricks.

1387. Was this the day Hendy was dismissed? I think it was since Hendy's dismissal. I do not know who the man was. I asked him if it was Hendy or Tom O'Donnell, but he would not say anything more. I do not think he alluded to Hendy.

1388. Do you remember when Hendy was dismissed? Yes; I heard that another man was to have been taken, but that he had been "put fly."

1389. Who was that man, do you know? I heard that it was O'Donnell who had been "put fly." O'Donnell was on the tram on that occasion with Hendy. I heard that O'Donnell was a couple of rings short, but that he accounted for them. I never heard that Musgrave was on the run in the forenoon, and was taken off and put into the yard car-cleaning. I do not know what time it was when Hendy was taken.

1390. Ferrier told you that there were men in the Service committing these frauds whom the Department would never suspect? Yes.

1391. Did he give you any names? No, not one.

1392. Did you ever have a conversation with Graham on the subject of the frauds before they were exposed in the newspapers? Not that I can remember.

1393. Ferrier told you that there were others who were higher up in the Department than conductors mixed up with the frauds, and that if they were not very careful he would round on them;—were you not anxious to know who these people were? I was certainly anxious to know, and I made every inquiry, pressing him on every occasion when I could get a chance. He would give me no information as to who they were. He said that he would not tell me who they were, and that he would not tell them that I was in it. He said he would never be short of £5 as he could always get it from those who were in the swim, and that if they did not give it to him he would round on them. He gave me no idea whatever who they were.

1394. Going back to the time when Cook got on to your tram what fare did you collect? He got on at Liverpool-street and rode on a twopenny section. I cannot tell you what money he handed me. I have no recollection whatever of what he said to me.

1395. Do you not remember that the first words he said were, "Halloo! you did not ring that bell?" No.

1396. And you replied, "That is a drink at the other end?" I did not reply.

1397. Did he not give you cash? He never gave me a cash fare in his life.

1398. Was he often on your tram? He has not been on my tram three or four times a week.

1399. Was not the conversation introduced by his calling your attention to your not striking the bell when you received his fare? No; I will positively swear that was not the way the conversation was introduced.

1400. We want to know what money you received from the Chinaman for the 200 tickets you sold to him in Market-street? I never sold any tickets in Market-street.

1401. We have sworn evidence that you sold tickets to a Chinaman named Ah Lum, in Market-street, some time ago, and that you received only 12s. for these 200? I will swear that no such occurrence took place.

- Conductor
Greeley.
29 Aug., 1888.
1402. It is as well to caution you that you have been recognised by the Chinaman as the man who sold him the tickets? I have never sold tickets to any person.
1403. By your own showing you have been mixed up in a curious transaction. Who authorised you to act as a Departmental detective? I was trying to get information for the Department.
1404. You have, by your own showing, led Cook and Ferrier to believe you would fall in with their designs? Were you instructed by the Department to act as a detective, and assume the rôle of a dishonest man? No; but I considered that I should get the information if I could for the Department.
1405. *Mr. Brock.*] Whom did you suspect of having had your coat? My mate, Tunks, took it. I saw him with it on. I do not know who put the tickets in the pocket. He had it about six or seven weeks. I told him that I found the tickets in my pocket. He said he did not put them there.
1406. *President.*] When did you first commence to act as a detective for the Department, Greeley? After I had reported Siddons' affair, in the latter end of December or January. Mr. Roberts called me up and said, "If this can be proved, I will recommend a shilling a day rise to Wigg and Moran." I had no instructions from the Department up to that time. Siddons had been following me about for a fortnight, asking me for tickets.
1407. Had you instructions from the Department that you should dissemble with Siddons; and dangle with his proposals—it was a very dangerous thing to do? No, I had no instructions.
1408. You are quite sure that you never carried the dissembling to the extent of selling tickets? I never sold a ticket in my life to anybody.
1409. Were these conversations which you had with Siddons the first conversations of the kind which you had? No; the Chinaman's was the first. That was about nine months ago. His name is Ah Lum: He wanted to know if I would sell him some tickets. I took no notice of it, as I thought it was only a joke of his. I was not insulted by his asking, because I thought it only a joke, as they and we often pass jokes. He frequently, when he came to ride on the tram, asked me to sell him tickets, but I took no notice of him. Had he not been a Chinaman I should have taken notice of it.
1410. How long was he trying to tamper with you before you told Moran or Mr. Roberts about it? I told Moran about the matter the first time the Chinaman spoke to me about it. Moran was on my tram coming from Waterloo, and I called him and pointed out the Chinaman to him: He followed the Chinaman to Circular Quay. This is about ten or twelve months ago.
1411. You have told us all you know in connection with this matter? All I can recollect at the present time.
1412. *Mr. Thompson.*] Have you never had a talk with Musgrave about this? No: The only conversation I had with him was when he said they were going the wrong way about finding the right man. That was all he said—nothing more. He said, "Somebody will pop it for this lot." I said, "Serve them right." And he said, "They are going the wrong way about finding the right man."
1413. He meant that they might get dismissed, I suppose? Yes, I suppose so.
1414. Did you not find out in all your conversations where these tickets were got rid of? No. Ferrier told me that they were selling as much as £160 worth per week at one place; that they gave sometimes as much as 6s. per hundred; and that if I went in with him I should have half, and that he and the seller would have the other half between them.
1415. *President.*] It is very strange that you have so very little information to give us about this matter, seeing that you were so deeply interested in it? I do not recollect anything else now. Sometimes, when I think of it, I can recollect other matters; but I have had a lot of other things to think of since it occurred. About three or four months ago I got into trouble about a Chinaman, and I had a lot of trouble to get back in the Department, notwithstanding many influential men came to intercede for me. I was told there was a serious charge against me, and it caused me great anxiety, as I thought it might be an accusation of stealing tickets. The gentlemen who came to intercede for me were Mr. Thomas Williamson, Mr. John Williamson, Mr. Wm. Stephen, Mr. Colls, I think, and others. This was before I met Cook, but not before I met Siddons. It is since I gave up the tickets which I found in my pockets.
1416. *Mr. Brock.*] Who did you say came to intercede for you? Messrs. Thomas and John Williamson, J. Bridge, Fletcher, Stephen, Johnson, Colls, and several others whose names I cannot now recollect.
1417. Do you know what was done with the bells to enable the frauds to be carried on? No, I do not.
1418. *Mr. Thompson.*] If you think of anything else which you have omitted, for your own sake put it in writing and send it in to us? I will try.

Michael Henry Howard called in, sworn, and examined:—

- Michael H.
Howard.
29 Aug., 1888.
1419. *President.*] You are an operator in the Telegraph Department? Yes.
1420. We have sent for you because we understand that there is some information which you can give us in connection with the fraudulent manipulation or sale of tram-tickets? There is a man of the name of Nixon who says he has been in the habit of purchasing tram-tickets from a man on two or three occasions, at less than their value, giving 5s. or 7s. 6d. for 10s. worth. He purchased them from a man named Whetton, at the "Royal Hotel." Whetton lived at Waverley. I cannot say what he did at the time. There was a lot of conversation at the time about the frauds, and I asked Nixon if he had bought tickets, and he said he had bought some from Whetton, and that Whetton was unemployed, and knocked about with some tram-guards. Nixon is a glass-blower, living at Balmain. I think he would have no objection to give evidence here. He said he had bought 10s. worth of tickets for 7s. 6d. They were all single tickets. He told me he thought it peculiar at the time, but there was no talk of the tram frauds then. Whetton went to Queensland about a month ago. He had been in the habit of going about with Musgrave. I have seen them often together.
1421. Do you know Musgrave? Musgrave was pointed out to me as having been dismissed from the tram service. I knew Whetton as an *habitué* of billiard-rooms. He was a billiard-marker first at another hotel, and then he used to play billiards at the "Royal." It was in the billiard-room of the "Royal" that Nixon bought the tram-tickets from him. Nixon remarked to me that it was peculiar that Tom Whetton could sell tram-tickets at the price. I cannot say whether Nixon asked Whetton where he got them or not.
1422. You made a statement to Mr. Roberts? Yes; I told Mr. Roberts all that I have now told you about this, and he said, "If the Board of Inquiry send for you will you come down?" I said "Yes."

1423.

1423. Do you know if Nixon bought tickets of anyone else? I do not know. If so he did not tell me. I understood that Whetton was the only one that he bought them off, but I understood that he did so at different times.

Michael H.
Howard.

1424. *Mr. Brock.*] I understood that he had bought from others? He may have done so, but that I do not know. I understood Nixon to say Whetton told him he was hard up, and he had tram-tickets, for which he wanted money. I was never present when Nixon bought them, though I may have been there I did not see the transaction. When I spoke to Nixon he said he supposed the transaction was all right.

29 Aug., 1888.

1425. How do you know he is in Brisbane. Will you try and find out without arousing suspicion? I met a gentleman yesterday who saw him in Brisbane. About two months ago Whetton went away from Sydney, up the country. He was habitually in the billiard-room, and his absence caused inquiries to be made. It was said he was up on some station. About three weeks ago he came down again, and the same afternoon left for Queensland. He said he was going to Rockhampton. A friend of mine, a Mr. Clark, said he saw him in Brisbane last week; Mr. Clark is a commercial man. The morning Whetton came back to Sydney I saw him, and he said he had been on some station near Cunnamulla; he was only in Sydney in the morning, and left for Queensland in the afternoon. It is about three weeks ago, and it was a wet day.

1426. *President.*] Will you give us Nixon's address, and also Whetton's? I think I can find Nixon during this morning, and will try and get Whetton's address.

William Branch called in, sworn, and examined:—

1427. *President.*] I understand that you are a driver in the tram service. We want you to tell us all you know about these frauds? I cannot say I know anything at all about them.

Driver
Branch.

1428. Had you no conversation with anyone about them? I may have spoken to some of the tram people about them.

29 Aug., 1888.

1429. Had you no conversation with anyone prior to the disclosures being made in the newspapers? I cannot say that I had.

1430. Did Graham ever make a statement to you about them? No.

1431. Are we to understand that you were perfectly ignorant of the whole matter until the disclosures in the paper? Yes.

1432. You had not the slightest inkling of the frauds before this article appeared? I might have had an inkling, but it was in my own mind. I could not afford to buy houses and land, although I was steadier than some whom I knew were buying.

1433. What men were these you saw building houses and buying land? Drivers Tommy Lane and Jack Smith.

1434. Whom else had you in your mind when you said this? I cannot say.

1435. Did you think there was anything going wrong when this occurred to you? No I did not, only I could not afford to buy land and build.

1436. You must have had more men in your mind than the two you have mentioned? Well, conductor Tom Godbee was buying ground.

1437. You seem to find some difficulty in remembering them? There are plenty of them who have bought land and built, but I cannot remember them now.

1438. *Mr. Brock.*] Did you not suspect fraud when you saw these people buying land? No, I did not, but I wondered how they could do it on their pay alone.

1439. Why did you mention Lane and Smith? Because they were the two drivers who came into my head, as I live near them.

1440. *Mr. Thompson.*] There are a good many more than Godbee, are not there? There are any amount more.

1441. *President.*] You will make us think directly that there is something in the background, and that you are disinclined to give us the information. You volunteered a statement to us that you thought it strange that these people should be buying land and building houses. We did not drag the statement from you, therefore you can go on with it and tell us all you know. Is Graham one of them? I do not know whether the house he lives in is his own.

1442. Is Greeley one of them? I do not know that he owns his own house.

1443. Although you say there are lots of them, Godbee is the only one you can mention. Can you not recollect some more of the number? I know Jim Cook, and he has just bought a house.

1444. Do you remember the names of the conductors? It appears to us, that if this is all you can remember you have a very slippery memory. Is Charles M'Mahon one of them? I do not know.

1445. Is Keen one of them? I do not know.

1446. Is Musgrave? I cannot say.

1447. Is Ferrier? I do not know.

1448. You have made a most extraordinary statement, and yet when you are pressed you can give us no satisfactory answer, except that Godbee and Cook are two who have been building houses and buying land. Have you any reason for your suspicions of these two men? No, I have no reason for the suspicion that either of them are dishonest.

1449. Yet you mentioned them as being in your mind? I said it was strange that they could afford to build houses whilst I could not.

1450. *Mr. Brock.*] That statement was made by you when the President asked you if you had any other evidence. You said "No; I have not," and you then supplemented it by these names? They were connected in my mind at the time, and I could not think how it was done.

1451. *Mr. Thompson.*] And it put the thought into my mind as well that these men were put in the same category as the others? I know plenty of conductors as well.

1452. *President.*] Give us their names? They may be more frugal than I am, for I believe in having anything I want.

1453. You said you knew absolutely nothing about these frauds, and then you stated that you knew of men building houses and buying land, while you could not afford to do it? I said I could not see how they could do it when I could not.

1454. *Mr. Brock.*] What you led us to believe was that they got money outside their wages, and that you could not do so, and wondered how they did it? I don't think I said that.

1455.

- Driver Branch.
29 Aug., 1888.
1455. *Mr. Thompson.*] Evidently you believe this is the case. You need not be afraid of naming these persons. You have given us a sample of them, and we will find out in spite of you. Your conduct leads us to the conclusion that you are totally unwilling to tell the truth. You have put your foot in it, and you now refuse to put your leg in? There are a lot living in Leichhardt who have bought houses and land—Ravensworth, Tipping, Geo. Cox.
1456. Jessop? Jessop has not a house of his own.
1457. *President.*] What do these houses at Leichhardt cost, £50 or £100? I do not know; I have not seen them; but they are cheap out there.
1458. You have no reason to suspect these men of being dishonest? No.
1459. *Mr. Thompson.*] Why did you give us the reason that the first thing which excited your suspicion was these men building houses, whilst you could not do so? I said I knew that these men were building houses, but I did not suspect them of fraud.
1460. *President.*] Are you positive that Graham made no disclosures to you before the newspapers noticed the matter? I am quite positive he did not.
1461. If he has sworn that he did make a statement about the matter some seven or eight months ago it is untrue? Yes.
1462. *Mr. Thompson.*] Graham never let you understand that there was anything going on? No, there is many a remark passed on the job between us that is simply a joke, and the remark as to how much you have made to-day is often said as a joke.
1463. *President.*] Are we to understand that these jocular remarks were used before the frauds were disclosed? Yes.
1464. *Mr. Thompson.*] How did the remark come up? I believe the shilling tram fares to the races gave rise to it. We simply said it in a joke.
1465. *President.*] Was this not a peculiar joke to apply to a decent honest man? No, we are always passing these jokes to each other without meaning wrong.
1466. You are quite certain that Graham never made a disclosure to you, telling you that there were frauds being carried on to a very large extent, at any time before the matter was made public? No.
1467. Do you know Saunders the shunter? Yes.
1468. Have you had any conversation with him about this matter? I have had no conversation with him at all. I heard that he was to be called as a witness before the Commission—that was all.
1469. Have you ever made any statement regarding Saunders' conduct? Never.
1470. Regarding any impropriety of any kind? No.
1471. Have not complaints been made regarding his conduct? Persons have told me that if they wanted to go to one place he would send them to another.
1472. Would Saunders regulate the Parliamentary trams? I do not know. I have never run one.
1473. *Mr. Thompson.*] Have you not made a complaint that you were not getting a Parliamentary tram? No, I am on the broken shift—getting off at 7 o'clock and going home.

Frederick A. Blackstone called in, sworn, and examined:—

- F. A. Blackstone.
29 Aug., 1888.
1474. *President.*] You are receiving clerk in the Tramway Office? Yes.
1475. We want to see Musgrave's entries on Saturday, April 7th;—what does this book show? It shows the reading of the register.
1476. Where was he on that day? I cannot tell you.
1477. Does he not sign a book when he comes on? I know nothing about that.
1478. Take Thursday's entries;—what does this show? It shows that he was at the racecourse. The number 5,666 is what his register stood at before he went there and 5,753 was the number after he returned. The difference between 5,666 and 5,753 is £4 7s. The next number 5,767 being after he had returned from Leichhardt, represents his takings at 1s. 2d.
1479. What time was this? That was late at night; somewhere about 9 o'clock.
1480. He will not appear again in that day's list I suppose? No.
1481. When was a new register issued to him? On that very Saturday.
1482. *Mr. Brock.*] Is it possible to get a new register in the Colony? I do not think so.
1483. *President.*] You read the register and only know how much they get for the run? That is so. Unless we read a man's register we do not know whether he is on duty or not.
1484. We want somebody to tell us where Musgrave was during that day. We want some one to follow him right through the whole day? I know nothing about Musgrave until after 3·5 p.m. that day, and I would have known nothing of him except for a note I made at the time.
1485. What caused you to make this particular note? I was instructed to do so.
1486. Take these figures you have mentioned—does it follow that after he had come from Leichhardt he started for the races? The reading is going out not coming in.
1487. The question is whether he could have gone out before? He must have gone out after.
1488. *Mr. Thompson.*] It does not follow that he went out at all? Oh yes, he did, because he has a receipt for 1s. 3d.
1489. *President.*] It might have been that morning or the following day that the register was read? The time he read at 1s. 3d. he had 469 tickets on his register and only 468 in his bag. He had rung for one more than he had.
1490. Does not this book show that on the 5th and 6th he was not conducting at all? It shows that we got no money from him.
1491. Do you think he could have retained the money he took after his register had been read on the 4th, and not have put it in for two days? I am under the impression that these were his earnings on the Waverley line after the reading of the register on the 4th. He may have done another trip afterwards but it would not come in till next day, and the money being a small amount he may have kept it in his possession until he came on again. Possibly this entry that we have for him on the 7th is the tickets which he took on the 5th. We cannot tell what time he gave in after 3·5 p.m. He may have taken a run on Thursday morning, and having only a few tickets did not account for them until he was ordered to go to the racecourse on Saturday.
1492. Suppose he did not return his bag for a week? Unless someone put the thing to us we would have

have no knowledge of whether there were any tickets in the bag. We are not called upon to do anything but account for the tickets.

1493. When the man came in on the 7th, and you noticed that he had not been in since the 4th, did it not arouse your suspicion? No; he was not a regular man.

1494. These two entries apply only to the race-day? If the man had been running to any other place beforehand he should have come in and have had his register read so that he might go out with a clear register to the racecourse.

1495. You have heard Mr. Muir say absolutely that he did not run before 2 o'clock on Saturday, or he would have claimed payment for it. How do you explain that? He may have done a trip to any place between 2 o'clock and 3.5 o'clock.

1496. When did you see him first on the 7th? The first time I saw him was at 3.5 p.m.

1497. It appears that this man had the coolness to do a run on the 5th without giving up the tickets he had collected on that day, until the 7th instant? It is possible that he never gave up his tickets which he took at Waverley until the Saturday.

F. A. Blackstone.
29 Aug., 1888.

Timekeeper Muir called in, sworn, and examined:—

1498. *President.*] You are time-keeper in the yard? Yes.

1499. Will you tell us how you take the time of the different conductors? From the time they sign on in the morning till they go off in the evening.

1500. Where do you take this information from? The time-book.

1501. Supposing the name does not appear? The man will be then marked absent.

1502. If he does not sign he will not be paid for it? No.

1503. Take the case of Musgrave. It is evident that he has been running on April 7th, yet he does not sign as a conductor but as a car-cleaner? Did you make any inquiries as to his whereabouts? I did make inquiries and found out that he was returned by me as a conductor.

1504. We are referring to the day Hendy got into trouble, and we find no sign of Musgrave; but we are told that he was at Randwick Racecourse, and we are also told that he was taken off and put car-cleaning? I have him charged as a conductor. Under the new system my books do not show what line the man was running on, but under the old system they did.

1505. When was this new system brought into use? About the 5th or 6th of April.

1506. Do you know the object of the change;—was the old system of no value that it was discontinued? It was never explained to me why the old system was discontinued.

1507. Explain why you entered him as a conductor on that day when he was entered on the book as car-cleaner? Musgrave was a conductor and car-cleaner.

1508. Is it usual for a conductor to be also a car-cleaner? I think about that time he had something wrong with him, and he was put car-cleaning.

1509. Why did you enter him on that particular day as a conductor? I must have asked the foreman, or I would not have charged him. I do not know any further than my book shows.

1510. Is this method the regular one to adopt in these cases? This would not have been the regular way, because he signed at first as a car-cleaner at 2 o'clock.

1511. Are you sure that he did not work before 2 o'clock on that day? I am certain that he did not work before 2 o'clock on that day. There is no overtime charged for on that day.

1512. If we are told that he was on a tram in the morning, would it be untrue? Yes. Assistant conductors come on at 12.30 on Saturday, and if he had been brought on that day as an assistant conductor he would have been paid overtime.

1513. Is it not just possible that he came on at 12.30, did not enter his name in the book, and never said anything about it? He was the wrong man not to say anything about it. I feel very confident that his first duty on that Saturday was 2 p.m.

1514. *Mr. Thompson.*] He signs on here on Thursday, 5th, as a car-cleaner. He came on at 2 o'clock, and signs off at 8 o'clock, having worked short time—the hours being till 10.30 p.m. This shows that he either did not work his full time or he put the remainder of his time in another book. What were his hours as a broken shift-man? He would come on at 7 o'clock in the morning and work two hours; in the afternoon he would come on as a car-cleaner, and finish the remaining six hours.

1515. *President.*] Why on one occasion is it perfectly satisfactory for him to sign in one book and on other occasions in two books? He is brought on as an assistant conductor in this book at 7 o'clock, and signs off again at 9 a.m.

1516. Supposing he does not sign off at all, what would you say then? I am supposed to mark him absent.

1517. He gave in no return that day as a conductor, and does not sign off? He did sign off—there is the entry.

1518. He may not have taken any tickets on that day? It is not possible that he did not collect any tickets.

1519. He comes on in the busy time of the morning, and does not deliver up his tickets? The time would be recorded.

1520. Did you pay him for that day as a conductor? I know that I paid him for that day as a car-cleaner the same money as a conductor.

William Nixon called in, sworn, and examined:—

1521. *President.*] You are a glass-blower, residing at Balmain? Yes.

1522. We have summoned you because we have been given to understand, in fact it has been sworn before us that you have purchased tram-tickets from a person named Whetton on various occasions;—will you be good enough to give us the particulars? I became acquainted with a fellow named Whetton in the "Royal Hotel." He had owed me 5s. for some time, and on one occasion he said to me, "Do you often travel on the trams?" I told him that I did occasionally. He said, "Will you mind taking tram-tickets instead of money?" I said, "It is just the same as money to me," and I took them for the 5s. Some time afterwards he came again to me and said, "Are you out of tickets?—I have some more," and I took another 5s. worth from him.

1523. How many did you get on this occasion? I only got a few over the number.

1524.

Timekeeper Muir.
29 Aug., 1888.

W. Nixon.
29 Aug., 1888.

- W. Nixon, 1524. We are told that you got 7s. 6d. worth for 5s.? I believe that I did receive 7s. 6d. worth on the second occasion.
- 29 Aug., 1888. 1525. If a man is offered 7s. 6d. worth of goods for 5s. he would naturally turn the thing over in his mind? I thought it peculiar.
1526. What were the tickets like? They were all clean—in ones and twos.
1527. Do you think that they had been used? I could not swear positively that they had not been used. They were all very clean, but they might have been used.
1528. If you thought they had been used, were you not doing very wrong in using them again;—how long ago is this? About seven or eight months ago.
1529. Has he come to you since? He has not come to me again wanting me to deal further, except on one occasion, when I refused.
1530. When did you see him last? About two months ago.
1531. Up till about two months ago he was regularly frequenting these hotels, and he offered you more tickets? Yes; and I refused to take them. I then began to think the thing was not straight.
1532. Do you know if he offered tickets to anyone else? I do not know whether he sold them to anyone else.
1533. *Mr. Thompson.*] Did he tell you that he had sold any to any other person? No. He said, "If ever you are out of tickets I can always supply them."
1534. I suppose he could have kept twenty or thirty persons supplied if he had the tickets wrapped up in little parcels? I hardly think he did so.
1535. *President.*] He was owing you 5s. on the first occasion, and he said he would give you it in tram-tickets;—did you see him again, or did he give you them directly? I think he gave them to me directly. I was doubtful whether I would get the 5s., so I thought I had better take the tickets.
1536. When he came to you again, and offered you the 7s. 6d. worth for 5s., it seems to me that you should have said, "I will have nothing to do with you." Was this the last time he offered tickets to you? I am sure it is the last time. It is over four months since he last spoke to me about them.
1537. *Mr. Brock.*] When did you see him last? He had been away for some time, and I saw him about a month ago.
1538. You were pretty intimate with him? I never saw him anywhere else than at the "Royal," and it was two or three months before I knew his name.
1539. *President.*] You did not give him the 5s. before you knew his name? I was backing a man at Botany, and he wanted to go in partnership. This is the way he owed me the 5s.
1540. Have you not heard of conductors selling tickets? No.
1541. Do you know any of the conductors? No.
1542. Do you know Musgrave? No; not even by sight.
1543. We are given to understand that Musgrave was very intimate with Whetton, and was frequently in his company? I do not know him.
1544. *Mr. Thompson.*] Have you heard of anybody else buying tickets from him? No.

Gustave Adolphus Kopsch called in and further examined:—]

- G. A. Kopsch, 1545. *President.*] You have examined some of these registers? Yes; four of them.
- 29 Aug., 1888. 1546. What is the result of your examination? I find that by placing a piece of wire under the lever which pulls the bell in three pairs of them the bell rings but the wire stops the indicator registering. The fourth pair appear to be out of order, but do not appear to have been tampered with. It is always the left-hand bell which has been altered. I will, with your permission, take them to my workshop, examine them more thoroughly still, and report further.

James Dixon called in, sworn, and examined:—

- Fireman 1547. *President.*] You are a fireman in the Tram service? Yes.
- Dixon. 1548. Have you been told anything in connection with these ticket frauds? I have often had a bit of chaff with the conductors about making £10 per week.
- 29 Aug., 1888. 1549. Did you hear anything about this before the disclosures appeared in the papers? No.
1550. You know Driver Graham? Yes.
1551. Have you not had a conversation with him on the subject? I have had no conversation with any man on the job with reference to the frauds.
1552. Who is your mate? Collins is my mate. I knock about with Graham outside.
1553. Is it a fact that Graham had not spoken to you before the disclosures appeared in the papers? It is a fact that he had not spoken to me previously to the report in the newspaper.
1554. Do you know Powell's? Yes. I go there and play for drinks, cigars, &c., and we go to the public-house to get the drinks.
1555. Is it not a gambling-house? I have not seen gambling going on in the place this last ten years.
1556. You say very positively that Graham did not converse with you before the disclosures were made? Yes.
1557. And in point of fact you know nothing about the matter? No.
1558. You never even suspected it? No.

Helena Dummett called in, sworn, and examined:—

- Helena 1559. *President.*] You are the wife of —? George Dummett.
- Dummett. 1560. We have sent for you because we have been informed that you have been asked to purchase tram-tickets in an improper way. We wish you to tell us all about it? About a couple of months ago a man came into the shop and asked if Mr. Dummett was in and I told him no, but I asked him if I could do anything for him, and he said "No." He said he would call again. He did not leave his name. He came again on Sunday and asked if my husband was at home, but I told him he was not. He wanted to know how long he would be but I could not tell him. He then said his name was Cook, and that his brother^s
- 29 Aug., 1888.

brother was married to Mrs. Riley. He left and said he would come again on Monday. When my husband came in I told him Cook had been there and was coming again, and he told me that he was not in at any time to him. He gave me to understand that he had seen Martin and that Martin had told him something of the business Cook wanted. We knew ourselves how he had treated Grosvenor, who had the shop before us. On Monday Cook came again and I told him my husband was not at home. Cook asked if I could do with any tram-tickets? I said I did not think so. I said, "What about them?" He said, "I have £7 worth in twos and threes that I want to sell." I said, "What was your idea of tearing them into twos and threes?" He said that he had been in a very large way of business and used to be rushed by customers, and tore them up into twos and threes for convenience." I said, "We never thought of doing that." He said he kept a box just for these tickets. He said he would allow me 1s. in the £ on what I bought. I think I said, "I did not see how he could do so as the office allowed only 1s. 6d. in £5 worth." Mr. Dummett told me that he knew Cook was crooked and he would have nothing to do with him; besides we had no money as it took all we had to buy the business. Cook told me that Grosvenor and his brother were in partnership, but not in the shop we have now. He also said his brother had it in for Grosvenor for saying that he had served a writ on him when he had never been near him.

Helena
Dummett.
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1561. Do you know where the shop was? Cook gave me to understand it was somewhere in George-street.
1562. Do you know Cook's Christian name? No, I do not. I only know Mrs. Riley, who is the wife of one of the Cooks. She has a daughter named Margaret.

1563. *Mr. Brock.*] Do you think if you had offered to give him 15s. for the £1 worth that he would have taken it? I do not know. I did not say anything to him about money.

1564. *President.*] Then you know absolutely nothing about the frauds? Nothing; but what I have read in the papers.

1565. Did Cook show you any tickets? No; I never saw any with him.

1566. Which of the Cooks did Mrs. Riley marry? It was Charley Cook she married. I do not know the man. He had a big, heavy moustache, with a dark and light shade and very heavy. It looks as if it had faded at the ends.

1567. What is your shop? It is a confectionery and fruit shop.

1568. Do any tram conductors come in for refreshments? No, none.

THURSDAY, 30 AUGUST, 1888.

Present:—

A. RICHARDSON, Esq., PRESIDENT.

R. W. THOMPSON, Esq., M.P.,

F. A. BROCK, Esq., J.P.

William Hannam called in, sworn, and examined:—

1569. *President.*] How long have you been in the Service? About three years next November.

1570. You are a conductor? Yes; but I have not been so all the time. I have been in the yard about one-half of the time.

1571. What is your position now? I am an assistant conductor.

1572. What do you do in the yard when you are not conducting? I am always conducting now. I was about eighteen months car-cleaning.

1573. On what line are you employed now? On any line; I am an assistant conductor.

1574. We have been given to understand that you can tell us something in connection with these ticket frauds which have taken place? I will tell you all that I know. It is not a great time ago—somewhere about seven or eight months—when Musgrave, who had been an assistant conductor, spoke to me. At the time he spoke to me he was one of the men who had been dismissed at the time of the retrenchment. I had a tram coming in from Newtown, and he got on to one of the cars. As we were coming down he said something to me to this effect:—"How much do you make? Do you make anything out of the trams?" I looked at the man, and thought he was only just having a joke, or something like that. I said, "What are you giving me?" or something to that effect. So he said, "I can tell you how to make something." I said, "How?" He said, "I can tell you." Presently he said, "I can tell you how to rig the bells." I thought at that time that he was joking—that he was trying to take a rise out of me. Nothing more passed between us; he got off the tram then. I do not know whether it was a week or a fortnight afterwards, but it might have been a week afterwards, when he came to me repeating the same thing, and said that if I would meet him at some place he would show me how to do it. I took no more notice of it; I just went on doing my work. He wanted to make an appointment out at Waverley with me.

1575. That was the second time? Yes.

1576. You are sure he wanted you to go to Waverley? Yes. He said that if I would meet him there he would show me how to do it.

1577. What did you say to that? I thought that the man must surely be in earnest. However he got off the tram, and I never spoke to him about it afterwards.

1578. You say that he got on to your tram a second time? Yes.

1579. Was that a Newtown tram again? Yes. I think he was living out at Newtown at that time.

1580. Did you never see him again? Yes; I have seen him since repeatedly.

1581. Did he not refer to the subject again? He was taken into the Service again, and then he seemed to let the matter drop; at least he did not mention it to me again.

1582. You did not broach the subject to him again? No; I never said anything more to him about it.

1583. Is that all the information you have to give us? Yes.

1584. Have you had any conversation with others on the subject? Not that I can recollect.

1585. Have you had any conversation with a man named Keen, another conductor, about it? Yes.

1586. We should like to know what passed between you and Keen on the subject? I believe Keen broached the subject to me, saying something in reference to the frauds. I did not take any notice of it at the time; I did not think there was any truth in it.

1587. How long ago did you have this conversation with Keen which you are going to describe? I could not say exactly; I did not think anything of it at the time.

1588.

Assistant
Conductor
Hannam.

30 Aug., 1888.

Assistant
Conductor
Hannam.
30 Aug., 1888.

1588. Was it before publicity was given to the frauds? Yes; about four or five months ago, I think.
1589. What passed between you? I can hardly recollect the exact nature of the conversation—that is, how it came up. I have known Keen since he was a baby, and he was speaking about these tram frauds; and of course I told him about what Musgrave had said to me.
1590. Well? That is all I have to say.
1591. You told him all that Musgrave had said to you? Yes.
1592. And what did Keen say? He said he was on to watch the man.
1593. That he was watching him? Yes; to catch him.
1594. Did he say that he had been asked to do this by any one? I do not recollect that he did.
1595. Did he not seem surprised when you told him? No; he said that he knew all about it, or he led me to suppose that he did.
1596. And that, in point of fact, he was watching Musgrave? Yes.
1597. Now with regard to your conversation with Musgrave, did he not go much more into detail than you have led us to understand? No; all he said was that he could rig the bells—that was the expression he used—so that you could make the tickets.
1598. Did he not go on to say that he would take all the tickets off you that you made in that way? Yes, of course he did.
1599. You did not tell us that before;—that is an important detail? It is so long ago, and I did not take much notice of the man at the time.
1600. He told you that he would take all the tickets off you that you made in this way? Yes.
1601. Did you still think that he was joking when he went into details of that kind? I did not know what to think—what to make of the man.
1602. But were you not indignant at his proposal? I did not want anything to do with it; therefore it did not trouble me. That is the reason I did not take any notice of the man.
1603. Did you tell anyone else about this? No; Keen is the only man I spoke to about it.
1604. Did it not occur to you as being of sufficient importance for you to report at head-quarters? This man Musgrave was not in the Department at the time. He was not in the Service when he made this proposal to me. I did not take any notice of it; I let it pass.
1605. If I understand you correctly he did not repeat his proposal after he had returned to the Service? No; he never mentioned it.
1606. *Mr. Thompson.*] What did he want you to go to Waverley for;—did he tell you what object he had in meeting you at Waverley? The object was to show me how he did the bells.
1607. As he lived at Newtown why did he wish you to go out to Waverley? He may not have lived at Newtown; and from what I have seen of the man he seems to have lived anywhere-like. He has friends here and there. First he is living at Newtown; then at Waverley; then at other places. That is as far as I can see.
1608. *Mr. Brock.*] Did he name any particular place at Waverley? I cannot recollect that he did.
1609. *President.*] We do not think that you are willingly keeping back any evidence, but you have shown us that your memory will bear a little refreshing;—in the conversations did not Musgrave tell you how much you might make if you adopted his proposal? I do not recollect his saying anything like that.
1610. Did he tell you what he could afford to give you for each pound's worth of tickets? I do not recollect.
1611. Did he not say that he was keeping a number of shops? No.
1612. You are sure he did not? I am positive he did not.
1613. Since these conversations took place, and since Musgrave returned to the Service, have you not been working on the same trams with him? No.
1614. Never? I do not think ever.
1615. You have not been on the same tram? I do not think so—not with him. Of course it would be very hard for me to say. I may have been. Eight months is a good long while.
1616. If you were you had no further conversations on the subject? No.
1617. *Mr. Thompson.*] Have you had an opportunity of seeing Musgrave during this time—of observing whom he was with, and who his mates were? I do not know his mates. The only man he has anything to do with that I know of is Ferrier.
1618. *President.*] Ferrier was particularly intimate with him? He seemed always to be a pal of his.
1619. Had he any other pals, apparently—that is, as far as you know? Not that I know of.
1620. Was he intimate with Fraser? Of course I do not know of anything outside the Department. I have only noticed the man while I have been at work, and we did not know that Fraser was a pal of his.
1621. You noticed him with Ferrier though? Yes.
1622. Did not these conversations take such a hold upon you as to lead you to imagine that there was something wrong going on? Not at that time, because there was a sort of bye-word with conductors on the trams. They would say to one another, "How much are you making?" and so on. You would hear that every day, and it was passed between almost every conductor on the tramways.
1623. Therefore you did not become alive to the fact that fraud was going on? Not till the frauds came out, and then I thought that this man must have been up to it.
1624. *Mr. Brock.*] You said just now that when he asked you to go to Waverley to be shown how the bells were rigged you thought there was something in it? When he asked me to go out I was rather suspicious about it.
1625. The great mistake you made after that was in letting the man come back into the Service. If you had informed the Department Musgrave would not have been readmitted? There was so much of this chaff going on at the time that I did not take much notice of it.
1626. *Mr. Thompson.*] You mean that there was so much chaffing one another? Yes.
1627. *President.*] Did you not have a conversation with Fraser in the corridor just now about these frauds? No.
1628. But you had a conversation with him? About other things but not about the frauds.
1629. You are sure nothing came up about the frauds? No. He simply asked me if I had been examined and I said I had not.
1630. Did he give you no advice as to the evidence you should give? None whatever.
1631. Is he a friend of yours? I never saw the man until he came on to the tramways.
1632. Have you told us everything you know in connection with this matter? Everything I can recollect.

1633. *Mr. Brock.*] Don't you know anything of shopkeepers buying or refusing to buy these tickets? Nothing at all.
1634. *President.*] Do you know Driver Graham well? I know him well.
1635. Did you never have any conversation with him on the subject? Never.
1636. *Mr. Thompson.*] Nor did he approach you on the subject? No.
1637. *Mr. Brock.*] How often do you see him? A great deal when he was on special runs, but not often since he has been on regular runs.
1638. You saw him frequently before? Yes.
1639. Did no one else ever speak to you on this subject except Keen and Musgrave? No one.

Assistant-conductor
Hannam.
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James Hadwell called in, sworn, and examined:—

1640. *President.*] You are a driver in the Tramway service? Yes.
1641. How long have you been so engaged? I think I entered the Service on the 18th April, 1881.
1642. Seven years ago? Yes.
1643. Are you able to give us any information in connection with these ticket frauds on the tramways? I heard about all I know of it in a conversation which took place in the Bridge-street yard about seven months ago.
1644. Will you tell us what that conversation was? There were four of us sitting in a car—I really cannot tell now what was the cause of the conversation—that is, how the question came up. I think it was first in reference to the trams not paying; we were wondering how it was that they did not pay considering the heavy loading. The four sitting in the car were driver Graham and his fireman, and myself and my fireman. We had been upon special duty about three or four years, and about seven weeks ago the schedule was altered and we were scheduled on to the Waverley line. On this occasion we were standing by and sitting in the car. Graham said, "Well, it is not much wonder that they do not pay." I asked him if he had seen anything queer, and he said there was something which had been troubling his mind ever since he first heard of it. He said, "I do not like to be an informer." I said it was a very unpleasant thing to do, especially among a body of workmen, and that he might cause himself to be victimised through so doing. "Still," I said, "if you have observed any direct fraud I think you ought to adopt some means of letting the Department know of it." I did not make any secret of the matter and I did not hesitate to speak of it. I did not wish to victimise Graham, but I had a number of conversations with different conductors on the subject.
1645. Afterwards? Yes, repeatedly; some of the conductors thought it was hardly possible that it could be done, so one morning, just by way of experiment, we got a piece of wire, and tried it.
1646. *Mr. Thompson.*] Are you not a little bit ahead with your story. You have not told us yet how you came to know that a bit of wire would do the business? I will answer any questions you ask to the best of my ability.
1647. *President.*] You had got to the point in the conversation where Graham said it was no wonder that the trams did not pay? I will go back to that. I think that talk occurred shortly after the Centennial holidays; as is well known, the loading just about that time was very heavy. Graham said, "During the Centennial holidays a certain assistant conductor—he did not mention his name—got on to my engine, and asked me if I had a piece of copper wire I could give him." Of course we nearly always have a piece of copper wire on the engine, and the conductors are aware of the fact. Graham said he gave the man a bit of wire, and he said that the man afterwards took him into his confidence, and doctored his bell in the presence of himself and his fireman, Reid; the conductor requested him to notice the register. I do not know whether they were going to or from Bridge-street. I did not ask him. Graham said that he had a large car on, and what we call a pet; he had an extraordinarily heavy load, and when the tram arrived at the terminus—wherever it was—the conductor came up and opened the register, and showed it to him. Graham said that he heard that the register was continually ringing as the conductor was passing round the cars collecting the fares, but I understood him to say that he noticed that the register had not moved, or, if it had moved, that it had moved but a very little. I think that was about the extent of our conversation. I said I considered that if he did not wish to be the informant direct he should take an indirect course to bring the matter under the notice of the Commissioner. I said I thought it was something monstrous, and that it was to the interest of every employee on the tramways that they should pay, and that if this kind of doing was permitted it was not likely that they would pay. About three or four months after Graham had mentioned the matter to me I was talking to a conductor; I could not say now who the conductor was, but he said he did not believe it could be done.
1648. *Mr. Brock.*] You and the conductor tried it with the wire? Yes.
1649. Try to remember who the conductor was? I have spoken to so many, and I should not like to mention a name unless I was positive; we got a piece of wire, and passed it through the slot, and the conductor rang it, but the register did not move.
1650. You did nothing but put the wire in; you did not open the register? We did not open it at all.
1651. *President.*] You are quite certain of that? Yes.
1652. You are positive that it rang, and did not register? Yes.
1653. *Mr. Brock.*] Where did this take place? At Leichhardt. I am trying to recollect who the conductor was.
1654. We should like to know? I have no idea; we had so many at that time.
1655. *President.*] It would be an important corroboration of your evidence? I have sworn to tell the truth, and I am not going to tell any untruth; whatever questions you ask of me I will answer them truthfully.
1656. It is important because, unless we are much misinformed, this thing cannot be done with a register in good order. That points to the fact that the register which the conductor to whom you were speaking had must have been tampered with? I am afraid I cannot remember the conductor's name.
1657. If we can trace the bell back to any of the men who we know have been guilty of this thing it may be of use in enabling us to detect fraud? I was under the impression that when registers were issued to conductors they kept them as long as they were in working order.
1658. You are sure this happened on the Leichhardt run? Yes.
1659. Quite sure? Yes.
1660. If we could give you a sheet with the names of the conductors, would that help you to remember? Even then I do not think I could remember.

Driver
Hadwell.
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Driver
Hadwell.
30 Aug., 1888.

1661. *Mr. Brock.*] Would you remember the man's name if you heard it, or if a number of names were written down could you pick it out? I doubt it.
1662. *Mr. Thompson.*] Does it not strike you that possibly this was a man upon whom you felt you could depend—to whom you could talk with some little faith that he would do the right thing. In a matter of this kind you would not go to a good-for-nothing fellow—a gambler or a drunkard—you would go to a man who could be depended upon? As far as that is concerned I know that the man to whom I spoke felt very strongly upon the subject; I, myself, often used to give expression to my feelings, and I did not care whether people liked it or whether they did not. That was the reason I told driver Graham that if I were in his place and did not want to do the thing directly, I would have brought it under the Commissioner's notice in an indirect manner.
1663. *President.*] One thing seems a little strange. You have shown such correct feeling in the matter that it is a little surprising that you yourself did not interfere when you found—as I imagine you did—that Graham did not do what he ought to have done. Did you stir him up occasionally? I stirred someone else up.
1664. You did not report to anyone? I did not wish to. I believe I caused something to be brought before the Commissioner in reference to the matter.
1665. *Mr. Brock.*] Did you take any steps to bring the matter under the Commissioner's notice before you had made the experiment? No; it was after that.
1666. Shortly afterwards? Yes.
1667. It was about four months after Graham spoke to you? Yes.
1668. When did you first hear of the name of the man who took Graham into his confidence? I did not hear it.
1669. You have not heard it yet? I have heard it lately.
1670. Graham never took you into his confidence sufficiently to tell you the name of the man? No; what actuated him I think was that he did not want to make himself a victim.
1671. *President.*] How do you mean make himself a victim? I will tell you how it could be done. Perhaps you have had no experience in the matter. But it would be a very easy thing for collusion to take place between a number of men, and they could worry and harass a certain man until they got him out of the Service.
1672. *Mr. Thompson.*] No matter how rightly he had acted they could band themselves together, and by constantly nagging at him could make his life a burden to him? Yes; and probably they would eventually do something to get him dismissed.
1673. *President.*] Do you know Graham well? I have known him ever since I have been on the road. I came out on to the road on the opening of the Coogee Bay line.
1674. Do you think in your own mind that Graham is above suspicion in the matter? I think so; I do not think he has had any connection with the frauds. This is sufficient to convince me; if he had why should he speak to me about the matter. How did he know but that I would expose it; if he was deriving a benefit it would not be to his interest to mention the matter to anyone.
1675. *Mr. Brock.*] And you say you heard him mention it to three persons? Yes.
1676. You look upon Graham as a thoroughly reliable man? I have never known anything to the contrary. I have always found him a truthful man.
1677. *Mr. Thompson.*] When he spoke to you did he give you the impression that he really was sincerely troubled about the matter, and that he did not know how to act in it? I was under that impression; he said it had troubled him ever since he heard it, and that he believed there were others doing it besides the man who told him. He told me that after this assistant conductor had taken him into his confidence by showing him how he doctored the bells, it troubled him to think that after he had drawn a heavy load from terminus to terminus, he might have done so for nothing so far as the Government were concerned.
1678. *President.*] Do you know the name of Graham's informant? I have heard that it is Ferrier.
1679. Did Graham tell you that Ferrier was the man? No.
1680. You are sure Graham did not tell you? Quite sure; when we used to be conversing about the matter he did not mention who the man was who had told him. I have not mentioned Graham's name. In talking about the matter I have said that a certain driver told me. I did not wish to expose him in any way.
1681. You have never mentioned Graham's name? No.
1682. *Mr. Brock.*] Who told you Ferrier was the man? I would not be positive whether it was Graham who told me after I had heard that Ferrier had been brought before the Commissioner.
1683. *Mr. Thompson.*] The fact of Ferrier being dismissed might have led your mind in that direction? Ferrier was not in the Service at that time.
1684. *Mr. Brock.*] You say you spoke to several conductors about it? Yes; I could not tell you to how many. I spoke also to the loco. men. The conductor with whom I made the experiment spoke very strongly on the subject, and said that if it was possible for it to be done, and if it had been done, the parties who had done it ought to be imprisoned.
1685. Do you remember the names of the others to whom you spoke? No; as I said before, I have spoken to so many I should not like to mention anyone's name unless I was positive.
1686. You made the experiment with only one conductor? That is all.
1687. Was he the only man present when you made the experiment? I think the fireman was there.
1688. The same fireman you have now? I think it was.

Arthur Simpson called in, sworn, and examined:—

A. Simpson.
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1689. *President.*] We have sent for you to speak to you generally on the subject of the tramway-ticket frauds, but to allow of your mate going away I am going to ask you a question perhaps a little out of order;—were you on the Leichhardt run some four months ago with Hadwell? Yes.
1690. Do you remember a conversation at the Leichhardt terminus between yourself, driver Hadwell, and a conductor, in which the trial of the insertion of a pin in the register was made to see if the register would ring? I remember a conversation, but I cannot say that a pin was used.
1691. Who was the conductor? I could not say who the conductor was. There have been so many talking about these frauds. I could not say who the conductor was on that day.
1692. Do you change about very often on the Leichhardt run? I think the man we had at this time was Matthews.
- 1693.

1693. *Mr. Brock.*] At what time of day was it when this conversation occurred? I could not say. These conversations were a frequent occurrence. Almost every time we sat down to a meal we used to talk about these frauds.

A. Simpson,
30 Aug., 1888.

1694. I mean the conversation as to whether the bells could be rigged by the insertion of a piece of wire? I don't remember trying with a bit of wire, but I remember a great conversation on the subject.

1695. *President.*] Cannot you remember what conductor it was? As nearly as I can remember it would be Connors. I remember a conversation between Connors, Hadwell, and myself, in reference to these frauds. The conductor I remember said that it was a pity that the men could not be caught at it. I would not be positive, now I think of it, that he did not try the bell with a pin.

1696. As Hadwell has told us that the man who did make such a remark was the man who made the experiment with the pin, might it not have been Connors? I could not say. We are placed in this position that we sometimes have five or six conductors in one day.

1697. Did not Connors make this remark? Yes.

1698. And if the driver knows that the man who made the remark and the man who tried with the pin were one and the same it would be Connors? Yes.

1699. We want you to tell us all that has been told you in connection with these ticket frauds before the matter became public property? All that I know is hearsay from driver Graham.

1700. We would like to know something about it;—how long is it since he told you? It was in the presence of my driver and his own fireman.

1701. How long ago? As nearly as I can remember between six and seven months.

1702. Just after the Centennial holidays, was it? Yes; sometime after that.

1703. What happened. What did driver Graham tell you? The four of us were sitting in the car having tea I think. A conversation came up in reference to the trams not paying and there had been great talk in the papers about their being made over to a Company. Graham passed a remark that it was no wonder that the trams did not pay. Then I think my driver or myself asked him why. He then said that they could tamper with the bells. He said that he remembered that on a certain day a certain conductor had come to him and had asked him for a piece of wire. I believe he said that he gave him the wire.

1704. Did he name the conductor? No; he used no names. He gave the wire to the conductor and the conductor wanted him and his fireman to take notice of his register, which they did. He then went away and at the end of the journey he brought the register back to the driver and requested him to notice it again. Graham said he could not notice that the register had shifted, although he had heard the bell going on the journey down.

1705. Then what followed? My mate said that it was a scandalous shame and that it was to the interest of every man in the Department to bring it to light if such a thing existed. Graham said that he would mention no names, but that he had felt very uneasy ever since he heard of the thing. He also said that he would see and report it to someone, which I believe he did. I think that was all the conversation then. I believe one of the shunters called one of us away and that broke up the conversation. At that time we were with special engines.

1706. Did you have after conversations with Graham on the subject? Some months after I spoke to him and he said that he had told someone. He did not tell me who he had told until after the matter was made public. Then he told me that he had told Moran.

1707. Did he not tell you who the man was? He never told me.

1708. When did you first know who he was? I did not know at all.

1709. You do not know now even? I cannot say what man he was referring to. I said that if I were in his place and knew who the man was I most certainly would not wait for anything at all. I myself would have gone to the Department there and then had I known who the man was.

1710. You have heard nothing more from anyone? No.

1711. Have you any other information you can give us? No.

Thomas Musgrave called in, sworn, and examined:—

1712. *President.*] You were a tram conductor? Yes.

1713. For how long? About two years and a half.

1714. Is that including the break? No.

1715. For how long were you employed up to the break, and for how long afterwards? I went on two years last February, and the break was from last August until about the beginning of January.

1716. You were on again from January last up to the time of your dismissal? Yes.

1717. When was that? At the beginning of last month.

1718. We have sent for you, because we wish to have your own statement as to these ticket frauds, which have been committed? I made a statement to Mr. Vernon.

1719. We do not require to know anything about that, nor do we require a repetition of the statement. You have taken your oath to tell the truth, the whole truth, and nothing but the truth. We are in full possession of that truth, but we call you because as I said before we prefer to hear the story from you in your own way, and in your own words. My advice to you is, to tell us all you know about it? Am I a witness in the case, or what am I?

1720. You are here before the Commission to answer the questions you are asked? I am willing to answer what I am asked, and to give a correct statement of anything I know. Of course I want to redeem my character—that is all I want to do.

1721. *Mr. Thompson.*] So far as we are concerned we are in no way anxious to redeem your character. That may be well for you. Our object is to elicit the whole and absolute truth? I understand that very well, but I want to act in my own interest as well as in any other. I thought the Commission was willing to do justice to everyone.

1722. Why do you ask what is your position here? Because I do not know. I was sent for, or subpoenaed, or whatever you call it.

1723. *President.*] You are here as a witness? I know that; I have been dismissed, but on what grounds I do not know.

1724. You are here as a witness to state everything you know? Yes.

1725. And you know that that is a very great deal? I do not know that it is so much. All that I know I have stated before.

T. Musgrave,
30 Aug., 1888.

1726.

- T. Musgrave.** 1726. Don't go back on that; we do not want that. It will not help you in any way whatever? What is it you want to know from me?
- 30 Aug., 1888. 1727. You have told others a great deal; tell us a great deal; tell us all you know of it from first to last. If what you have told others be untrue, tell us that it is so? Now I understand. Of course you must know that anything I have said to anyone else was no secret. As far as that went anything I said to anyone else was to get information for myself. As a matter of fact I mentioned the matter to anyone I might come in connection with—to anyone I might talk to.
1728. Give us a history of your knowledge of the affair. You know that there has been a large amount of cheating in the matter. You know that there has been a large amount of robbery? I do not know. I do not really know.
1729. You do know and we want to know all that you know, beginning from the first hour in which you became in possession of any particulars? It is not so long since I came in possession of any particulars.
1730. When did you join the Service? About two years ago last February.
1731. And within a fortnight of that period this robbery was going on? I beg your pardon, I do not know. I do not know that there was. I could not swear that there was. Like all the public they think there has been, but whether rightly or wrongly has to be proved. I cannot prove it.
1732. I am beginning to think that you are not intending to give us any evidence at all? But you will not wait until I try. I will tell you what I told Mr. Vernon.
1733. We do not require anything of the kind. We know perfectly well that what you told Mr. Vernon, even if there is a smattering of truth in it, is only one hundredth part of what you know of the affair? I do not know about that.
1734. You may beat about the bush as much as you like, that will not do any good. We have got very full information. It was almost a moot point as to whether we should send for you or not? You have sent for me and I will repeat the tale as I told you before. As a matter of fact I knew that the bells could be manipulated. I told Mr. Roberts before I knew anything; well, I told him—there.
1735. How long ago? Well, it might be two months ago.
1736. As a man on your oath that was the first you ever knew of the manipulation of the registers? No it was not; I knew before that.
1737. Now when did you know and what did you know? Before I knew it actually could be done it is about four or five months I daresay. I could not exactly swear how long ago. How I came to know was this: It is about sixteen months ago—nearly two years ago—when a man came to me—a man well known to the men on the tramways; although I could not swear to his name because he gives different names. It might be nearly two years ago when this man came to me.
1738. About two years ago? I don't think it is two years ago. He goes by different names; he has conversations with the different conductors and tries to make himself known among them, and that sort of thing.
1739. Is he in the Service? No; he was living at Parramatta as far as I knew; that is all I could make out about him. He is a mysterious sort of man. I should have thought that he belonged to the Department, and that he was going about trying to find out things and pumping conductors.
1740. Do you mean that you thought he was a detective? Something of that kind. He came to me telling me how he could make money, and how the bells could be manipulated. I did not take much notice of him on that account; I did not know anything before I was knocked off. During that time I did not see anything of him; I was trying to find out if what he had told me was the case.
1741. You have got very quickly down to the time of the break. We want to know a little more of this man's actual conversation? I cannot remember; he first came to me about eighteen months ago. He came to me after my return, when I had been dismissed.
1742. What passed—what did he do—what did he say? He was always trying to make friends with me and taking me into his confidence. I saw him occasionally—not often—and from the time I first saw him I was trying to find out if what he said was the case.
1743. What was the case? Well, as I was saying he came to me about eighteen months ago.
1744. And gave you his confidence. Well what did he say? He told me he could show me a way to make plenty of money out of the trams, and that the bells could be manipulated. I did not take much notice.
1745. Will you swear that you did not say to him, "What is the use of your telling me that; I know more than you do about it"; will you swear that you did not say that? I will. I used to see him once a month. I saw him several times after that, and then after that he said, "What about this thing? You can make something out of it"; and all that kind of talk, I do not remember it exactly, but it was something to that effect. I did not see anything more of him until after my return to the Service. I did not see anything of him all the time I was off, but I was trying to find out if anyone was doing it and who this man was. I was seeing if anyone could give me an idea as to who the man was. I never could see the man or could see anyone who could remember him. I never could make anyone understand who he was. When I had been back awhile on the trams he came to me again, and I asked him to show me how it was done. I would not have anything to do with it, but he used a lot of threats to me, and I thought I would let the matter rest for awhile. I told him that I would not have anything to do with it. He said that he could get rid of the tickets as much as I liked. I said nothing more about it. I thought he thought I would make use of what he had told me, and would have nothing more to do with him; besides, I did not know then that he was not connected with the Department. I do not even know now that he was not, although I have not seen him since. I do not know him now. Well, he showed me how to rig the bells, and a little while after that I thought I would tell Mr. Roberts, so that he could look into the matter and stop the thing from going on.
1746. You did know it was going on then? Well, if what he said was the case. He told me it was. I did not know whether it was or not.
1747. You value your oath a great deal, do you? I do.
1748. You said just now that you did not know whether it was going on;—is not that untrue? It is not.
1749. Are you sure? I did not know the men who bought and sold the tickets, and I did not know any of the conductors who knew that the bells could be manipulated.
1750. You swear that you did not know anything about it until this man showed you? I did not.
1751. You swear to that? I do.
1752. You swear that you had not before this shown two persons how to do it yourself? No, I had not.

1753. *Mr. Brock.*] Will you swear that you never showed anyone how to do it? I told Mr. Roberts. I T. Musgrave. did not tell anyone else.
1754. Will you swear that you never showed anyone but Mr. Roberts how to manipulate these bells? I 30 Aug., 1888. will swear that I did not show another soul. I may have said to the others that it could be done. All that I have said to anyone else would be for the purpose of gaining information.
1755. *President.*] What is the operation of the thing: you have had it shown you? You open the bell.
1756. What happens? When you have opened the bell you push in a brad-awl and touch something inside.
1757. What did you use? I used nothing. This man did it. I never used anything.
1758. Afterwards you knew that your bells would ring without registering? When this man had done it.
1759. Do you mean to say that you never carried the bells? I gave them into the office and they gave me another pair of bells. I had for months before that a pair of bells which are in the office, I suppose, and which can be examined.
1760. When this man had done the thing you took the bells into the office? A few days afterwards.
1761. Tell us what you do to the bells? You take one of the screws out and take the face off. Then there is something at the end that has to be pushed. I could find it if these bells were opened. You push something out of the way, and then, of course, there is a pin put in here. Everybody knew it when this man first talked about it.
1762. Everyone knew it because you were fool enough to show everyone yourself? If anyone spoke to me about it I might have said how it was done. I knew that if a bell had not been opened and a pin were put in it would not ring at all. I found that out by putting a pin in, and I had great difficulty in getting it out again.
1763. Well, what happens when the bell has been opened? The bell rings but it does not register—that is, after they have been properly manipulated.
1764. They do not register although they ring, is that it? Yes.
1765. Therefore a man using a bell of that kind might collect a whole car-load of tickets; it might be at Centennial time when the cars were tremendously crowded; he might ring his bell and there would be no register; he might, in fact, put the whole of the tickets he had collected into a side-bag and rob the Government of the whole lot? Yes.
1766. As you did on the last Centennial holidays? As I did?
1767. Yes, you? I did nothing of the kind.
1768. And you showed others that your register had not moved? I swear I did not show a soul anything of the kind.
1769. *Mr. Thompson.*] You have been talking to us of a man of whom you pretend to know nothing—of a man whom you even now believe to have been connected with the department as a detective;—did you not distinctly tell someone that this man's name was Scott, and that he lived at Granville? I told Mr. Vernon that he told me that his name was Scott. I asked the others, and they gave me different names.
1770. Let us have some of the names, will you? I cannot think of any.
1771. Try and think;—you could not even think of Scott just now? Some one would say that his name was Brown, or it might be any name. I know that he told me his name was Scott.
1772. What was he like? A young man—not old—about 26 or 27. He had a moustache, and a little whisker at the side.
1773. Is he a small man? A medium man.
1774. Smaller than yourself? No; taller than I am I think.
1775. Had he a dark moustache? It was neither dark nor light—between the colours. I suppose you would call it a fair moustache. I think you might call his whiskers at the side, light. He was what you might call a fair man.
1776. This man you say you know nothing of beyond what transpired in these conversations;—thinking him to be a detective of the Department, believing that his name might be Scott or Brown, and that he might live at Parramatta; you say all this in face of the fact that he had previously had such a lot of tickets from you? He did not have any tickets from me.
1777. Will you swear that he never had any tickets from you? I swear that neither he nor anyone else ever had any tickets from me.
1778. Is this man in Queensland do you know? I could not say now.
1779. But he may be? For aught I know I have seen him only once since then.
1780. Since when? Since the time he showed me.
1781. Who are the other men to whom you have seen this man Scott or Brown talking? I have seen him talking to other conductors and to other men outside of the Department.
1782. Who are the conductors with whom you saw him talking? I have seen him talking with several;—with anybody I may have been on the cars with. Perhaps if I saw anyone I knew on the car I would ask them if they knew the man.
1783. But who are the conductors? The conductors are nearly all on the Waverley line.
1784. Name anyone of them, will you? I could not name any of them in particular. I saw him talking to almost anyone of them.
1785. *President.*] There is such a thing as committal for contempt. You are carrying on pretty well but you may go too far. You know these men as well as you know yourself, yet repeatedly when you are asked to give their names you refuse to do so? There are a number of men on the Waverley line and perhaps he would not be talking to them.
1786. But you have just sworn that he was? Perhaps he may have passed a word to them. He generally stood on the platforms of the cars.
1787. Give the names please? There are a lot of them.
1788. Name one? There is Francis. There is Steele. I cannot think of the names now; I almost forget them, and I might not say the names of the men to whom he was talking.
1789. But you have sworn that he talked to all of them? Not all. I could name the men on that line. I have asked these very men if they knew the man. I have pointed him out to them and have asked them if they knew him.
1790. You swear that to these two conductors you have named you have pointed him out? I do not say that I pointed him out to them.
1791. For about eighteen months you seem to have been acting the part of a detective, trying to find out who this detective was? It was not my business but any one I accidentally saw I may have asked about him. He would sometimes get on to my car and stand on the platform.
- 1792.

- T. Musgrave. 1792. From the time he first spoke to you you were continually asking persons to whom you had seen him speaking if they knew who he was, what was his business, what was his name, and so forth? If there was any one alongside of me I knew I may have said "Do you know that man"; or "What is his name."
- 30 Aug., 1888. 1793. Will you name any one single man in the Tramway service to whom you have spoken about this man, and of whom you have asked his name? - I have asked nearly all. I cannot exactly remember now who it was that I did ask.
1794. You know perfectly well that you did not ask any one? That is not right.
1795. You find yourself involved in another untruth and you do not know how to get out of it? No; I am not.
1796. *Mr. Brock.*] Name any one single man whom you asked? I believe to the best of my recollection that I asked Francis and Munro.
1797. You pointed him out to them? I did. He seemed to be continually changing his name. One would say it was so and so; another would say that it was Brown, and so on. I have asked people off the tram his name and they have said different things, perhaps one thing and perhaps another.
1798. *Mr. Thompson.*] There is too much "perhaps" about you. We do not want so much surmise? I cannot swear to it.
1799. But we want you to swear to the things you say because you are sworn? I understand that.
1800. *President.*] You have already sworn that you have pointed out this man to several conductors and that you have asked them who he was. Name one of these conductors? I could not swear but I am almost positive that I asked Munro and Francis. Some said they did not know his name. Others said his name was Brown or something of that kind, giving some other name which I cannot remember.
1801. Some name equally convenient? I do not remember the names they did tell me.
1802. At the time you suppose you asked Munro where was he and where were you? We were on the cars together. He would be collecting one and I would be collecting the other. I would get on to his car probably and would say "Do you see that man there; do you know him?" Perhaps he would then say what he thought his name was. I never knew any one that knew him by the name of Scott, the name he gave me. I have seen him talking to Yelland.
1803. Did you find that any of these men knew who this man was? Not for certain.
1804. What names did they give? They would say —
1805. Well what did they say? They said I suppose whatever name they thought it was.
1806. Come what names did they give you? I cannot think.
1807. Did the name agree with what you had been told? It did not agree with the name he told me, Scott.
1808. What name was given to you as being the man's name? Scott.
1809. But by the others I mean? I cannot think of the names. There were several names. Some would say that they did not know him at all and that would end the matter. I could not find any to say that his name was the same as the one he gave me.
1810. *Mr. Thompson.*] You asked, a little while ago, if you were here as a witness. You might have known that from your having been sworn to tell the whole truth. Now this is our power and your right: "Any witness appearing before such Commissioners shall have the same protection and shall be subject to the same liabilities in any civil or criminal proceeding as a witness giving evidence in any case tried in the Supreme Court." I may as well tell you that for prevarication a witness can be sent to gaol by the Judge before whom he is giving evidence. We have the same power. Any witness refusing to answer straightforwardly can be sent to gaol until he pleases to answer. We have the same right. A witness who, in the opinion of the Judge, is telling an untruth can be committed for perjury. We have the same right? I will answer your questions as best I can. I can't do more.
1811. I think we are all agreed that you are not answering our questions straightforwardly. I am sure that you have hardly told one word of truth since you have sat in that chair. I may tell you that there is yet another punishment beyond those which I have enumerated. Any witness who shall refuse to answer the questions put to him by the Commissioners is liable to a penalty not exceeding £20, to be recovered in a summary way before any two Justices of the Peace; and if the sum is not paid the witness may be imprisoned for six months? I do not see what that has to do with it. I am answering your questions as well as I can.
1812. We have given you plenty of latitude. Knowing what we know about you and this matter, we can understand that you are unwilling to state anything which would hurt yourself? I do not think anything can hurt me.
1813. Don't let us have any such nonsense as that; it is such a transparent absurdity. You surely don't think that when three men have come to our age a comparative boy like yourself can stuff such nonsense as that down our throats? Of course I have not had experience in any kind of law.
1814. But you are quite old enough to know the difference between telling the absolute truth and cock-and-bull-yarns like those which you are trying to stuff down our throats now. Listen to what you have told us. For nearly two years you have been on the track of a man whom you have supposed to be in the Department. You never could find a man who knew his name and business—you say he was going under all sorts of names—and, notwithstanding all your exertions (you having been in the Department all this time) you have been unable to find out anything about him, even his right name? I only used to see him occasionally on the cars; I could not get off the car and follow him to see where he went.
1815. How do you know that he lived at Granville; is it Granville or Parramatta? He said between Granville and Parramatta.
1816. *President.*] When was the first time you handled a pin in connection with your register? When he showed me the way it was done.
1817. When this unknown man showed you? Yes.
1818. And that is how long ago? Not more than a few months back.
1819. A few months may be eight or ten or twelve? It is about three or four months ago; I could not say the exact time.
1820. Up to that time you swear that you never handled a pin or a piece of wire in connection with your register? Not up to that time. I tried if it could be done when he told me that it could. He told me that it could be done with a bit of wire.
1821. When did he tell you? He did not tell me anything at first. He said nothing about the bells when he first met me.

1822. Not very long ago you swore that at the outset he said that the bells could be faked? He made friends with me at first, taking me into his confidence. He did not jump on to the car and tell me right away. He gave me cigars several times, and talked to me, asking me about the working of the trams, and so on. T. Musgrave.
30 Aug., 1888.
1823. Still I am anxious to know when was the first time you made use of a piece of wire in connection with your register—I want a straight answer to that question? I cannot think; it is a good while ago since I first tried it, and it would not strike; that was directly he told me, and I dare say it is over twelve months ago.
1824. You tried it then and it would not answer; how soon did you make it answer? I did not make it answer. He showed me. He opened the bell and pushed something inside with a brad-awl, I think.
1825. When was that? A few months back.
1826. How many? About four months ago—about two months previous to the time when I told Mr. Roberts about it. It might have been more, but I could not swear to the time.
1827. You had your bells rigged in this way for two months before you told anyone about it? Before I told Mr. Roberts I did not have the bells. I gave them in to the office.
1828. When? I could not say.
1829. You carried the bells after they had been rigged for two months? No, not that long.
1830. How long? Not long; they broke. We often have to change the bells for that reason. The last pair I had for some time.
1831. How long did you have these bells after they had been rigged? I could not swear,—but until they broke; until they got out of order.
1832. That might be six months? It was not six weeks.
1833. How long was it from the time they broke down before you got another pair? I got another pair as soon as I got into the yard.
1834. It was not a loss of £500 to you that time? It was not a loss to me.
1835. The same as when you were knocked off in the retrenchment time? That was not a loss to me.
1836. You know that there was a loss of £500 to you when you were off? I beg your pardon.
1837. You know you said it was? There was no loss to me except the pay when I was off.
1838. Why I thought there was a clear loss of £500 when you were off? There was a loss of nothing to me except my wages.
1839. Will you swear that you did not say that there was a loss of £500 to you? I swear that there was no such loss.
1840. Will you swear that you did not tell anyone that there was a loss of £500 to you? I swear that I never said anything of the kind. I never said that on any occasion.
1841. It may have been twelve months ago, you say, since you first tried this business with your register? It may have been that since I tried, but it would not answer. It was not until some time afterwards—when my bell had been opened—that I succeeded.
1842. It is not twelve months ago since your register was put in the condition necessary to the working of this fraud? No.
1843. Well, how long ago? I cannot say. A few months back. It is twelve months since the man first told me that it could be done.
1844. But you say that you tried it at once? And found, as I thought, that it could not be done.
1845. How many months elapsed before the successful experiment was tried? I went off the cars, and did not see him any more of course.
1846. We want no of course? It is twelve months since I left the trams, at the time of the retrenchment. Just before I left he told me that the bells could be manipulated. I saw no more of him then, but I was trying to find out from others if it could be done. I thought the man was sent to me as a sort of trap, to see if I was doing anything of the kind. I did not know till I came back on the cars that it could be done.
1847. You continued to make inquiries about the man when you were off under the supposition that he was a detective? Well, several times I inquired about him when I came back. I did not think somehow that there was anything in it, and I thought it a frivolous thing to go and say anything about it.
1848. Just about that time you said you were £500 out of pocket by this frivolous thing? If anyone has said that it is untrue.
1849. You are sure you said nothing of the kind? Sure. I did not say anything of the kind to anyone. It stands to reason that a man could not make it, however much he tried to do it.
1850. It was not as good as that then? I am sure it could not be.
1851. You can speak because you have had such experience? I have not had experience in that way, but your own common sense would tell you.
1852. How much did you make; you had better tell us all about it? I did not make anything.
1853. How long were you off the cars at the time of the retrenchment? We left the day after eight-hours day, and when I came back to work I did not go on to the cars at once. At first I went into the yard; then I was on the cars again—on and off.
1854. When did you go on to the cars again? I was on and off. They used to send me out when they were short of men. I think I went on permanently again at the beginning of January.
1855. You were off the cars three months, and there was a little drop of £500 in that time? Any one with common sense must know that it is not true.
1856. It does seem almost too startling to be true. We were under the impression that you made only a tenner a week. That is what you told someone else? In the way of joking I may have said so—in trying to find out anything they might know.
1857. You did say something of the sort to someone then—that you were making a tenner a week? I do not remember.
1858. You said it was as good as a tenner a week? I did not.
1859. But you admitted just now that you might have done? I do not admit saying anything about a tenner a week. But I have said to others, “Do you know about the bells?” or, “How much are you making?” That is often said by several conductors—by anybody perhaps; by anybody at all. This kind of talk is always going on—as to what they are making, and that kind of thing. We were often joking down there in the room.
1860. Such a man as Hendy could not make a penny at the work—he was “too big a bloody fool,” was he not? I do not know. He was a conductor. 1861.

- T. Musgrave. 1861. Don't you know what happened to him? Of course I do.
1862. Were you not astonished at it? Yes; I was.
- 30 Aug., 1888. 1863. Did you not say, "He is too big a bloody fool to be at that game?" Yes; I might have said so. Almost any one would agree that he is a thick-headed fellow. I did not think he would be foolish enough to do anything like that.
1864. He was not the kind of man to make a tenner a week, as you said you did for the last two and a half years? It is about two and a half years since I first went on the trams, but altogether I have been employed only about two years.
1865. That would about correspond with the snug little amount you have ready now—between £1,300 and £1,500—ready to buy your public-house? Oh, that is nonsense.
1866. You have not anything? I have not got anything.
1867. *Mr. Thompson.*] Perhaps you blew it all at the gaffing schools? I never visit gaffing schools; I cannot say about them; I never did anything in that way. I gamble a little, but not to any extent; I could name nearly every time I have gambled in my life; I have not done so more than an ordinary man would speculate.
1868. *President.*] You think that you went on to the trams again permanently in January—that is, when you succeeded in getting this thing right? It was sometime after I was on the cars that I succeeded in knowing it.
1869. Just a little while ago you gave us to understand that soon after you came back this successful experiment was made? No; it was not soon after; it was some little time after.
1870. When was it that you made this public exhibition of your skill. Plenty of them saw it? I asked several if they knew anything about it. I told several—not exactly together—that it could be done. That is, I said I had heard that it could be done. In getting conversational with the men I asked them if they knew anything about it. I never found any one who did know anything about it.
1871. Bar yourself? I did not know it could be done at the time of which I was speaking.
1872. Why did you say so often, "No wonder the trams do not pay?" That was when I found out about this.
1873. But you say you did not find any one who did it; still you said to several people, "No wonder the trams do not pay?" Yes; and I have often done that.
1874. Why? Because I had found out that the bells could be manipulated.
1875. What does it matter about that if they never were manipulated? I do not say they were not.
1876. You say you knew that it could be done, but that you did not know any one who was doing it? I thought they must be doing it. If this man came to me I thought he must go to them.
1877. So that you became at last perfectly convinced that others were doing it—just about as convinced as if you had told several how to do it? I did not tell any how to do it.
1878. You swear beyond the possibility of contradiction that you never told anyone how to do it? Bar that it was done with a bit of wire, I never opened the bell and showed it to anyone.
1879. You never opened any of these bells? With my own hands I never opened any of them.
1880. It was done for you? He showed me how it was done. That is the only pair of bells that I saw opened. It was only done once in my presence.
1881. You have already told us that your bells were meddled with twice? You don't call putting a pin in meddling.
1882. You said that twelve months ago this man showed you how it was done? I did not say so any more than putting a bit of wire in the bells. He said that the bells had to be opened.
1883. You said that he stuck a brad-awl in, that your bells broke, and that you returned them to the office? That was sometime afterwards.
1884. When you had another pair of bells then he showed you how to do it? He did not show me how to do the next pair. They were never touched in my possession. They were numbered, and I suppose they can be found now.
1885. When and where was it that this man used a brad-awl to your registers? He jumped on to the cars when we were running through from Bridge-street to the terminus.
1886. What terminus do you mean? Bondi Junction.
1887. Where did he get in? He jumped in at Bridge-street.
1888. Was this a service tram? Yes.
1889. *Mr. Brock.*] You had no passengers on it—except him? None.
1890. *President.*] When did he bring this screw-driver out and do the thing? When we were running through.
1891. Where had you got to when he did it? We were going through the streets.
1892. Where were you standing? I was sitting inside the car with this man with the windows shut. He took hold of the thing and took a screw out. Then he opened the register. I was watching him all the time. He just pushed something with his brad-awl and then closed them up. I put a bit of wire in the slot, and found then that it could be done.
1893. If you got a pair of registers in good order and inserted the pin they would not stop registering? They would not.
1894. The registers must be opened before they can be put in a position in which they can be used to defraud? I believe so.
1895. When this has been done they will ring without registering? Yes.
1896. That is why I am anxious to fix the date of your public exhibition—because it might almost be called so? Yes, I made no secret of it.
1897. I refer to the occasion when you collected a whole car-load of fares without registering them? I do not remember the occasion.
1898. When you showed that your register had not moved? I remember showing that it could not be moved. I showed Graham, the driver.
1899. *Mr. Thompson.*] Who do you say? Graham the driver. It was just directly after this man had done the screw-driving business. I had been talking to Graham. He seemed to know a lot about the conductors. I asked him if he knew anything. He said he did not know anything about it, but he knew there must be something of the kind going on.
1900. *President.*] When was your first conversation with Graham and what was the purport of it? Graham being a driver I have had a lot of conversations with him. I cannot call to mind the days of the month.

1901. *Mr. Thompson.*] Well let us hear what your first conversation with Graham was, if there be such a man? There is such a man as Graham, of course. T: Musgrave.
1902. Why of course? Well I should think so. 30 Aug., 1888.
1903. Are you sure that you are right? That is the name he is known by on the trams.
1904. Well what did you say to Graham? I asked him if he knew anything about it, and he did not know that it could be done, although he felt convinced in his own mind that such a thing was going on, as he knew people made money by it.
1905. What is the date of this conversation? I cannot think. I know he mentioned the names of some conductors who had been dismissed for dishonesty and so on, men I did not know and who were not on the cars then.
1906. What are the names of those he told you had been dismissed? Chandler, I think he said was one of them. I think he said that one of them had taken an hotel somewhere in the country.
1907. *President.*] Have you taken an hotel yet? No.
1908. *Mr. Brock.*] Do you remember making this little speech, holding up a piece of wire at the time: "This is as good as a tenner a week to me"? I do not remember ever saying that.
1909. *President.*] You have some memory and we want you to make the best use of it—to go back to these conversations with Graham, and to give us the probable date of the first one? I never anticipated anything of the kind, or I would have taken notice of it. I can get very near the date though.
1910. That will do for us? I don't think I said anything to Graham before I left at the time of the retrenchment. I do not think it is twelve months ago but I am not quite sure.
1911. Shall we say that date? I do not know whether I first spoke to him twelve months ago or whether it was after I came back.
1912. When did you come back? Early in January.
1913. Perhaps it was about then that you had this conversation, although you do not seem to think it was? I could not be sure. There is nothing definite about it. I am nearly sure that it was not till I came back.
1914. Will you swear that you had no conversation with Graham on this subject before you were dismissed at the time of the retrenchment? I would not swear that I did not, but I do not think I did.
1915. We are anxious to hear the precise details of this conversation? Well, as I have told you, I asked him if he knew anything about it.
1916. Cannot you give us any more details? I only asked him if he knew anything about the bells being manipulated. He said, "No." I said, "I think they can be."
1917. What made you ask Graham this? Well, you see, we were often talking.
1918. He was not like yourself, a conductor? But he seemed to know a lot about the other conductors, and about the conductors who had been dismissed. He said they had made a lot, and there was that kind of talk. I said to myself, "This man must know something about the bells." I thought that he must have been told, so I asked him if anyone had told him that the bells could be manipulated. He said, "No, but he was sure that something could be done with them, as he knew these men must have made money out of them." "Some of them," he said, "had taken hotels, and were in good positions." I never said anything more to Graham then.
1919. What did you say? That is all I can remember. I think I said, "I am nearly sure it can be done."
1920. Was that the time you told him you were doing it? I did not tell him I was doing it.
1921. Will you swear you did not? I said it could be done. I showed Graham how it could be done. I put the pin in and showed him.
1922. Where did you get the wire from; what sort of wire was it? It was a bit of thin wire.
1923. Do you carry it with you? I might have a pin. There is a pin in my waistcoat now.
1924. I said nothing about a pin; I suppose you always carry a pin, and then you always have it ready? I do not always have one.
1925. Did you ever find yourself short of a pin? I don't understand what you mean.
1926. I mean when you wanted one to fix up your register to cheat with? I did not do so.
1927. You never found yourself short of a pin? I never wanted one. I never did anything of the kind.
1928. You never had any need to ask anyone else for anything—for a piece of wire? I believe I asked Graham for a piece of wire at the time I showed him how it was done.
1929. That was after he told you about these fellow-workmen—that is, about the hotels and that sort of thing? No, not at that time; it was on another occasion.
1930. I advise you to be very careful; we have cautioned you two or three times; you will get yourself into such a pit directly that you will find yourself unable to get out again? I am giving you as correct a statement as I possibly can.
1931. Where was this man who told you his name was Scott when you were showing this thing to Graham? I do not know.
1932. You said just now I thought that Scott showed it to Graham? I did not say so.
1933. But you inferred it? I did not.
1934. Who was present when you showed it to Graham? Nobody.
1935. Was no one looking on who could see what you were doing? Not that I saw. I went up to Graham about the first time I found it could be done. Of course I spoke to him before I knew for certain that the bells could be manipulated. I was trying to find out if it was so. After I found that it could be done I got on the motor, and said to him, "It is a fact about these bells, it can be done." Then I showed him how it could be done.
1936. How long after that was it that you borrowed the piece of wire from him? It was about that time.
1937. I thought you led us to suppose just now that you had a pin on that occasion? I could not say whether it was a pin. I do not know whether I got a piece of wire from Graham or not at that time or at any other time. I remember showing Graham how it was done. This man had been saying, "You can do it with a pin or bit of wire," and that sort of thing. Whether I had a pin, or whether I got a piece of wire from Graham, I do not know.
1938. Just now when you were illustrating the matter you took a pin from your waistcoat, and said that you put a pin into the bell; the idea of the piece of wire seemed to dawn upon you when I first mentioned it, and when you saw what a mess you had made of it? Not at all; the man who told me said that it could be done with a pin.
1939. Come back to this bit of wire-borrowing; you say that it was not when Graham was telling you about the hotels and the money-making—that it was after that? Perhaps he repeated the same yarns at that time, because I have often been talking to him and to others. 1940.

- T. Musgrave. 1940. Did you not say just now that it was not at that time? It was not at the time of the first conversation I had with him that I showed him how it could be done. It was after that that I found out that it could be done, and I got on to the motor and told Graham that I knew all about it.
- 30 Aug., 1888.
1941. That was not the time you borrowed this piece of wire from him? I do not remember whether I got a piece of wire from him.
1942. Why, in answer to one of my questions you yourself introduced the bit of wire; I did not say that you had borrowed it from Graham. You yourself suggested the idea. I did not say that you had borrowed a piece of wire from anyone? —
1943. Are we to understand now then that you made a mistake in saying that? I think I did get a bit of wire, I know that when I tried the thing myself I used a pin.
1944. Where you got the bit of wire you are not quite certain about. What did you do with it? I showed Graham how it could be done, and then threw it away again.
1945. Who picked it up? I do not know that it was ever picked up.
1946. You do not know whether anyone was looking on or not? There may have been, but I cannot see how there could be.
1947. Where were you when this happened, when you borrowed this piece of wire? I do not know for certain that I did do so, but to the best of my belief I got a piece of wire from Graham to show him how it could be done.
1948. Were you between stopping places at the time? Yes; we were going along.
1949. You were on the motor? Yes.
1950. What were you doing there in the middle of your business, when the passengers were getting up and down? It was a slack time.
1951. You just jumped on to the motor and said, "Graham lend me a bit of wire; I have dropped my pin?" Nothing of the kind.
1952. You yourself have mentioned both a pin and a piece of wire in connection with the business? I said that it might be done with a pin.
1953. *Mr. Brock.*] How did you come to give this man who showed you a ride on the service car? He jumped on. People often jump on in that way, when we are running through.
1954. *Mr. Thompson.*] During the adjournment for lunch you have had some little time for cool reflection; I hope you have made up your mind to tell us the truth? I never had any intention of doing anything else.
1955. *Mr. Brock.*] You had better begin now in the middle of the street, you have been on both sides of the road, you have been backwards and forwards, and you have almost stood on your head? But you have been asking the same questions again and again. You do not seem to understand the way I answer them.
1956. How can we understand when you say one thing now and another thing 5 minutes afterwards? But I have not done so.
1957. *President.*] We want particularly to get from you what we have not yet got? If you will ask me.
1958. But you don't let me finish. You are constantly stopping me in the middle of my questions. We are anxious to get from you what we have not yet got, and that is, the date on which you had this ride in the service tram from Bridge-street to Bondi with this Mr. Scott, *alias* Brown, or *alias* anything else. When did that ride take place? As far as I can recollect it was from this date about five months ago.
1959. You mean to say that it was after you returned to duty? Some time after I came back, I think.
1960. Do we understand you to say that it was after this ride to Bondi that you made the exhibition to the man you described as Graham? Yes; it was a little time after that.
1961. Which was after? It was after the man showed me, of course.
1962. The ride to Bondi was before this wire business? Before I actually knew that the thing could be done this man told me that it was done with a wire or a pin. This was long before I knew that it could really be done. You don't seem to understand me. This man told me that it could be done with a wire or a pin put in the bell; I tried it and it would not answer. That is as far as I got for some months.
1963. But you did not give what I call the exhibition until you had fixed the thing properly. You did not show these people the trick before it would work? I did not show it to anyone at all. I said that it could be done.
1964. You said this morning that you showed how it could be done? After I had found out that the bells could actually be manipulated.
1965. Not till then? Not till then; I only showed Graham actually.
1966. *Mr. Brock.*] What you really mean to say is that you did not show anyone until you knew how to do it yourself? How could I? I said, as I had been told that it was done with a pin or a bit of wire, I was thinking that if a thing inside required to be moved every time you wanted the bells not to register, it was a foolish thing, and could not be done. He said to me, "It is not that at all; you insert this pin when you don't want them to register. When you want them to register you pull the pin out."
1967. *President.*] How long after this thorough showing in the special ride to Bondi—? It was the same time.
1968. Why do you not allow me to finish my question? I knew what you were going to ask me. It was what you said just now you wanted to get at—what time it was that I showed Graham.
1969. Why I did not even mention Graham's name? Well I knew what you wanted to know.
1970. *Mr. Thompson.*] You are following us with regard to Graham;—is there such a man? That is the name I have known him by; it is the name he has gone by ever since I have known him.
1971. If he is a driver he must have some one helping him;—what is the name of his fireman? His name is Reid.
1972. You are quite certain that is the man? Quite.
1973. *President.*] How does he spell his name? I do not know.
1974. Well how long afterwards was it that you showed Graham? I showed Graham about the same time that I was shown; the same week, I think, or very shortly afterwards.
1975. How long after the Centennial holidays was it? I cannot think; I think it was since then.
1976. *Mr. Brock.*] You are sure it was not before that? It is since then that I found out—that is, that I actually knew.
1977. That you knew how to do it? Yes.
1978. How long after the Centennial was it? I cannot say as regards the Centennial; I cannot remember.
1979. Do you remember when the Centennial holidays were; do you remember the unveiling of the statue? Yes.

1980. You also remember the laying of the foundation-stone of the new Houses of Parliament? I do not recollect the exact dates. T. Musgrave.
1981. *President.*] You were doing so well as a general thing that you cannot remember the enormous amount you made during the Centennial holidays, the whole car-loads of tickets which you manipulated and took away? It is no use asking me that; it is nonsense talking like that. If you have such a belief as that it is of no use asking me questions. If you say I did that it is of no use asking me anything else. 30 Aug., 1888.
1982. I do say that you did it? I can say safely that I never did anything of the kind.
1983. You may discover that you cannot do so safely? I can safely say that I did not do any such thing.
1984. *Mr. Brock.*] Some short time ago you were injured in some way? I was ill.
1985. Where were you stopping then? At Mr. Colls'.
1986. Who is Mr. Colls? He is a brother-in-law of mine.
1987. Is he employed in the tramways? Yes; he is in the office.
1988. *Mr. Thompson.*] Are you a married man? No.
1989. *Mr. Brock.*] Did you ever live at Newtown? I live in Newtown now.
1990. I thought you were living with the Colls? I have been living in Sydney up to a little time ago; I have lived in several places. Up to the time I was sick I was living with the Colls'.
1991. Were you living there the whole time you were sick? Yes.
1992. That you swear? Yes.
1993. Do you know a house in Fitzroy-street, off Crown-street? Yes.
1994. What sort of house were you running there;—were you keeping a woman there? I was not.
1995. Was this during the time you were laid up? I was not on the cars at all then.
1996. I am not talking about the cars;—were you never at that house at night during the time you were on sick leave? What house?
1997. The house in Fitzroy-street? I was not on the cars at the time; it was the time of the retrenchment.
1998. Were you never there during the time you were laid up on sick leave? No.
1999. You never were in that house, then;—you swear that? At the time of the retrenchment —
2000. I am not talking about that; I know where you were living at the time of the retrenchment; you were living with this woman; but when you were on the sick list were you stopping in Fitzroy-street with her? That is not so. At the time I lived in Fitzroy-street I was not on the cars at all. It was the time of the retrenchment; that was the time I lived there.
2001. I know you were there during the time you were ill? I was not.
2002. You may say what you like, but you are making a big mistake? I am doing nothing of the sort. You are mixing up one place with another. The time I was in Fitzroy-street was the time of the retrenchment—from last October until January. That is the only time I lived there. I was there a few weeks.
2003. You have not been in the house since? No.
2004. Not since you returned in January? No; I came back to work in January, but I was not on the cars.
2005. *Mr. Thompson.*] Tell us who was living in Fitzroy-street? A man and his wife—people named Summers. I was boarding there.
2006. Who were there? Other boarders. They were keeping a boarding-house.
2007. Who was the woman you used to sleep with? I do not see that that has anything to do with the matter.
2008. That is just what we happen to want to know? I refuse to tell you anything about it; I understand that I came here to explain what I know about the tram frauds.
2009. And we want to know of your connection with this particular woman? Yes; well?
2010. How long will you take to consider whether you will answer the question or will you go to gaol for refusing to answer. For refusing to answer a question you can be sent to gaol, and be kept there until you answer it? All right.
2011. Then you distinctly refuse to answer the question? Yes.
2012. Were you keeping that woman there? No.
2013. As you will not answer the other question will you give us a description of the woman with whom you used to sleep? Anything you ask me in connection with the tram frauds I will answer, but anything in connection with my private affairs I will not answer. I refuse to answer the question.
2014. Would you sooner go to gaol? I will not answer anything in connection with my private affairs.
2015. *Mr. Brock.*] We will defer that matter until the close of your examination. You have been intimately acquainted for many months with this man who you say showed you how to open the registers? I knew him by the name of Scott.
2016. I know for a positive fact that you do not know him by the name of Scott. You know his name intimately, and you will give it up? I do not know him by any other name.
2017. You know that every time you say you do not know his name you perjure yourself? I only know him by the name of Scott.
2018. You know it is not Scott; you know that you know him intimately. You have been seen with him dozens of times within the last month. You know a friend of his by the name of Scott, but you do not know him by that name? I do not know any friend of his.
2019. You do, sir? I do not.
2020. I know that you do? I do not.
2021. *Mr. Thompson.*] You appear to think that you have kept everything secret; but you have been watched, and everything you have done down to the time of your going to bed with this woman at night has been noted? That has nothing to do with me.
2022. *Mr. Brock.*] I again press you to give up the name of this man; I know for a fact that you are intimately acquainted with him, and that you have been for some time? —
2023. *Mr. Thompson.*] I note that this is the second time you have deliberately refused to answer a question put to you by a member of this Commission. I will pass on to other questions, leaving these two other matters still open to be dealt with. Before the adjournment for luncheon you told us that it was about five months since you showed to this man Graham the method in which the bells were rigged? It was about that time that I showed him the actual way of rigging them. Before that I had conversations with him.

- T. Musgrave, 2024. When you showed him five months ago, did you take the face of a bell off, and show him how it was meddled with inside? No.
- 30 Aug., 1888. 2025. You must be telling us a dreadful untruth now, or else you told us one before. If your bell was correct and had not been meddled with, how could you show him how the thing was done by merely sticking a pin in. You have told us that if a bell is in good condition the mere sticking in of a pin will not do the thing? You do not seem to understand. When once a bell has been opened and a brad-awl has been put in and something moved.
2026. I know about that. You set the ratchet-wheel wrong by running a brad-awl between the two wheels. You put them so that they would not catch—so that they would not travel truly? I only showed Graham how by putting in a pin the bell would not register.
2027. But you said before that putting a pin into a bell that had not been meddled with nothing could be done. Now this bell must have been meddled with, or you must have meddled with it, then, in order to show Graham what you say you did show him? It was just a little while after my bell had been meddled with that I showed Graham. That bell I afterwards gave in.
2028. *Mr. Brock.*] These are the bells you allowed to be meddled with by a man whose name you did not know. You did not even know his name, and yet you allowed him to do this thing to your bells. Is that what you ask us to believe? That is what I did.
2029. *Mr. Thompson.*] Supposing that five months ago this man showed you how this was done, and experimented on your bells for your amusement in this service tram, it is a matter of absolute fact that for three months afterwards you kept these bells in your possession before you handed them in? Not the same bells.
2030. How long was it after this man did this thing for you that you handed in the bells to Mr. Roberts? I could not say; the bells went wrong a little while afterwards, and I handed them in and got another pair.
2031. How long after this Mr. Scott, *alias* Brown, *alias* Perhaps, meddled with your bells did you hand them in? I could not say for certain.
2032. *Mr. Brock.*] But we should like to know something like the time. Was it a month? I do not think it was.
2033. Was it three weeks? I could not say how long it was. It was under a month.
2034. *Mr. Thompson.*] Were you quite convinced, when this man showed you five months ago that he was right, that the thing could be done? Of course I was.
2035. Then if you wanted to hold yourself out as an honest young gentleman, why did you not tell Mr. Roberts or someone else at once? This man used threats to me; I thought I would let it quieten down for a little and then tell Mr. Roberts.
2036. *Mr. Brock.*] He used threats to you you say? He did.
2037. That is not true. You know it is not true. He never used threats? He did.
2038. Why did you not tell your brother-in-law. You lived at his house? I did not see any cause to tell him.
2039. You lived with him, an official in the Tramway Department, for two months. You carried during the whole of that time bells with which the Department was swindled; and you only gave them up when you were compelled to do so? I did not carry the bells for two months and I did not swindle the Department.
2040. There is not a bit of evidence to show that you put the bells right during that time? I never touched the bells afterwards. I gave them in. I should not know what to do if I did touch them afterwards.
2041. Your bells had been tampered with with your permission, under your own eyes, and you kept them until they went so wrong that you could not use them any longer? The bells often get out of order.
2042. Will you tell us how much in the shape of money or tickets you returned to the Department that your bell did not record at all? I did not give in any.
2043. Although your bell was not registering? When one bell goes wrong you ring on the other. For instance, if the ticket bell goes wrong you ring on the cash-bell until you get in; it is only a question of one trip. You might have a bell which would break down on the first trip. That does sometimes happen.
2044. *Mr. Thompson.*] But suppose both bells had been tampered with? Both could not have been tampered with.
2045. Only one bell. Was that the ticket bell? Yes.
2046. *President.*] Do you want to make us believe that during these three or four weeks you had your register in the condition in which this man handed it to you; you never inserted a pin at the foot? Never to defraud the Government.
2047. You put it in several times, but it was only just for a bit of fun? I put the pin in when I showed it to Graham.
2048. How many times did you show Graham? Only once.
2049. *Mr. Thompson.*] How many times did you let Graham—if there is such a man—and his fireman, Reid, see that you were playing this little game? I did not show Reid at all.
2050. *Mr. Brock.*] Who else besides Graham? No one.
2051. You will swear that? I will swear it.
2052. Graham is the only man you ever showed how to do it? Yes.
2053. Did you ever charge £10 to anyone for showing them this secret? Never.
2054. And tell them at the same time that money was to be made out of it and that you would take a tenner out of them to let them know how it was done? Nothing of the kind.
2055. Did you not also say that you would take the bells home and fix them up for them? No I did not.
2056. *President.*] Did you not receive £50 worth of tickets from one conductor whose bells you had fixed up? No.
2057. £50 out of the first £100 worth he took? I swear I did not.
2058. Will you swear that you never told anyone you did? I never remember telling anyone anything of the kind.
2059. Will you swear that you did not tell anyone? I may have said something to some one in conversation when trying to get information from them. I may have said a lot of things.

2060. What more information did you want than you had;—it seems to me that the others wanted information from you? I never gave anyone information. They never asked me for it. T. Musgrave.
30 Aug., 1888.
2061. You offered it to them for a consideration? Before I found out that the bells could be manipulated I asked others if they knew anything about it. I wanted to see who this man was.
2062. *Mr. Brock.*] You knew who the man was? I did not.
2063. It is of no use your going on with the lesson you learnt before you came in here? I learnt no lesson.
2064. Do you remember the 7th April last? No, I do not.
2065. Do you remember the autumn meeting at Randwick;—there were races on the Thursday and races on the Saturday? There may have been.
2066. Do you remember it? I remember that there were races, but I do not recollect the exact time.
2067. Did you go out with a race-tram on that Saturday morning? I may have done.
2068. You cannot recollect if you did? I cannot.
2069. You do not recollect going to the race meeting in the forenoon, and going car-cleaning in the afternoon? I do not remember. I may have done.
2070. *President.*] I think you answered the question this morning;—you know what you said about Hendy being taken? I remember being asked about Hendy.
2071. What were you asked? You asked me if he was fool enough to do such a thing.
2072. *Mr. Brock.*] You remember the day he was sacked? Yes.
2073. Did you go out to the racecourse that afternoon? I went out in the afternoon after Hendy was suspended.
2074. *President.*] How was it that you did not go out in the morning? I think I was car-cleaning.
2075. But you had been out on the Thursday? I think I was car-cleaning. I was only sent out at times when we were short of conductors.
2076. Are you sure you were car-cleaning that morning? At some part of the day I was; I forget about the morning. We had shifts.
2077. Were you on duty at all on the forenoon of the day Hendy was suspended? If it was on Saturday I think I came on at half-past 12.
2078. And went one trip to the races? In the afternoon.
2079. What would you do at half-past 12? Go car-cleaning.
2080. *Mr. Brock.*] Suppose you did not come on until 2, what would you be doing between 2 and half-past 3? The day Hendy was suspended I was car-cleaning in the afternoon for some time.
2081. What did you actually do between 2 and half-past 3? I am almost sure I was car-cleaning.
2082. Is it likely that you would be car-cleaning from 2 until half-past 3, and then be sent out to Randwick? I expect I was sent out in Hendy's place.
2083. You are sure you did not take some other trip to another suburb before you went to Randwick—some other trip between 2 and half-past 3? I was sent out one afternoon, I remember, to help the trams in from the racecourse; but whether it was on that afternoon or not I cannot remember.
2084. Suppose you went out as assistant on a tram some days previously, and were relieved before the tram came into town; that you had your bells and your tickets with you; and that you did not come in on the next day;—what would you do with your tickets; when would you give them up? I should keep them until the next day, or until I went on duty again. We always take some home with us every night.
2085. Suppose you had taken some home on Thursday night, and that you did not come in again until Saturday morning? I should keep the tickets and register at home. We never take home many. We have our bags emptied the trip before we go home, and we generally take home with us what we collect on the last trip going out.
2086. *President.*] What is the longest time you have kept your bag like that with tickets in it? Not more than a day, and then there would be only a few in it.
2087. You have not so kept it for more than a day? No.
2088. Have you never been from Wednesday until Saturday with tickets collected on the Wednesday—that is, not returning your tickets with your register until Saturday? I may not have been at work during the time.
2089. I do not care where you may have been;—the books will show that? I do not remember it.
2090. How often have you done it? I have never done it.
2091. Except at times? I do not remember doing more than the other conductors have done. I did about the same as the others have done. They take the tickets the last trip out, and when they come in again they get their bags emptied.
2092. There is a record of a reading on Wednesday, and then the next reading is on Saturday;—what did you do with your tickets between the Wednesday and the Saturday? Very likely I was car-cleaning.
2093. And you passed the Pitt-street office with your bag and bell? I do not remember doing it. It may have happened. We have lockers down in the yard. If I was car-cleaning my bag and bells would be locked up in the yard.
2094. Do you sometimes lock up your bag and tickets without the register being taken? Sometimes.
2095. Not knowing when you would be put on to a car? We only got our bags emptied once a day.
2096. But in one case you had your bag for three days? There may have been a few tickets in it. I do not remember ever doing it, but if I did I could not swear that there were not a few tickets in it.
2097. You were not in the habit of doing it? No; whenever I have had tickets in my bag I have always got it emptied.
2098. *Mr. Brock.*] You were generally on the race-trams? Sometimes, only sometimes; I do not think I have been on the race-trams more than five times during the year.
2099. *President.*] You remember the day Hendy was suspended? I can remember seeing him go down into the yard and go away; I think I was car-cleaning at the time. In the afternoon I think I was sent out to the race-course.
2100. Fix your mind on that day;—did not someone express surprise to you when he saw you car-cleaning that you were not out at the racecourse? I could not swear it. I do not remember it. I know that such a thing as this might be said to anyone, although it is an untruth. They might say, "Halloo, how is it you are not on the races; it is a bit of a loss to you, isn't it?"

- T. Musgrave. 2101. And when this was said to you did you not wink your eye and say, "Ah, there's something on the board"? I do not remember ever saying it.
- 30 Aug., 1888. 2102. You will swear that it did not take place; you are piling it up you know? That was after Hendy was dismissed.
2103. It was not after? I can swear at all events that I never said anything of the kind. It is not in my option to go to the races. You go down there and you are sent wherever the foreman chooses to send you.
2104. Will you swear that you were not on the berth for these races, and that you were taken off? I swear I was not. No man knows where he is going to on a day like that. I do not know whether anyone else does, but I never did. The foreman comes down and says what trams you are to take on a holiday; on other days you are appointed for trams.
2105. You say you remember the day Hendy was caught distinctly? Yes.
2106. You knew that he was going to be caught, did you not? I did not.
2107. Will you swear that you did not know all about it? I swear it.
2108. Did you not know that the detectives were put on on that occasion? I did not.
2109. *Mr. Brock.*] By whose instruction did you get on to the race-trams that day? I was sent out by the foreman.
2110. Which one; you know their names, do you not? I cannot think now which one it was.
2111. You are sure it was a foreman? Yes.
2112. Will you swear it? Yes; I think I can.
2113. Was not Gamgee away out at Randwick? I remember seeing both of them on that day, but I forget which told me to go.
2114. Was not Gamgee away at the races from early in the forenoon until late in the afternoon? One was at Bridge-street and one was at Randwick. I could not say which one was in the yard and which was out at Randwick. I was not out at Randwick long. It was after 4 I think.
2115. Suppose you went out after 4 would you take passengers out? No; there were no passengers out. I am sure of that.
2116. You would bring a big load in? Yes.
2117. Do you remember what you returned as your whack of the passengers? I cannot remember now.
2118. You ring once for 1s. in cash, and once for a shilling's worth of tickets? Yes.
2119. You cannot remember your return for your tickets and your cash that evening? I have not the slightest idea. I worked only one car; I never work more than one car. I am always helping some one else.
2120. But the car you did work would be pretty well loaded, would it not? Yes; pretty well. The cars are supposed to hold sixty, but there would be some standing about perhaps.
2121. Don't you think there would be more than sixty on a race-day? There are cars that hold more. Of course when overloaded they hold more than sixty. There is standing room. I should think I had sixty on that day coming in from the races. Sixty is the number the smaller cars hold. On this day I think I had a double-decked car. That was the last time I was at the races. I do not remember whether I was out there on the Thursday before; I believe I had only one trip to the course on the Saturday.
2122. You say you do not gamble, but you have spent a good deal of money at foot and horse races at different times? I don't know; I used to do a lot of it myself at one time. When I was lighter I used to ride myself.
2123. That was before you were in the Department. You did not act as a jockey? I was not exactly a jockey at any time. I was well up in horses. I was small and light, and I used to ride well. I used to ride up country, but only for friends; consequently I got to know a lot in connection with horse-racing. Since I have been in Sydney I have known a lot who have been able to tell me when they had a good horse, and something of that kind—to tell me when it has been worth my while to put on what I have had to spare. I have been lucky at times, and at other times I have been unlucky. As to gambling, I have gambled at times, but not to any extent—nothing to speak about. There was a watch raffled once or twice at a certain place. I raffled one myself at a certain place. Then we might start throwing dice, each putting a shilling in—that is the extent of my gambling.
2124. On what tram were you when Mr. Brown introduced himself to your notice? He used to travel up and down the Waverley line, and I was generally on that line. He would generally come down stairs and stand on the platform, and talk away there. When I had collected all my fares we would talk about different things. He would talk about racing and one thing and another. Sometimes he would come to me and say, "What about the races?" Several times I told him of horses I thought would win. Sometimes he told me of what he thought would win. That is how he introduced himself to me.
2125. Have you ridden since you have been down here? No; I have ridden up at the Macleay, where I was born.
2126. *President.*] Do you know Ferrier? Yes.
2127. When did you have your last conversation with him? I was sitting with him this morning.
2128. But before that? I have met him now and again lately.
2129. You have talked over these frauds? Yes; he asked me what I thought of it; I told him what I had told everyone else—that I did not know what to think of it.
2130. Can you tell us how long ago it was that you went to Mr. Roberts and showed him your bells, and told him the whole thing? Yes; it was about the beginning of last month.
2131. It was about the beginning of July? Yes; or about the latter end of June.
2132. Had you met Ferrier the night before? No.
2133. Was it not due to what Ferrier told you that you went to Mr. Roberts with a cock-and-bull-story—a pack of lies? No; nothing of the kind.
2134. You swear that? I had not seen him for I do not know how long before.
2135. You swear that it was not in consequence of a conversation with Ferrier that you went to Mr. Roberts? Yes.
2136. You did not tell any one that? No, I did not.
2137. *Mr. Brock.*] What influenced you to go to Mr. Roberts? I always intended to do so.

2138. Did Mr. Colls say anything to you about going to Mr. Roberts and making a clean breast of it? No; I told Mr. Colls the night before I went to Mr. Roberts that I knew about the bells, and that I thought it could easily be stopped. I then went to Mr. Roberts and asked him what he thought about it. T. Musgrave.
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2139. Didn't you tell Mr. Colls that you were in a regular fix? Nothing of the kind; I went to him and told him that I intended to tell Mr. Roberts about the bells being manipulated. He said that if he were me he would tell him straight away, or something of that kind.
2140. You said just now that that was the first time you mentioned the matter to Colls. Is not that utterly untrue? No; it is not.
2141. You know that he knew about it all along? Nothing of the kind.
2142. Do you mean to say that Colls did not tell you when anything was going on? He gave me no such intimation.
2143. You will swear that he never warned you? Yes, I will.
2144. *Mr. Thompson.*] He never told you that if you were carrying on this game you had better stop it at once? Nothing of the kind.
2145. *Mr. Brock.*] You were saying that Colls told you you had better see Mr. Roberts? When I told him that I intended to go and see Mr. Roberts he said that that was the best thing I could do. He said, "Go and tell Mr. Roberts at once." That was one Sunday night; I was only there a few minutes.
2146. Did you not tell him how long you knew it? I did not tell him anything about it. I did not think he knew how long I knew it. In fact I am sure he did not.
2147. *Mr. Thompson.*] I want you to bring you memory back to this man Scott. You have told us three different yarns about him? I do not think so.
2148. First of all you told us that it was more than twelve months ago that he came to you and spoke to you about it and showed you about it? He told me about it. He told me it could be done.
2149. You said on one occasion that he showed you then how it could be done. Then you ran away from that and said that it was only a short time before you saw Mr. Roberts about it. Then you said it was a short time before you told driver Graham—about eight or nine months ago. Then you said it was about five months ago. So that in reality you have told us four different yarns about this man Scott? I never mentioned eight or nine months ago since I have been in the room. Eight or nine months ago I was not on the tramways.
2150. Did you not come back in January of the present year? Yes.
2151. You were regularly on as an extra conductor early in the year? Well I was in the yard for about a fortnight. I asked as a favour to be let go car-cleaning as I did not feel well.
2152. What was the matter with you,—had you the mulligrubs? I was not well. I asked the foreman if he would allow me to go car-cleaning for a little while as I was not well. He said "all right."
2153. *Mr. Brock.*] What was the matter with you? I do not know I am sure. I did not feel well.
2154. What doctor was attending you? Dr. Smith—a doctor out at Waverley.
2155. What is his address at Waverley? In the Waverley road I think now.
2156. *Mr. Thompson.*] Have you any objection to tell us what the doctor said was the matter with you? There is the certificate in the office I suppose. I was suffering from a cold or chill. I sent in a certificate to the department.
2157. *President.*] Whose certificate? Dr. Smith's.
2158. What Smith? At Waverley. He certified that I was suffering from a cold or chill which prevented me from going on to the cars.
2159. I should have thought that standing about in cold water would have been worse than standing on the cars travelling? At the time I was first sick I used to go on the cars. I had no doctor at all at that time. I used to get giddy and I asked if I might go car-cleaning.
2160. You said that you had a conversation with Ferrier the night before you told Mr. Roberts? No I did not.
2161. Do you say that you had not? I had not.
2162. Had you or had you not? I had not.
2163. When had you seen Ferrier last before you went to Mr. Roberts? I cannot remember when I saw him the time before that; it was sometime before.
2164. I repeat—when did you see Ferrier before that? It was sometime before that.
2165. You are acting very foolishly; we have the dates? I am telling the truth; if he says he saw me he is telling an untruth.
2166. When you told Mr. Roberts, on the 11th July, did you not know perfectly well that Ferrier had been trapped? No; I knew nothing about Ferrier, or anything of the frauds in connection with anyone else.
2167. Did you not know that Ferrier had arranged with Greeley to rig his bells? No.
2168. You did not know that anything had passed between Ferrier and Greeley? No, I knew nothing about Ferrier's conversations with Greeley.
2169. I had not mentioned that? I know, but was not that the first-outburst of the tram frauds; that is the first I knew about it.
2170. About what? About Ferrier.
2171. What about Ferrier? He was dismissed.
2172. Had I said anything about Ferrier's dismissal? You asked me whether, on this day, I had any conversation with Ferrier.
2173. Which day? The day before I went to Mr. Roberts.
2174. What has that to do with Ferrier's dismissal? You asked me what I knew about it.
2175. I did not; I asked you whether you knew that Ferrier had been trapped—not dismissed? I did not know that; I knew nothing about it.
2176. You know that Ferrier went to Greeley's house? I know it now.
2177. Did not Ferrier tell you? Not till after he had been dismissed.
2178. He did not say that he had an appointment with Greeley? No.
2179. *Mr. Brock.*] You knew nothing about Ferrier in connection with these frauds? No; I only knew him as a conductor.
2180. Did you think when you went to Mr. Roberts that anyone was suspected? No, I did not.
2181. You did not know that Moran and Wigg were endeavouring to find out about the frauds? No.

- T. Musgrave. 2182. *President.*] You did not think there were any frauds even? This man showed me the bells.
 2183. Four months before, you say? Yes.
 30 Aug., 1888. 2184. And after the lapse of four months you suddenly rush to Mr. Roberts to tell him what you know? It was not four months.
 2185. You had no purpose in going to Mr. Roberts? Nothing more than to tell him that such a thing was going on.
 2186. How did you know? I knew it could be done.
 2187. You say you knew it was going on? I did.
 2188. Of course you did; that is just what we want you to tell us? I knew that it could be done.
 2189. *Mr. Thompson.*] You told the truth then by mistake? Not at all; I said I knew it could be done; this man who showed me the bells told me he had shown others; whether that is true or not I do not know, but if he showed me it is likely that he would show others.
 2190. Did he tell you who the others were? He did not.
 2191. *President.*] How long ago is it since you first met Scott? It is about eighteen months ago since I first saw him; he did not say anything about it for a good while after I first knew him.
 2192. When did he first tell you that he could show you the way to make tickets? That was just before I left; just before the retrenchment.
 2193. And you took no notice of it then? No.
 2194. *Mr. Brock.*] Did you go to this man and say that something was wrong with your bells, and that you wanted him to put them right? I did not.
 2195. You did not? I did not. He first told me about twelve months ago, and a little time after that came the retrenchment; I did not see him for a long while after.
 2196. I thought you said you saw him again and again during the time you were away? I did not see him during the time I was away.
 2197. But you said you saw him getting on to the trams constantly? While I was on the cars.
 2198. And not when you were off the cars? No.
 2199. You said you inquired about him during the whole of the time you were away? Not while I was off the cars.
 2200. You said distinctly that you were doing so. You admitted, in effect, that you were interesting yourself in the frauds all the time you were off the cars? I did not interest myself much, but when it occurred to me I may have spoken about it.
 2201. *President.*] Scott only told you how to do the thing; he did not tell you anything else? Of course we had other conversations.
 2202. But nothing of any consequence? No.
 2203. He did not say what he was doing? He said he lived at Parramatta.
 2204. He only told you how to rig the bells and that he lived at Parramatta? Yes.
 2205. You swear that? Yes.
 2206. You swear that he did not tell you what sort of business he was doing? He gave me to understand that he was making a living out of the trams. I took that for granted.
 2207. He did not tell you that? Well, by his conversation I mean.
 2208. What did he actually tell you? He said he could get rid of plenty of tickets. Then I came to the conclusion that he must have shops or something of that kind. I dare say if I had done any business with him I should have known more about it.
 2209. You did not do any business with him? No.
 2210. You did it with the other people? Not with anyone.
 2211. You did it at Masoora's shop. Do you know him? No.
 2212. I mean the oyster-shop at the corner of Liverpool and Elizabeth streets? I did not do it with anyone.
 2213. *Mr. Brock.*] Do you mean to say that you were never in there? I have been in there once or twice to purchase anything I required. I do not think I have been in there more than three times. I recollect that I once jumped off the tram and ran in there for change. The tram stops opposite in Liverpool-street. I remember going into the shop once to get change of 1s. for a passenger. That is not so long ago.
 2213½. What tram were you on then? I cannot say. I was changed about everywhere.
 2214. Is that the only time you were there? I was in there afterwards.
 2215. Who with? By myself.
 2216. How often? I dare say not more than three times.
 2217. Four times in all? I can swear that I have not been in there more than four times in my life.
 2218. And then all alone? Yes; I think so. I think once I had my sister with me; I went in to get some fruit.
 2219. Was that one of the four times? Yes, and I think I was only in there once afterwards.
 2220. You were always alone or with your sister? Yes, I was only there with my sister once.
 2221. You swear you were never there with anyone else? Yes.
 2222. When you say your sister do you mean Mrs. Colls? I do not.
 2223. Is not Mrs. Colls your sister? She is a step-sister. I have only one sister.
 2224. You persist in swearing that you were never in there with anyone else? I can swear I never was. As far as I can recollect, even my sister stood outside while I went in.
 2225. Will you swear that you were never inside with Fraser and another man? I was never there with Fraser or anyone else.
 2226. *President.*] Is that the time you showed your pocket full of tickets? I can swear I did not do anything of the kind.
 2227. Do you know a conductor named Hannam? Yes.
 2228. Let us have the history of your overtures to him? I never had any either with that man, or with anybody else.
 2229. That we can believe? I mean in the course of conversation.
 2230. You several times got on to Hannam's tram and made propositions to him. Let us know what they were? If I did say anything to Hannam, it was to try to get some information out of him.
 2231. What did you say to do that? I asked him if he knew anything about the bells.
 2232. And what else did you say? I said, "I suppose you are making a lot of money out of this." I forget what answer he gave me. In some joking way he said something, but I forget now what he did say.
 2233. You were not satisfied with one time; you repeated it several times. We want to know the several conversations—the appointment at Waverley you made with him? He was coming out on the tram towards Waverley; that is where I met him.

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2234. You met him on the Newtown tram? Yes; he lives there.
2235. What made you ask him if he made anything? I thought he might know something about it.
2236. How long ago was this? Some few months back, I think.
2237. Did you suspect Hannam? I thought he might know something about it.
2238. *Mr. Brock.*] What do you mean by that? I was not sure that anyone knew; I am not sure now.
2239. Was it while you were off that you got on to his tram at Newtown? No.
2240. Then what were you doing on another man's tram on the Newtown Road making inquiries in this way? When I was disengaged I might be on the trams, but I was not always.
2241. What did you want this information for—were you doing the detective business? I wanted the information. I did not know at that time that it could be done. I saw Scott standing on the same tram as Hannam. That is what made me go to Hannam. I asked him if he knew anything about the bells.
2242. *President.*] You know what you were doing with Scott, and when you saw Hannam talking to Scott you said to yourself, "Here's another in the game;" that is why you went to Hannam? Nothing of the kind.
2243. *Mr. Brock.*] Do you know a man named Constantine? No.
2244. Did you ever hear of him? Never.
2245. Constantine Pappadocci;—you never heard of him? Never.
2246. *President.*] Did you not tell Hannam that you could take tickets from him, and that you could get rid of tickets for him? I do not remember saying that. As far as I can recollect, I might have said this to him, because I was trying to find out what he knew. I said, "Do you know anything about the bells?" and he would be sure to say "No."
2247. We do not want to know that. Did you not tell Hannam that you could dispose of tickets for him? I do not remember it.
2248. Will you swear that you did not say it? I may have said that it would be easy enough to get rid of them. I think I said so because several times when I was speaking to him he said, "You could not get rid of them," and I have said, "It is easy enough to get rid of any number."
2249. You said "any number?" That is what this man told me.
2250. Who do you mean by this man? I mean Scott.
2251. And yet you said just now that you did not know that anything at all was going on? I was not sure—I could not swear it.
2252. Has this man Scott a shop in Sydney? Not that I know of.
2253. You said he had several shops? I thought so, seeing that he could get rid of so many tickets.
2254. *Mr. Thompson.*] Did you not say to Hannam, "I can show you how to rig the bells?" Yes, I told him that; but I did not show him, and I never had any intention of showing him.
2255. Did he not say to you, "How do you do it?" I said, "I will tell you some other time."
2256. I repeat, did he not say to you, "How do you do it?" I could not say for certain.
2257. But you said just now that you had said to him, "I will show you some other time?" Yes.
2258. Did you come to him a second time about a week afterwards and try to make an appointment to meet him at Waverley so that you might show him how to do it? I was living at Waverley at the time, and he said he would be running out there again. I said, "I will see you out there some time, and show you." We had no more conversation.
2259. You are sure that this did not happen while you were out of the Department—while the retrenchment was going on? It was not then; it was while I was on the tank run. When I came back to the Department I went on to the water-tanks.
2260. *President.*] You say you do not know whether Scott had shops or not? I do not.
2261. Have you not met him frequently at various tobacconists' shops in the city? I have never met him off the trams.
2262. You were on the trams in every direction about the city? I believe I was.
2263. Wherever you happened to be this bird of evil omen was hanging about you suggesting this thing to you? I think I only saw him once off the Waverley line, and that once was on the railway tram; all the other times I met him on the Waverley tram.
2264. *Mr. Thompson.*] Did you not ask him how it was that, living, as he said he did, at Parramatta, he was continually on your tram at Waverley? He was not there continually—it was only occasionally that I saw him.
2265. But you said very often just now. What do you really mean? I should say once a week or so. At other times I would not see him for some time. Then again I would see him again within a very few days.
2266. As far as you can gather, what was his business at Waverley when he lived at Parramatta? I could not say, I am sure.
2267. Did you ever suggest to any other conductor or driver that this man was a detective, and that he was continually trying to lay traps for you, and to get you into trouble? No; I do not remember saying anything of the kind.
2268. *Mr. Brock.*] What made you think he was a detective? Because I knew nothing about the man. I was wondering why he came to me. He was rather free in talking to me.
2269. Yet you never knew his name? He said his name was Scott.
2270. Can you remember no other name beside Brown or Scott that he has given to the conductors to whom you have spoken about him? Yes; I think one told me his name was Curran.
2271. *President.*] Do you know Nicholas Williams' shop? No.
2272. You do not know where it is? I do not,—not that I am aware of. I do not know it by that name.
2273. *Mr. Brock.*] Do you know a man named Marcos? No.
2274. *Mr. Thompson.*] Do you know a shop leading from Elizabeth-street into Wexford-street, where the perfect ladies used to congregate at night sometimes? No.
2275. Have you never been there? I do not know where you mean.
2276. Have you never been there in Ferrier's company? I do not know where you mean.
2277. Do you know a man named Mulligan, who used to be an oyster-opener, and who used to live at Yass with you when you were a boy? I do not know the place; I was only several times there.
2278. Where were you brought up as a youngster? At Young.
2279. *President.*] Do you know a tobacconist's shop in the Newtown Road? No.

- T. Musgrave. 2280. Will you swear that you never sold any tickets at a tobacconist's shop in the Newtown Road? I will swear that I never sold tickets at any shop.
- 30 Aug., 1888. 2281. *Mr. Thompson.*] You have sold none in Sydney or its suburbs? Nor anywhere else.
2282. Have you given tickets to anyone else to dispose of for you? No; I have not.
2283. *President.*] Do you mean to say that you never gave any to a man named Whetton? No.
2284. Do you know him? He used to be a billiard-marker near where I used to live. We used to call him Tommy.
2285. Where was he a billiard-marker? At Waverley.
2286. *Mr. Brock.*] Did he never buy tickets from you? No.
2287. *President.*] You admit that you know this man Whetton? Yes.
2288. You do not know him well, I suppose? I do not know anything about him. All I know is that he used to be in his billiard-room.
2289. It was at the billiard-room that you met him? He used to rent the billiard-room. He was there for some time. I used often to go to the billiard-room. There used to be often discussions about the trams, some saying what they thought ought to be made on them.
2290. You had these discussions at Whetton's billiard-rooms? Yes; not only there but at any place.
2291. But it was only at this billiard-room that you used to meet Whetton? That is all. He left there afterwards. I used to see him on the trams and at other places accidentally.
2292. Where else—come now? He used to live out at Waverley. I don't know where he went to afterwards.
2293. *Mr. Thompson.*] You said you saw him at other places? Yes; in crossing in the streets in Sydney.
2294. *President.*] Only in the streets occasionally? Yes.
2295. You know that he had tickets, do you not? No.
2296. Did you never have any conversation with him about tickets, as to how many he got rid of, and so forth? No, not beyond joking over the thing, as with other people. He used to say things to me, but I never took any notice of them.
2297. Did he not talk to you about the chance of getting rid of so many tickets, and so forth,—how many he could manage with and how many he could not? No.
2298. Did he not say that you were giving him too many, and that you would have to stop? No; I swear he never said anything about it.
2299. *Mr. Thompson.*] How much did you give to Whetton to clear out to Queensland? That is nonsense. I could not possibly have given him anything. I never knew whether he went to Queensland, whether he was in Sydney, or where he was.
2300. How many billiard scores did you clear up by giving him tram-tickets for them? I did not have any scores to pay up.
2301. You always used to win? No; but I never lost anything at his room. I was not very often there.
2302. You were making money on the cars and you were losing it on billiards, races at the Carrington Ground, and so forth? No, I was not.
2303. What did your little pleasures in the way of boarding out in Fitzroy-street cost you? I do not know—nothing very extraordinary.
2304. How much a week? I was only there for several weeks.
2305. So that you will remember all the more readily;—how much did you pay to the man keeping the house and how much to the woman you kept? As far as that is concerned that is part of my private affairs, and I refuse to answer any question of the kind.
2306. You have acknowledged that you did keep a woman there? I did nothing of the kind. You asked me how much it cost me to stay there.
2307. These questions entirely bear upon the matter? I do not see it. You said I was here as a witness; you are trying to make me a defendant.
2308. There is no plaintiff or defendant; we want to know the truth of the matter? You have asked me what I know of it, and I have told you all I know of it.
2309. What wages were you receiving from the Department at the time? I was receiving no wages; I was not in the Department—that was, when I was in Fitzroy-street.
2310. You were there only while you were out of the Department? Yes.
2311. You have not been there since? No. When I left there I owed some money for board. I have paid it back since I have been in the Department.
2312. That is, you owed it to the people with whom you were boarding. What did you pay to the woman you used to keep there? If you want to know more, I did not pay any woman anything.
2313. You put this woman forward as your wife on several occasions? Yes.
2314. What were you paying for her and her board? I will not answer such questions.
2315. While you were in the Department what wages were you getting? I was getting 7s. a day.
2316. Including Sundays? Yes; and overtime.
2317. That is, £2 2s. a week? £2 9s., and my overtime made it up to about £5 a fortnight.
2318. As a matter of fact were you not paying to these boarding-house people more than £2 2s. a week for this woman reported to be your wife and yourself? Nothing of the kind.
2319. How much were you paying? When I went to this boarding-house I had some money. I paid some of it to them. In fact I lent them some money—a few pounds. I did not give them any more until after I came back upon the trams.
2320. How much did you lend them? About £3 or £4. I think all the time I was there they got £6 or £7 from me.
2321. How long were you there? A few weeks. I knew the man well; he used to be a reporter for one of the papers. His name was Sumners.
2322. Did you take him in about this woman—did you palm her off as your wife? I did not say anything about passing the woman off as my wife; you suggested that.
2323. You cannot get us to believe that a decent man—a reporter on one of the newspapers—would permit you to keep a prostitute under his very eyes. Did you not sleep with her? You said I was here as a witness. Anything as regards the tramways I will answer. Anything in connection with my private affairs I refuse to answer.
2324. *President.*] Have you had legal advice about this matter? I refuse to answer you.

2325. I insist upon your answering me. Have you had legal advice? I have never spoken to a lawyer about it. T. Musgrave.
2326. Why could you not say so at once? I did not see any occasion for it.
2327. Do you know the Academy of Music? Yes. 30 Aug., 1888.
2328. You have been there pretty often? Once or twice.
2329. How often have you shouted champagne for the Federal Minstrels there? Never.
2330. Never in your life? I swear I have not.
2331. *Mr. Brock.*] Did you shout anything else for them? No.
2332. Nothing at all? No. I have been there once or twice—not more than four times.
2333. *President.*] Were you not there with other conductors? I have met other conductors there.
2334. Were they shouting champagne? No. One was Morris, and the others were Dooney and Carmody.
2335. *Mr. Brock.*] Did you ever see Whetton at the "Royal Hotel"? Yes.
2336. Anyone with him? Not that I know of. He used to go there pretty often.
2337. Did you sell him any tram-tickets one day outside or near the "Royal Hotel"? No.
2338. *President.*] Are you sure that the name of the man with whom you were living at Surry Hills is Sumner? Yes.
2339. Can't you tell us where he is now? I do not know where he is now.
2340. *Mr. Brock.*] He is an old friend of yours? No, I know him—that is all.
2341. You said you lent him £3 or £4 when you first went there? Yes.
2342. *Mr. Thompson.*] Was not the £3 or £4 to furnish a bedroom for yourself and the woman you used to keep there? Nothing of the kind. I can swear to that.
2343. Cannot you remember any of the other names by which this man Scott, *alias* Brown, *alias* Curran, was called by? No; Scott was the only name I knew him by. Some said his name was Brown.
2344. Will you tell me any one man beside yourself who ever said that his name was Scott? No, I do not know anyone who said so.
2345. Can you tell me of anyone who has said that his name is Curran? No, but I can remember someone telling me that that was his name.
2346. Can you remember the person who said that his name was Brown? No; they would say to me that his name was Scott or Brown, or whatever they might think.
2347. When you found that they were in doubt about his name, why did you not tell them; you think that by your giving these names we cannot identify him, but you are giving yourself a lot of trouble for nothing? I do not know his name; Scott is the only name he gave me.
2348. Did you ever tell him, during the eighteen months you had these long conversations with him, what a curious thing it seemed to you that he went by so many names? No. He said, "A very few know me about," or something of that kind.
2349. Yet he was parading himself on the tram continually to you and to others? Not continually to me.
2350. I thought you said he spoke to you often? The man was travelling up and down. There are a lot of men I could pick out who travel about—I should say that I saw them occasionally.
2351. This man, remember, took you to be a thief, and proposed all kinds of dishonest tricks to you, wanting you to rob the Government; therefore you had good reason to be either very suspicious of him or very confiding in him? I was very cautious about him. I took good care not to let him get hold of me in any way. I was not going to be caught by his telling me how the bells were done because I never practised the thing.
2352. When was it he first used the brad-awl or screw-driver in the bell to show you how it was done? I told you that before.
2353. You have told us four different yarns;—which particular yarn do you pin yourself to? I did not tell four different yarns.
2354. Will you tell me again. My memory is faulty? As far as I can recollect it is five months ago.
2355. Since he first showed you how to do it? Yes.
2356. And you showed Graham afterwards, within some weeks? Yes.
2357. If anyone who saw you show Graham tells us that it was eight months ago he must be telling an untruth? Yes. It would be an untruth. I can swear to that.
2358. This man showed you only once, you say, and that once would be four or five months ago? I was speaking to him before about it, but it was only once that he showed me that it could be done.
2359. At the time he put in the brad-awl or screw-driver he showed you the whole method of doing it? Yes.
2360. How long after that did you deliver up the bells? I can't remember how long afterwards it was.
2361. As nearly as you can make it? I may have had them a fortnight or three weeks or so afterwards.
2362. *Mr. Brock.*] They remained in that defective condition all the time? Yes.
2363. They would ring without registering? If you put the pin in or whatever it was.
2364. *Mr. Thompson.*] Then the man showed you most distinctly by the pin or by the wire that the bell would ring, but would not record any more than one ticket? That it would not record any after putting the pin in.
2365. *President.*] Do you remember some months ago being taken off your car at Waverley by Mr. Roberts? Yes.
2366. Will you tell us what happened? He changed my bells.
2367. What did he do that for? I do not know. He took the bells and bags and everything else to see if everything was all right I suppose.
2368. Had it ever been done before? I had heard of it being done.
2369. Did you not know perfectly well that you were suspected when it was done? No; I cannot say that I did.
2370. Although you were taken off your tram in the middle of your trip and your register was examined? I was not taken off. At the Queen-street waiting-room Wigg came and said, "Mr. Roberts wants you." I went and he asked me for my bag and bells and he gave me others. That is all I know about it.
2371. Has such a thing been done to your knowledge before or since? Not to me.
2372. To anyone else? I understood that that was how they caught Hendy and others.
2373. And yet you had no suspicion? I thought he was doing it to all, and Mr. Roberts gave me to understand that he did. He said "Mr. Wigg, that is three we have got now."
2374. At that time had Scott given you your instructions? Yes. 2375.

- T. Musgrave. 2375. Then was not this a good opportunity to make a clean breast of it to Mr. Roberts? It was not long after he had told me; I thought that a man of that kind would have many friends, and I was not going to run myself into danger.
- 30 Aug., 1888. 2376. You thought you were in for it yourself? I did not think I was in for it myself.
2377. When you were told by Ferrier how he had been trapped by Greeley, you thought you would save your own skin by running to Mr. Roberts and telling him a cock-and-bull story. You knew that four months before you had been suspected because your bells and bag had been examined on the road—a thing that would not be done to any man except to find him out in thieving? I understood that Mr. Roberts was going through them all; Mcran and Wigg told me so.
2378. Do you know a shop in Oxford-street that used to be kept by a man named Soper? I do.
2379. You never sold any tickets to him? No.
2380. Do you know Dominic the barber? No, I do not.
2381. Do you mean to say that you do not know him? I cannot call him to mind.
2382. Do you mean to say that you were not in treaty with him for the purchase of tickets from you? Whoever he is, I will swear that.
2383. Does it not strike you that there must be a lot of villains about to tell all these untruths of you? They cannot mean to tell them of me, I think; there must be a lot of supposition about it; they may have seen me talking to this man, but that is all; I may know the man you refer to but I cannot think who you mean.
2384. *Mr. Thompson.*] He was never known except as Dominic Lacerda or Dominic the barber? In Oxford-street, do you mean?
2385. Yes? I do not know him.
2386. That is not the name over his door? If you tell me that I may know him.
2387. *President.*] Do you know Pietro Gaspardo? No.
2388. The man who was to purchase these tickets if he succeeded in getting a license—a man keeping a shop in Waverley. He applied for a license and it was refused, and he could not buy tickets from you? A man keeping a shop there asked me what he had to do about getting a license. I do not know his name, but I believe it is "Don," or something of that kind they call him.
2389. Where is the shop? At Waverley, out near the Bondi junction—about three or four doors from where I was living. He said to me one day when I was there, "Do you think I could get a license?" I said, "You will have to apply for it." He asked me where to apply, and I told him at the office.
2390. *Mr. Thompson.*] What is the name of this young lady with whom you used to live on such intimate terms in Fitzroy-street? I will not tell you.
2391. Is she in Sydney now? I will not tell you anything of the kind. I refuse to answer any questions in connection with my private affairs.
2392. What used you to allow her by way of spending money? I will not tell you anything about her, or anything in connection with my private affairs. Anything you ask me as far as I know about the trams I will tell you, but I do not see that my private affairs have anything to do with the matter at all.
2393. How often used Scott to get up on to the cars when you were conducting? Perhaps I would see him twice a week, and then not again for a fortnight or three weeks.
2394. What made you say that he was always getting up on to the cars? Whenever he got up he would always try to have a yarn.
2395. What made you say he was always getting up on to the cars? Whenever he did get on he used to talk.
2396. What made you say he was always getting up on to the cars? I say so now.
2397. Do you say so now;—come now as a matter of fact? As a matter of fact the man got on two or three times a week. If I happened to be on a car he would get on and have a yarn to me.
2398. *Mr. Brock.*] Does this man go to the races often? I could not say. He seemed to know a good deal about races.
2399. Did you ever see him with a pocket full of race-tickets? No.
2400. *Mr. Thompson.*] Why do you say that he was always getting on to the cars? I was trying to make you understand that he was always trying to make himself familiar. When he did get on he got on for that purpose; at least I supposed so.
2401. *Mr. Brock.*] He was very familiar? Yes. He generally had cigars.
2402. And although you had no transactions together he continued to get on to the trams three or four times a week? Not every week.
- 2403-4. *Mr. Thompson.*] Were you not curious to know what it was he wanted to show you? I thought, as I said before, that he was trying to lead me into a trap.
2405. I want to know whether you were not curious to know what it was wanted to show you? You asked me my opinion about him, and I told you.
2406. Were you not curious to know what it was he was going to show you—yes or no? Most decidedly I was, and I intended to find out. From that time I did not see him any more until I came back just after the time of the retrenchment, when he spoke to me about the manipulation of the bells.
2407. *President.*] Although you had been doing it yourself from a fortnight of the time of your joining the Service, as you told someone else? Nothing of the kind.
2408. *Mr. Thompson.*] Did he not tell you how he found out how to do this thing? Yes. I asked him that question—how he found it out—and he could not answer.
2409. Will you swear that? I asked, and he could not tell me.
2410. Have you ever said anything different to that? No.
2411. Do you remember telling some one that he told you he found it out by examining a gas-meter? I said something about that; I told it to Mr. Roberts. The man said something about a gas-meter. That was nothing to do with the way in which he found it out. He said the registers read like a gas-meter. He said, "Have a look at a gas-meter." He did not say that was the way he found it out.
2412. He did not say that was the way he found it out? He said it could be done with a gas-meter in the same way. He may have said "That is all I took it from" or something like that, or that it was through a gas-meter.
2413. Beyond that he never told you how he found it out? No.
2414. What did you think this man's occupation was? I said "I thought he was making money out of the trams—that is if he was not employed on the trams."
- 2415.

2415. A short time ago you said you thought he was a detective? If he was not in the department. T. Musgrave.
2416. You mean, you thought he must make money by selling tram-tickets? Yes.
2417. Whom was he to get the tram-tickets from? I do not know, I am sure. It struck me that he was 30 Aug., 1888.
a detective first of all.
2418. You were rather alarmed I suppose when he got on to the tram and stood near you? No; this is the only man I ever suspected of trying to lead me into a trap.
2419. It was only at first that you suspected him of being a detective? He may be now for all I know to the contrary.
2420. *Mr. Brock.*] Yet he put you up to the secret? Yes.
2421. And let you carry it on for two years? It is only five months ago since he showed it to me.
2422. *President.*] Did this man tell you that he had been manipulating his gas-meter? He told me that it could be done with a gas-meter.
2423. *Mr. Brock.*] Did you ever try it with a gas-meter? I never tried it.
2424. *Mr. Thompson.*] Did not this man tell you that he had done several of the bells for conductors? Yes; but he did not tell me who they were.
2425. *Mr. Brock.*] And you do not know? No.
2426. You would not be likely to know? No.
2427. Did you think he must have had a good deal to do with it when he talked to you in this way? I did not believe him; I thought he was trying to lead me into a trap; that is what I thought.
2428. You did not think that he was at the head of the whole matter and had been the means by which it was all done? I don't know what he was.
2429. Just imagine your statement: You thought he was a detective; you thought he was leading you into a trap, and yet you carried your manipulated bell for two months? The fact of my having the bell would not mean that I had ever used it.
2430. The fact of your having a bell upon which a fraud could be committed, of your carrying it knowingly;—would that have no effect? I did not think there was any harm in it.
2431. You seem to think that no one knows what you have been doing? I have told a number of it myself, that it could be done.
2432. And a good many you did not tell? That may be.
2433. *Mr. Thompson.*] You did not think he was at the head of the whole matter, that he was carrying on the whole of the fraud, and you never told anyone that you did think that? I most decidedly did think that he was, or that if he was not he was a detective.
2434. *Mr. Brock.*] Who are the other men he told? I do not know.
2435. You do know? I do not.
2436. *Mr. Thompson.*] You have told us of Graham and Reid;—did you tell Reid? No.
2437. Have you told anyone beside Graham? I have said that it could be done in the room when there were twenty or thirty conductors present.
2438. If that may be can you tell us of any man to whom you have told this who could corroborate you? Almost anyone of them.
2439. Can you name a single man who will say that in the presence of twenty or thirty men you said this could be done; was Graham one of those who was present at the time? I made no secret of the thing.
2440. Will you name any single man who was present among the twenty or thirty conductors to whom you said publicly and openly that this thing could be done, and how it could be done? I did not say how it could be done. They were discussing the matter.
2441. Will you name any single man in whose hearing you said it? I cannot remember who was in the room at the time.
2442. Can you name any one single man among the twenty or thirty who were present? I could not swear to anyone. So many are constantly in and out. They have said, "Do you think such a thing could be done?" and I have said, "Yes; I think it could be done."
2443. *Mr. Brock.*] When was it that you only thought so? It is not so long ago I said I thought it could be done.
2444. *Mr. Thompson.*] Was this before you made your confession to Mr. Roberts? Since that.
2445. *President.*] Since Ferrier was dismissed? Yes, Hannam was one of the men I asked if he knew anything about it.
2446. You swear that in the presence of twenty or thirty conductors you said it could be done? That is lately.
2447. Since you confessed to Mr. Roberts? Yes.
2448. We will put all this aside. Before you made this statement to Mr. Roberts did you tell any man besides Graham how this thing could be done? Bar Graham and Mr. Roberts, I did not show any one.
2449. Nor did you tell anyone before you showed Graham? I have asked others if they thought it could be done, but I have not said that I could do it.
2450. *Mr. Brock.*] You never told Mr. Roberts until you knew that the game was up. You said to yourself, "I cannot make any more money—I may as well tell"? That is not so.
2451. What was the use of asking others when you knew of it months ago? I did not. At all events it is not more than five months ago.
2452. Since you knew how this thing was done? Yes.
2453. Will you swear it was not six? I am nearly sure it was not; I cannot exactly remember how long ago it was.
2454. Will you swear it is not eighteen months ago? I will swear it is not eighteen. I will swear it is not eight months ago.
2455. Will you swear it is not seven? I will swear it is not seven.
2456. Will you swear it is not six? I could not exactly swear that it is not six months ago from now, but it is not any more.
2457. Did you tell this man *alias* Scott *alias* Brown that you were frightened to have anything to do with the tickets? I told him I did not think it was safe; I never did intend to have anything to do with it.
2458. You said that? That is the answer I made to him. He said to me, "If you say anything about it you will never live to give any evidence." I told Mr. Roberts quietly, and he promised that my name should never be mentioned in the matter.

- T. Musgrave. 2459. That was only the other day? If it came out sooner I thought this man would suspect me and that I should be putting myself in danger.
- 30 Aug., 1888. 2460. *Mr. Thompson.*] Will you swear, with regard to some man who was on a tram—whether it was Graham, Reid, or M^cMahon—that you did not, on one occasion, take your bell, show it to this man, and collect a car-full of tickets, bringing the bell back to him, and showing him that it had not registered more than one, you, yourself, having bagged the rest? I did not do anything of the kind. Graham is the only man to whom I showed that the bell would not register.
2461. Did you show Graham how you were capable of cheating the Government by going round a car in the way I have described? After I had showed Graham he heard me ring the bell and I came back to him. I had taken only two or three tickets; I put them in the bag and I said to him, "Do you see, the thing has not moved at all;" that is what I was telling you about before.
2462. *Mr. Brock.*] What do you say you did with the tickets? I put them in the bag.
2463. *Mr. Thompson.*] If you came back and showed Graham that you had not registered the tickets you had taken how did you make up for it afterwards. How did you make your register tally with your tickets? There were only four tickets.
2464. And you bagged them? I put them in the bag.
2465. But you bagged them for yourself? I put them in the Government bag.
2466. How did you make your tickets tally with the register then? I did not bother any more about it.
2467. *Mr. Brock.*] You were four tickets over that night? Yes; I do not think anyone can go much nearer than four or five tickets.
2468. *President.*] Will you swear that you did not often tell Graham that you were doing it? In a joking way he has said, "How are you getting on?" and I have said, "Fine; I am going to have a public next week, like those others."
2469. Did you not often show Graham your register with the pin in? No.
2470. You swear that? I swear it.
2471. How often did you say to Graham, "For God's sake don't tell anyone about it"? I did not say that, but at the time I showed him how it was done I may have said, "You need not say anything about it."
2472. How often did you say that? I just said it to him once.
2473. Did you not repeat it during several months when you used to meet him? No.
2474. You swear to that? Yes.
2475. *Mr. Thompson.*] You will swear that you did not say, "For Christ's sake don't say anything about it, or I shall get into a bloody mess"? No.
2476. You said that you put these tickets into the Government bag? I said just now that I put them into the Government bag.
2477. From the way in which you talk of the Government bag one would almost suppose that there was a bag which was not a Government bag? Someone said something about your own bag just now.
2478. I did not. I suggested that you might have bagged them for yourself? You may have said that, and I said, "into the Government bag," as much as to say they went into the office.
2479. *President.*] If Graham and Reid have both positively sworn that over and over again they saw you with your pin in your register, are we to believe that they have sworn falsely? Anyone who says they saw me with it in has sworn falsely.
2480. *Mr. Thompson.*] One thing is clear: At the time you saw Graham your bell had been faked so that you could do this? Yes.
2481. *President.*] Do you mean to tell us that you were not in treaty for a public-house? It was only in a joking way.
2482. Do you swear on your oath that you were not in treaty for a public-house at the corner of Parramatta-street and Regent-street? Graham said, "What house are you going to take?" and I said in joke, "That big one down near the railway—the Railway Hotel." It was only a joke.
2483. Did you not say that there was only £100 or £200 between you? I do not think so.
2484. *Mr. Brock.*] How much was there between you? I never did any business in the matter. It is easily found out if I ever went and made any inquiries about the hotel. None of them know me. I did not even know that it was for sale, and I do not think it is. A man named Smith has been there for a long time.
2485. *Mr. Thompson.*] What were you doing out on the Newtown Road during the time you were under suspension, or even when you were in the Service, and when you got on to the tram to conductor Hannam? I often used to go out that way. I have a sister living there.
2486. Is she married? She is a widow. I used often to stay at her place; in fact I often stay there now.
2487. Is she in business, or has she a private house? She has a private house.
2488. *Mr. Brock.*] Have you had any conversation with conductor Keen since this inquiry commenced? I have come down on the cars with him once or twice.
2489. Did you speak to him? Yes, and he has spoken to me.
2490. What passed in reference to the frauds? Nothing. He asked me what I thought about the tram frauds, and I said I could not make anything out of them.
2491. Did you not tell him that they were going the wrong way about it to find out? I always said they went the wrong way about it. I have said that to any one.
2492. If they had begun properly they would have caught the right ones? I said that they had not got the right ones at all, and that if there was anything in-it they had gone the wrong way about it. They never tried to catch this man who showed me. I thought he was connected with the Department, because no effort was made to catch him or anything else. I said so in my statement to Mr. Vernon.
2493. Did you make any remark to Mr. Graham about the evidence you had given to Mr. Vernon? Not that I know of.
2494. Will you swear you have not? I have only seen Graham once since. It was after he had been up and it was reported that he had said this and that thing about me. I asked him what he had had to say about me, and he said, "Only what you told me about the bells."
2495. Did you say to Graham, "I have pitched Vernon a bloody fairy yarn, and mind you keep quiet over it"? No.

2496. Will you swear that? Yes. I may have said that I had made a statement to Mr. Vernon. He said, "You went up and told Vernon that I knew all about it. I knew nothing more about it than you told me." I said, "That is not true; I did not mention your name." T. Musgrave.
30 Aug., 1888.

2497. Will you swear positively that you did not use the words I have quoted? I never said anything of the kind.

2498. *Mr. Thompson.*] How long is it that Scott first mentioned to you that he could rig the bells, and put you in the way of making tickets? He told me that at once, about twelve months ago. That is when he first told me. I did not see him at all afterwards, because it was the time of retrenchment. It was just before the retrenchment. That was the only time I saw him then. I first saw Scott about eighteen months ago. He did not tell me when he first saw me. He was trying to get me into his confidence all the time.

2499. Was he six months trying to do that? About four months he was travelling about. I used to see him occasionally travelling about.

2500. How long did you know him before he told you that his name was Scott? I could not say how long. It may have been two months or it may have been three. He used to talk to me, and I did not know what his name was. You do not like to ask a man at once what his name is, unless you have something special to talk about.

2501. Then how many times did you see him during the four months before he told you that he could show you the way to rig the bells and to make some tickets? I could not say how many times—once or twice a week or so for four months; then he would disappear for a while, and then I would accidentally meet him again. He never knew on what line I would be on.

2502. He used to find out though? He appeared to me to get on to the cars accidentally. I did not think I was the only one he used to look after.

2503. What makes you think that you were not the only one he used to look after? Well, I do not know; I do not see why he should pick me out.

2504. Do you suppose that he was cheyving after the other men in the way in which he cheyved after you? I have seen him on other cars. He always used to be standing on them as he used to stand on mine.

FRIDAY, 31 AUGUST, 1888.

Present:—

A. RICHARDSON, Esq., PRESIDENT.

R. W. THOMPSON, Esq., M.P., | F. A. BROCK, Esq., J.P.

Daniel Power called in, sworn, and examined:—

2505. *President.*] You are a senior plain-clothes constable? Yes.

2506. I believe that, acting under instructions last night, from your head office, you put a certain person under surveillance? Yes.

2507. Will you tell us what you saw? After I left Mr. Moran and Mr. Wigg I went back to watch a house near Davenport's wool factory. The name of the street I do not know. After waiting there awhile I saw a tall gentleman walking up and down outside. After he had been there a short while he whistled, and a small man came out, a man who I believed to be the person I was watching. I could not get close enough to him without being seen. After they had been talking for a while, the only words I could catch were this tall person saying, "They can't make anything out of that." When they were parting I heard the tall man saying, "I will see you again to-night." He walked down the street and went into the house next to Davenport's wool factory. I saw no more of him. I could not be quite sure that the little fellow was the man I was watching or not, but I am almost sure it was. It was rather dark, and I could not get a good look at him. I did not want to get too close. I was lying on the grass about 30 yards away from him.

2508. You know Musgrave? Yes, well.

2509. *Mr. Brock.*] You knew him before this? Yes.

2510. There is not much doubt in your mind that it was he? I feel sure it was, but I should not like to swear positively that it was. I stayed there last night until half-past 11, and this morning I got out there by the first tram. I watched the house until 15 minutes past 9 and he never came out. I then came into town, as I had to attend the Central Police Court. When I came to the place where I left Moran and Wigg last night I saw Musgrave coming up Simmonds-street towards the Newtown tram. This was at about 20 past 9. I came straight in. Musgrave got out at Market-street. I could not get a good glimpse of him.

2511. *President.*] Did you not follow him then? I did not. It was about 10 minutes to 10. I think he got off to see if I was following him. He turned down Market-street. He looked round at me several times in the tram coming in.

2512. Do you know Mr. Loder in Elizabeth-street, an hotel-broker? Yes.

2513. Did he come to you a few months ago and tell you that he had some kind of information about some coining which was going on? Yes.

2514. Did he ask your advice about it? Yes.

2515. What did you tell him? I told him to see the Inspector-General. A large reward was wanted. I asked Loder if he could bring the man to see me at his office. He said he would do so the next morning, but the man did not come. I instructed Loder to see the Inspector-General and take this man with him, and see what reward would be given.

2516. Do you know if he ever did so? I do not know.

2517. *Mr. Brock.*] Loder is an ex-policeman? Yes.

2518. How did he come to leave the force? I do not know.

2519. *President.*] You understood from him distinctly that this was a coining business? Yes. The reason I came to know him was that I had an inquiry about a partner of his who disappeared mysteriously.

2520. *Mr. Brock.*] Why did you not go to the Inspector-General of Police about this coining? I had no information to go upon. Loder himself could not give me the information.

2521.

Senior
Constable
D. Power.

31 Aug., 1888.

- T. Musgrave. 2606. Did not these men pay you cash for the tickets? What tickets?
 2607. The tickets you collected and sold? I did not collect any tickets., He said, "Didn't you get all your money in?" and I said "No."
 31 Aug, 1888. 2608. Did you not say when you went into the hotel, "This is bad luck for me, this happening there to-day"? Yes.
 2609. What did you say when Moran asked you whether you had all your money in yet? I said "No."
 2610. Did you not say that you had not one-fifth of it in? I do not remember it.
 2611. You do not deny it now so forcibly? I do not remember saying anything of the kind. I remember saying that I had not all my money in. I can swear that.
 2612. Will you swear that you did not say one-fifth of it? Yes. Well I will not swear it.
 2613. *Mr. Brock.*] Will you swear that you can forget a conversation which only took place last night? I do not remember the whole of it. I did not think of this before, because you said there were three conductors who owed me money.
 2614. *Mr. Thompson.*] That is not so. The question asked you was: "Among the men in the Tramway Department who are the three men who owe you money for gambling"? You replied, "I refuse to answer the question"? I did not think of any such amount as this. These men did owe me a little money and they paid me. I did not think of it at the time.
 2615. Was it necessary to say, "I refuse to answer the question"? I do not see that I was bound to give you the names of any of them. What I meant was that I did not think so.
 2616. *President.*] You were asked a plain question and instead of saying that you did not think so you absolutely refused to give the names? I did not think I was bound to give such names.
 2617. But you had the names to give? They have paid me since. Three men owed me money. O'Donnell does not owe me £1 now.
 2618. Yet you absolutely refused to give the names of the men owing you money? I do not know what you mean. They had owed me money, but they had paid me.
 2619. *Mr. Thompson.*] What money were you referring to when you said to Moran, "It has been a bad day for me down there, because I have been unable to collect my money"? I was only joking. Only two men owed me money, and one paid me last night.
 2620. You say that one of these men paid you last night? Yes, Bluey paid me.
 2621. Where did he pay you? I met him in Oxford-street last night.
 2622. At what time? A little before 7.
 2623. Will you swear that you were in Oxford-street a little before 7? It was about half-past 6—between that and 7.
 2624. Were you in Oxford-street at all between 6 and 7 o'clock yesterday evening? Yes, I was.
 2625. At what time did you get to the house in Simmonds-street yesterday evening? I went out in the 10 past 7 Marrickville tram.
 2626. Were you up in Oxford-street before that? Yes.
 2627. *President.*] Explain that? I walked into Oxford-street from Riley-street. I was up to see my mother; I went up there to tea.
 2628. Where is your mother living? She lives up country, but she is staying in Fovcaux-street now. She is staying with Mrs. Colls.
 2629. You went to Mrs. Colls' house last night, did you? Yes.
 2630. How long were you there? About 20 minutes.
 2631. From there where did you go? I came into Oxford-street.
 2632. And from there? I came down to O'Donnell's place.
 2633. Where is that? Just up here—in Phillip-street.
 2634. What is O'Donnell? A conductor.
 2635. Where does he live—in a boarding-house? No; he lives with his wife and family in Phillip-street. He lives just past Bent-street. He is the man who owed me 18s.
 2636. What time did you get there? I came straight from Oxford-street. I could not say the exact time, but I should think it was about 7 o'clock.
 2637. After that did you go down to the Circular Quay? No; I went home. O'Donnell was not at home. He has a gun of mine, and I wanted to get it. I was standing waiting for the tram, and he came along. I asked him about the gun, and then I got off at Liverpool-street and waited for the Marrickville tram. I do not know where O'Donnell's tram was going to. He had empty cars.
 2638. Did you pay your fare? I did not.
 2639. O'Donnell was the conductor? Yes. I wanted to speak to him.
 2640. He allowed you to go from Bent-street to Liverpool-street without paying him anything? Yes.
 2641. Do you travel free on all the trams? No; I do not.
 2642. Did you pay your fare to Marrickville? As far as Enmore.
 2643. Where did you go to from Enmore? I went to Mrs. Johnson's.
 2644. Did you get word at Mrs. Johnson's that Moran wanted to see you? Yes; I waited there until Moran came.
 2645. Where did you get word first? I called at a friend's place, and she told me that Moran had been there and wanted to see me. I went from there to my sister's place.
 2646. This friend's place is the young lady's about whom we were asking you yesterday? I refuse to answer any question of that kind.
 2647. *Mr. Brock.*] We know all about it? I do not see that it has anything to do with the case.
 2648. *President.*] You did not get your money from O'Donnell? No.
 2649. Did you ask him for it? I did not say anything about it, and he said he could not give it to me just then.
 2650. Where did you meet the other man in Oxford-street? At the corner of College-street.
 2651. What did you say to him? I did not say anything; he put his hand in his pocket and asked me how the Commission was getting on.
 2652. He said, "Here, I owe you something?" He had promised to pay me last night.
 2653. What is he? A fireman.
 2654. He was on his motor? Yes; he put his hand in his pocket and gave me 5s.. He said "How is the Commission getting on?" I said, "I do not know much about it." I stood there talking while the motor stopped—only for a minute.
 2655.

2655. *Mr. Thompson.*] Before we take any extreme steps, will you take a few minutes to think whether you will disclose to us what we know you can disclose. We do not want to take any extreme step with you, but you may oblige us to do it in the interests of justice, so that it may not be said that we are here upon an errand which we cannot carry out? I do not know what I have to make up my mind about.
2656. We have now given you an opportunity of saying whether you will do what we think is right, and what we know you can do if you choose to do it. Have you made up your mind to make any statement of your own free will, without any further pressure on our part? I have told you all I know.
2657. *President.*] You know a man named Cook, do you not? I know a conductor named Cook.
2658. I do not mean conductor Cook? That is the only man I know of that name.
2659. You do not know Charles Cook well? I do not.
2660. You do not know him? Not that I am aware of.
2661. So that if we have been told that you have been frequently in his company we have been told another untruth? You have.
2662. You have never heard this man Cook spoken of? I have.
2663. You mean that you have heard the other Cook spoken of? I have heard of a man named Cooke. I have heard of his coming before the Commission.
2664. Before the Commission? So I heard.
2665. As a witness? I do not know how it was I have heard that a man named Cook was implicated. Moran told me a little while back. He described him to me, showing me how he walked; that is all I know about him. I heard that he said different things before the Commission but not about me.
2666. You swear that this man never got on to a tram and spoke to you? Not that I am aware of.
2667. You positively swear that you do not know him? I positively swear that I do not know a man named Charles Cook. I do not think I know the man at all.
2668. You know that he was frequently asking for you, don't you? I don't; I never heard that he was asking.
2669. Did not Greeley tell you that he had been asking for you? I never had any conversation with Greeley about anyone.
2670. It would be much better if you were to say "Yes" or "No." Did not Greeley say that Cook had been asking for you? No.
2671. You know Greeley? I do.
2672. And you never had any conversation with him? No.
2673. You never had? I had conversations with him when others were there, but never by myself.
2674. Never on the subject of the tram frauds? No.
2675. Do you remember seeing him in conversation with Moran on the morning before you made your statement to Mr. Roberts? I have seen him in conversation with Moran often.
2676. Yes or no to my question, please? I think I did see him somewhere a little time before.
2677. Did you see Greeley in conversation with Moran the morning before you made your statement to Mr. Roberts? I could not be sure. I could not positively say that I did not. I remember seeing them get on to my car, but whether it was the morning before or a week before I could not say.
2678. Will you swear that Greeley had not a great deal to do with your making your statement to Mr. Roberts? He had nothing whatever to do with it.
2679. What do you know of O'Donnell? I do not know any more of him any more than that he is a conductor.
2680. Does he not owe you money? Yes.
2681. Under what circumstances did you lend it to him? I lent him £1 one day at Botany.
2682. Is he one of the men you suspect? I do not wish to say who I suspect. I would not like to make an accusation against any man.
2683. You say that O'Donnell is not one of the men you suspect? No; I never suspected him.
2684. You believe that he is perfectly square? I believe he is.
2685. Was he not suspected at the time that Hendy was taken? I do not know at all.
2686. You knew that Hendy was taken? I knew that he was suspended, because I saw him signing and going away.
2687. And you knew that he was going to be suspended? I did not.
2688. You did not know the day before? I did not.
2689. You did not know that certain men were going to be taken? I did not.
2690. Or that certain men were suspected? I did not.
2691. *Mr. Thompson.*] If anyone has told us that you have been repeatedly seen talking to Cook in your travels is that an untruth? He may have been talking to me, but I do not know it. I am not aware who the man was.
2692. You go to the races a good deal do you not? Not very often. I have never been out to the races except when I have been sent on the cars.
2693. Do you go to the Carrington and Botany Handicaps? I have been there a few times.
2694. Betting on them? Sometimes.
2695. Making a book? No.
2696. What is the extreme that you would venture to pledge your oath and conscience that you ever betted on any race or handicap foot-race? Different amounts—I have won and lost.
2697. What is the extreme? Sometimes I am lucky, and win a little.
2698. What is the extreme you have gone to; we are not asking this question without knowing something about it; you have been such a very fishy character that you have been under observation for months; your whole history is known, and we want to see to what extent you are telling us the truth? If I have had the money to lay out, I would bet.
2699. But what is the extreme? I cannot call to mind how much I have bet.
2700. Your memory is like a sieve; you have been into betting again and again, and you cannot remember what sum you have ventured? What I have won you mean; sometimes I have won a good deal.
2701. What is the biggest bet you have ever won? Over at the Melbourne races I won a good bit of money—about £70; that is about the largest I ever won.
2702. When was that? Some time ago—at the time of the Newmarket Handicap.
2703. Was it at the spring or at the autumn races? I think it would be about the beginning of the year.
2704. Was that while you were under suspension? No.

T. Musgrave.
31 Aug., 1888.

- T. Musgrave.** 2705. How did you manage to get a holiday to go over to Melbourne to see the races? I betted here. I did not go over to Melbourne.
- 31 Aug., 1888.** 2706. What horses did you back? I had the double—Cranbrook and Carlyon.
2707. Who did you win the money from? I won £25 from Blakey, a man in the yard.
2708. What odds did you get? He had £200 to £1 about one double, and I had £100 to 10s., and saved £25 with Blakey.
2709. You only staked 10s. and you won £75? Yes.
2710. *Mr. Brock.*] You say you saved £25 with Blakey;—who is the other man you won from? I won from Wakeley.
2711. Is not that one of the things you were telling Moran about last night? Yes; that is what I was referring to.
2712. *Mr. Thompson.*] Where used this man Brown, *alias* Scott, to be talking to you when he was tempting you in the manner you describe? On the cars.
2713. Whereabouts? On the platforms.
2714. That would be under the stairs? Yes.
2715. Did he pay his fare? Yes.
2716. Are you aware that that is the very place where you have been seen talking to Cook? It has been unawares. I do not remember talking to him. I do not know the man's name.
2717. Do you know the people you bet with? Yes.
2718. Have you not bet with Cook again and again? Never, to my knowledge.
2719. Do you mean to say that you bet with people you do not know? I am sure that I never bet with Cook; I do not remember ever meeting him; I do not know him by that name. I do not think Cook would say that I knew him; I do not remember him by that name. In fact I do not know anything about him.
2720. Will you swear that you have not been talking to Cook since he gave evidence before this Commission. I warn you to be careful what you say? I am sure I have not.
2721. What makes you sure? Because no such man ever spoke to me. I did not speak to him about it, knowing that his name was Cook. Plenty of people have asked me questions about the frauds.
2722. I want to ask you about something which cropped up in some evidence which you gave yesterday, as to what took place on the tram when you first showed Graham how to do it. You remember the occasion perfectly well? Yes.
2723. And where it was? Yes.
2724. Will you swear that before you asked Graham for a bit of wire, on that day, you did not ask someone else for a bit—I mean someone on the motor? No; I did not.
2725. You swear that? I do not remember speaking to anybody.
2726. Have you spoken to fireman Reid since you gave your evidence yesterday? No; I have not.
2727. If he tells me that you came to him and asked him for a bit of wire, is it true or is it not? It is not true.
2728. If he says that he told you to go to his mate, Graham, is it true or is it untrue? I am sure it is not true.
2729. You never asked Reid for a bit of wire? Never.
2730. On the occasion that you got it from Graham? I did not.
2731. Will you swear that you did not? I will.
2732. Do you remember what time of the day it was when you were telling driver Graham about this matter? It was in the evening, that is, at night.
2733. Did you ever show Graham how you could flick the pin out of your bell with your thumb or your finger in case you were come upon suddenly, and in order that you might escape detection? I showed him how it was put in and out.
2734. I want to know if you will swear that you never showed Graham how you could flick it out in an instant with the thumb or the finger, so that you might not be detected? I do not know about that, I may have said, "It is simple enough to knock it out" or something to that effect.
2735. Did you ever tell anyone that if the Commissioner himself was standing alongside of you you could do the trick, and he would be none the wiser? I swear I did not.
2736. Did anybody ever caution you that if you did not mind what you were about you would be caught or trapped? No.
2737. Will you swear that you did not say in reply to that, "No bloody fear because I can knock the pin out in a second?" I never had such a conversation.
2738. Did you not give up your bell one night and forget to take the pin out? I never had any pin in it.
2739. Once more I repeat: Did you give your bells up at the office with the pin in them? I never did anything of the kind.
2740. *President.*] You handed your bells to Murray? Often.
2741. *Mr. Brock.*] With the wire in it? Nothing of the kind.
2742. *Mr. Thompson.*] Will you swear that you did not tell anyone that when you had found out that you had handed the bells in in this condition you felt as if you were going to faint, and that you found out the next morning when you got your bells that they were in exactly the same state? Nothing of the kind.
2743. I believe you have stated that Scott has left the country? I did not say he had; I said I thought he might have.
2744. You did not say that he had? Not in my opinion.
2745. You said so within the last twenty-four hours? I said I thought he had, because I had not seen anything of him. I said that there had been such a fuss that he might have left the country.
2746. And he a detective in the department. If he was not a detective? I do not know whether he is or not. I came to the conclusion that he had left the country; anyone naturally would.
2747. Because you did not see him twice a week? Because I had not seen him for such a long while. There had been such a fuss about the matter that I felt sure he had gone.
2748. Do you know a man named Frank Coll? I never heard the name.
2749. *Mr. Brock.*] Do you not know where his place of business is? I do not.
2750. *Mr. Thompson.*] You never supplied anyone with tickets? I did not; I never supplied anyone.

2751. Did you hand your bells to Coll on any occasion to get repaired? I do not know Coll; I gave T. Musgrave, them into the office when they wanted repairing.
2752. Did you ever hand your bells to Coll to get repaired? No; I do not know the man; I never handed them to anyone to get repaired. When they get out of order I hand them in at the office. 31 Aug., 1888.
2753. Just tell me how long after Scott had opened your bells and had put in the brad-awl—how long after that it was they went wrong and would not ring? I cannot think how long it was—some few weeks. It may have been a fortnight, or it may have been three weeks.
2754. I want to know this on your solemn oath: Did not he deal with both of the bells at the same time, and did they not both go wrong at the same time. Did you not hand them both in as being in an imperfect state? No; nothing of the kind ever happened. The bell that was manipulated went wrong.
2755. It was only one bell? Only one bell.
2756. And that was the one that went wrong? Yes.
2757. Now will you give me a definite answer to this question: How long after he manipulated the one bell was it that you handed the bells into the office? I should think about a fortnight or three weeks. I said so before.
2758. You said five minutes ago that you could not remember? I said I could not remember exactly how long, but that I thought it was about a fortnight or three weeks.
2759. How long before this man meddled with your bells was it that he threatened you that if you let out anything about it he would stiffen you? He did not say that. He said that I should never live to give evidence.
2760. How long before he touched your bells was it that he threatened you in this way? It was after he had meddled with the bells and when he found that I would not do anything with them—that is, when I would not let him have tickets.
2761. How long after he had meddled with your bells was it that he threatened you? The next night he met me and asked me how I was getting on. I said, "I will not have anything to do with it." When he heard that he used the words I have described.
2762. It was at night-time in a service tram when he showed you how to do it? Yes.
2763. What light had you to manipulate the bell by? The light of the car.
2764. And where was it, and at what time of night or day was it, that he threatened you? He got on to a car at King-street and went as far as Bathurst-street. He asked me first how I was getting on, and I said that I would not have anything to do with it. He then used this threat to me. I only saw him about twice after that.
2765. And you are absolutely certain that this happened after you had been put off at the time of the retrenchment? Yes.
2766. Then he never did show you before you were put off at the time of the retrenchment how the thing was done? No; we were tearing tickets then.
2767. When was this? Some time ago.
2768. After you came back from your suspension? No.
2769. Were you tearing tickets the whole of the time you were on prior to the retrenchment? Not the whole time.
2770. Were you on during the whole of the time they were tearing tickets? Yes.
2771. How long ago is it? I do not remember how long ago.
2772. Were they tearing tickets when you were suspended? No; the bells came into force the day before I left. When this man heard of the bells coming back to the Department again he came and told me how they could be manipulated.
2773. *President.*] When he heard that the bells were to be in force again he came and told you for the first time how they could be faked? Yes.
2774. Did you not swear before that it was some time before you went off at the time of the retrenchment that this man came to you and spoke to you about the bells being manipulated? No, that is not so. I had several conversations with the man. The bells were taken back on the Eight-hours Day.
2775. Is it not a fact that you were paid off on the night of the 30th September? I could not say about the date.
2776. Will you swear that the registers were in use the day before you were paid off? Yes.
2777. And that that day was Eight-hours Day? Yes.
2778. You swear distinctly that this man Scott, or whatever his name is, spoke to you only on the day before you left with regard to the manipulation of the bells? No, that is not so. It was a week or so before.
2779. How did he come to know that the bells were going to be used again? Everyone knew of it—I did myself.
2780. And you told him? He said to me, "The bells are coming back," and then he told me this thing.
2781. You swear you did not tell him? I will not swear that I did not tell him they were coming back.
2782. *Mr. Brock.*] Is Fraser the man who owes you £50? No one owes me £50.
2783. Did he pay you £50? He never owed it me.
2784. But he paid you £50? He did not owe it me.
2785. Will you swear he did not? Yes.
2786. Not in any shape or form? I swear it.
2787. *Mr. Thompson.*] Did Scott tell you how he had found the trick—that is, how to fake the bells? No; he did not tell me how. I asked him how, and he made some allusion to a gas-meter, and said gas-meters could be done the same.
2788. Did you ever make a statement to anyone that he told you that he knew all about it, and how he had found out how to do it? He knew all about it—he certainly knew all about it, and I asked him how he had found out.
2789. Will you answer the question? Yes; he said that, and I told it to Mr. Vernon.
2790. Was that true, or were you telling an untruth? It was true, of course.
2791. *President.*] Although you told Graham that it was as false as it could be? I did not tell him anything of the kind.
2792. You swear that? I do. Graham said to me, "What have you had to say about me up there?" He said, "You told Mr. Roberts that I knew all about it." I said, "You only knew as much as I told you

T. Musgrave. you myself—what I told you that time.” He said, “You told him I knew all about it.” I said, “I never mentioned your name—it is false; if anyone told you that I told Mr. Roberts that you knew all about it it is false.”

31 Aug., 1888.

2792. If Graham swore that you made the statement I have mentioned to him he swore falsely? He must have misunderstood me. I said, “If anyone said that to Mr. Roberts it is all false—it is all a yarn.”

2793. You do not think that Graham would wilfully swear falsely? I do not know, I am sure.

2794. Do you think he would wilfully swear falsely? I have no idea.

2795. You know the man? I do not know him; I do not know anything about him.

2796. Do you mean to say that you are not intimate with the man to whom you showed the tickets which you had collected and of which you had swindled the Government? I am intimate with him in a way—I am intimate with Moran.

2797. Do you believe that Graham would willingly swear falsely? I could not say that he would not; I should not think he would be the man who would.

2798. Did you not tell Mr. Vernon an absolute untruth when you said that there was no other man you knew of who could do it? No other man I knew of in the service.

2799. Was not that an untruth? No.

2800. Did you not show Graham how to do it? I only showed him how it could be done by putting the pin in; I did not open the bell; I told him the bell would have to be opened.

2801. *Mr. Thompson.*] Did you not deny a short time ago that you had opened the bell? I did not say that it had not been opened.

2802. The man who showed you took the face off? Yes.

2803. He did not push the brad-awl into one of these holes? No; when he got the face off he pushed the brad-awl into some part of the works.

2804. How many have you taken to pieces? I have not taken any to pieces. That is the only time I saw the inside of a bell.

2805. Will you swear that when you gave your bells in they were not both faked in the same way? I swear they were not. The pin would not work in the other part; I tried it.

2806. That is why you got the piece of wire—because the pin would not work? I am sure it is not.

2807. That is why you asked Reid for the wire? I am sure it is not. I do not remember doing so.

2808. Do you know that when you swear that you do not remember a thing which it is absolutely clear that you must remember, and that when you swear two different things with regard to the same matter, both of these swearings are perjury? You have put the questions in such a different way that I do not know sometimes what you are talking about.

2809. Every time you have professed not to understand we have repeated the questions as many as three times, so that you have had every chance? I have no recollection of asking Reid for a piece of wire. On the occasion that I spoke to Graham I never spoke to Reid. I do not remember asking Reid for any wire, and if I did it was not for that purpose.

2810. *President.*] How much money has Ferrier had from you during the past six months? Nothing much.

2811. How much? I do not know. At one time he was sick and I lent him some money.

2812. How much during the last six months? I could not say.

2813. Has he had £100? No.

2814. £50? No.

2815. How much? I do not suppose it would amount to 30s. Now and again he used to borrow a few shillings from me.

2816. Did you ask Graham to say that the occurrence between you, when you showed him how to rig the bells, took place only two months ago? I did not ask him to do anything of the kind.

2817. You swear that you did not do that? I swear that I did not ask him anything about it.

2818. *Mr. Thompson.*] Will you say how long it was after this man had shown you how to do it that you showed Graham? It was a little while after—a very few days afterwards.

2819. Then if Graham has been telling people about it, and if someone has known how to do it for the last six or seven months at the very least, it was not from you that he got the information? No; because it is not more than six months ago since I knew myself.

2820. *President.*] And yet you told Graham that you had been doing it from a fortnight after you first joined the Service? I did not tell him anything of the kind.

2821. *Mr. Thompson.*] Do you say that that is an absolute and unconditional lie—I suppose there is no other way of putting it? If he says so.

2822. What did you do with the car-load of tickets you collected when your register was not working—when you showed Graham that you had collected a car-load? I said, “I will just go along the car and show you,” and I went along and collected four tickets.

2823. That was the car-load? I had been round before. There were two or three persons who had just got in. I forget whether it was on a twopenny or on a penny section.

2824. *President.*] You admit that you faked your bell, and that you collected certain fares without registering them? I collected four tickets.

2825. You had faked your register first, and then you collected certain fares that you did not register;—that you admit? I admit collecting four tickets when the bell was out of order.

2826. Did you put your bell out of order? I put the pin in to show Graham.

2827. You put your register out of order. You inserted a pin, and then you collected fares without registering them? I collected four tickets.

2828. Without registering them? Yes, and I put them in the bag and gave them in at the office.

2829. Yet while you did that for which you might be convicted at any moment, you were under the impression that the man who had shown you how to do it, was a detective, and had only shown you for the purpose of trapping you? I thought so.

2830. Although you thought that a detective showed you for the purpose of trapping you you laid yourself open to a criminal conviction? I do not see that it was so.

2831. You collected fares in a fraudulent manner. I do not care whether it was four or fifty; but we have evidence that it was a car-load? There was nothing of the kind. I held the tickets in my hand, and showed them to Graham.

2832. Why did you collect these tickets without registering them? To show Graham that it could be done.
2833. What occasion was there to collect tickets in order to show Graham? I wanted to show him, and if I had not done so I should have had to ring the bell upon the motor, and people would have wondered what it was.
2834. But without collecting tickets, could you not have convinced Graham that the bells would ring without registering? I did not like to do so on the engine.
2835. *Mr. Thompson.*] Up to what time was it that you still believed that this man was a detective? Well when I did not hear any more about it I came to the conclusion that he was not a detective. He used to approach me, and that kind of thing. He may be a detective for all I know now.
2836. *President.*] You were afraid you would be found out if you rang the bell on the engine? I was not afraid of being found out, but it would cause people to wonder what it was.
2837. You laid yourself open to the whole car, seeing that you were swindling? I do not think I laid myself open. I did not think of it at the time.
2838. I can readily believe that because you had been doing it so long? I had not.
2839. If Graham swears that on that occasion you collected a whole car-load of tickets, does he swear falsely? I am sure he does. He could not tell how many I collected.
2840. He heard the ringing? I only rang four times.
2841. *Mr. Brock.*] He was watching you; he saw you go round the whole car? I only had four tickets, and I held them in my hand.
2842. *Mr. Thompson.*] Where was it that you showed him the tickets in your hand? I got on to the motor.
2843. Upon what part of your journey? Coming from Waverley to Paddington; it was about Queen-street; somewhere about that.
2844. *President.*] You left your work to show him? I just got on to the motor.
2845. Was it on a penny section? Just at the end of a penny section. I was talking to him about the matter while we were at the tanks, and I then went back on to the car, and collected the four tickets. I went all over the car, and there were only four to collect.
2846. It was on a twopenny section? No; on a penny section.
2847. *Mr. Brock.*] You had passed Queen-street before you went round? It was on a twopenny section that I showed him, but I did not go round the car on a twopenny section.
2848. *Mr. Thompson.*] Why did you not wait until the tram reached the terminus before you showed Graham, instead of leaving your work, and crossing from the car to the motor while the tram was moving? I did not do so. The tram stopped for a few minutes.
2849. There were two stopping places then; at the first you showed him how to do it, and at the second you showed him what you had done? Yes; it was while the tram was going that I collected the tickets. I do not know whether I waited until the tram stopped, or whether I crossed from the car on to the motor, while the tram was going.
2850. *President.*] You said just now that you did not like to show Graham on the engine, because you were afraid the passengers would notice something. Yet you were not afraid to step off from your car on to the motor before you arrived at the terminus to show Graham. You did not think that the passengers would see you doing something extraordinary? We often get across to tell the driver something we want him to do.
2851. Why should you have been afraid of doing that before? I was only afraid of ringing my bell upon the motor.
2852. Why were you afraid of that? Because the passengers would hear it and wonder what I was doing.
2853. What would happen then? Well I do not know who would be listening.
2854. And if anyone had been listening? They would perhaps want to know what I was doing and would report me.
2855. You did not care what you did so long as they did not hear you. You did not mind doing the thing in itself but you did not want to be caught? I did not do it with the object of defrauding the Government.
2856. How did it come about that this tram in which you were with Scott, when you faked the bells, ran through to Bondi? It went to Bondi junction.
2857. Without a stoppage? Yes; to bring in passengers.
2858. Is that the usual thing? Yes.
2859. How often does that occur? It is generally done when there is anything going on, or on Saturdays.
2860. How often have you taken out a tram from Bridge-street to Bondi without stopping? Very often.
2861. How long did it take Scott to do the bells? It did not take him any time; not more than 10 minutes altogether.
2862. You gave Scott a free ride? He did not pay on that occasion.
2863. How often did he get on to your tram without paying? He always paid on the passenger trams.
2864. Why did you not when you handed in the bell which had been faked and which went wrong tell the whole truth about the matter; why did you not say that it had been faked, and that it had gone wrong in consequence? I did not know that it had gone wrong in consequence of being tampered with. As I said before I was afraid that I should put myself in danger if a noise were made about the thing.
2865. *Mr. Brock.*] If you were in the habit of taking service trams out to Bondi, would you consider that you were entitled to take people out for nothing? No.
2866. But you took Scott out for nothing? On that occasion.
2867. What time of day was it? It was at night-time.
2868. At what time did you leave Bridge-street? I cannot say exactly.
2869. We should like to know exactly—to a minute? I could not swear to the time.
2870. What was it—within six or seven hours? It was between 6 and 8 o'clock.
2871. You had had your tea? Yes; I think I had.
2872. Where did you have it? In the yard.
2873. *Mr. Thompson.*] What time of the year was it? It was about five or six months ago.
2874. Will you take your memory back and say what month of the year it would be? It would be about February or March.

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- T. Musgrave. 2875. Were you assistant conductor or conductor of the tram? I was the conductor in charge.
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2877. Who was the driver? I cannot remember.
2878. You can remember all about it? I cannot remember.
2879. Who was the fireman? That I cannot remember.
2880. It being February or March when this man Scott showed you how to do the thing, how long was it after that that you handed in your bells. Be very careful now? I should think it was about a fortnight.
2881. What did you do with the tickets and the money you took after your bell had gone wrong and would not ring? I gave it in at the office.
2882. How did you account for them by your register? I registered all on the one bell—tickets and cash together.
2883. For a whole fortnight you made your returns on your cash-bell? No; only for one trip when the bells went wrong. I gave them in directly.
2884. *Mr. Brock.*] When one would not ring? When one would not ring I registered on the other.
2885. *President.*] Is that the last pair you handed in? I think I had another after that.
2886. What condition were the last bells in? Mr. Roberts tested the last pair. They were right.
2887. Then you had only your bells for one trip after they had gone wrong? Only for one trip; I think I was coming in from Paddington.
2888. *Mr. Thompson.*] Did you not tell Mr. Vernon that you had known of this thing happening only two months before he examined you? I told him I could not think how long it was. It was a few months back I think I said.
2889. Did you not sign this document which I am reading? Yes.
2890. You said, "This was about a couple of months ago. I have seen him since. The last time was about a month ago." That was your statement to Mr. Vernon? That is right; because it is two months since I made that statement.
2891. "The last time I saw him was about a month ago," you said? It may have been longer than a month; but I do not quite remember.
2892. You told us this morning and yesterday that it was only about three months ago since this was done. When I asked you if you could swear that you had not told Graham six or seven months ago you swore that it was five or six months ago since this took place in the cars. How can you reconcile your swearing first of all that it was only three months ago and then five or six months ago—in February or March? I said about that time. I could not swear it was in February or March. I said it was about five or six months ago.
2893. You said about February or March? That is what I have always said.
2894. Do you remember what you told us about this man coming to you after you had been reinstated? About the first time he came to you after you had been reinstated? Do you mean what he said to me?
2895. Yes. And how long was it after your reinstatement that you saw him? I do not remember. It was not very long; not more than a week or so after I had been on the cars.
2896. How was it do you think that he looked upon you as a thief—whether he was a detective or a man who was trying to help you in thieving;—how came he to look upon you as a thief, or at all events as a dishonest man? I have no idea at all. He used to talk pretty freely to me.
2897. Why did you say to Graham about that unfortunate man Hendy that you did not think he was such a fool as to go in for anything of the kind? Such a fool?
2898. Yes? I think I said I thought he was a very foolish fellow. It was well known that he used to miss fares. I said I thought it was neglect. I did not think he would try to rob the Government. Of course we understood that the passengers he had on his car were counted, and that he had not the amount in his bag to correspond with the passengers. I said I did not think he ever collected them, and that he missed them, seeing he was a foolish sort of fellow.
2899. The passengers on the cars were counted, and it was found that Hendy did not return a certain amount, but that he had got some money elsewhere which made up the deficiency? I did not understand that. I understood that Hendy had ninety-three passengers on, and that he had only seventy recorded on his register and 11s. in the bag not recorded. That is why I said I thought it was neglect. I thought he was a foolish kind of man and very neglectful. He was often discussed by the men. Every one used to talk about him, giving their opinion, and I gave mine. They would agree with me and say they thought it was on account of his neglect. The man might have been doing the other thing for all I know.
2900. *Mr. Brock.*] Were your passengers counted that afternoon do you think. I could not say I am sure.
2901. Did you know before you went out what Hendy was suspended for? For not being correct in his bag, I understood.
2902. Who told you? I forget now who told me; some of the conductors who came in.
2903. Who told you that Hendy was sacked because he was short in his tickets? I cannot remember who it was, but anyhow it was some of the conductors who came from the racecourse. Of course it was all over the place.
2904. You remember the facts about Hendy readily enough, but you do not remember your own case? Well, it concerned every one.
2905. Where did you get your information from? I heard it since. I could not say who it was who told me.
2906. You know though? I do not know. I heard it in conversation. Perhaps others were talking about it. Perhaps they would be talking to some one else, or talking together, and one would say, "What was he wrong?" Another would say, "He had so and so in the bag," or "He had so much cash too much or too little."
2907. *Mr. Thompson.*] Now you have not answered my question. How is it that this morning and yesterday you told us that it was only about three months since this man faked your bells for you, and that just before you went away for dinner you told us that it was five or six months ago—that it was February or March;—how do you account for the difference in the two statements? I did not say that it was only three months since the bells were faked.
2908. When you made this statement to Mr. Vernon, how long was it after you had seen Mr. Roberts? About a week.
2909. Did you tell Mr. Roberts exactly what you told Mr. Vernon, or did you tell more to the one than to the other?

to the other? I think I told Mr. Roberts at the beginning of the week, and that I told Mr. Vernon at the end of the week.

2910. Did you not then say to Mr. Vernon that this had happened only two months before you were speaking to him? He asked me how long it was.

2911. Did you or did you not say to Mr. Vernon that it was about two months since the time that you were talking to him that this was done? I said about two months—it might have been more; I see from the document that you have that he put it down two months.

2912. Why did you say two months, or it might be more, when you swear now that it was five or six months from the present time; going back to the 20th July that would be four or five months? Well that is seven months ago; it is almost as good as two months.

2913. When you spoke to Mr. Vernon about it six weeks ago your memory must have been much fresher than it is now—is not that so? It must have been longer ago, I think.

2914. What do you mean? I mean that I could not be positive as to the time, but I told him as near as possible.

2915. How did you come to make such an egregious blunder as to say on the 17th July that it was only two months before. That would have taken you to the middle of May? I meant before that; I must have made a mistake.

2916. Will you swear that this man did not tell you, and show you antecedent to the time of your being put out of work when there was retrenchment? I am sure he could not have done so, because I had no bell; I had the bell for only one day before that.

2917. We asked before whether you were tearing up tickets during the whole of the time before the retrenchment, and you said "No?" When we first had the bells it was a long time ago. I did not know the man then; I had never seen him.

2918. You said on one occasion that you had known him nearly two years? Eighteen months.

2919. Will you swear that you did not say on one occasion that you had known him for two years? I do not think it is that long; I do not remember when I first did see him.

2920. Will you say that you did not, on one occasion, swear that you knew him first of all about two years ago? I may have said it, but on recollection I think it is about eighteen months.

2921. On your oath—before the system of tearing tickets began did you not learn from him that the bells could be faked? I did not.

2922. And you have not said so before? I swear that I have not said so.

2923. Will you swear that you did not here yesterday tell us most distinctly that about eighteen months ago this man came to you and told you that the bells could be faked—that he could show you how to do a lot of tickets, and that he was doing £100 a week? It is nothing of the kind. I did not say it was when he first told me of it. It was when the bells were coming into force again.

2924. Listen to this: "A man came to me about sixteen months ago and told me that he could show me the way to make tickets. He told me his name was Scott. I do not know whether that is his correct name." Did you say that to Mr. Vernon? Yes.

2925. Then why did you say just now that he did not mention this until the bells came into vogue again? That was when I first saw the man. It is sixteen months since I first saw him. When he first made an intimation about the bells, was when he heard that they were coming into force again.

2926. Did you not tell Mr. Vernon that a man came to you about sixteen months ago, and told you he could show you a way to make tickets? That is when I first saw the man.

2927. At one time you say it is eighteen months ago, and at another time you say it is sixteen? It is sixteen months from the time I made that statement.

2928. Did he, or did he not, eighteen months from the present time, tell you that he could show you a way to make tickets? No.

2929. Then why did you say so to Mr. Vernon? He asked me when I first saw the man, and I said about sixteen months ago.

2930. Was this statement read to you? Yes; I was thinking—

2931. Never mind that, you say that you signed it, it had been read to you? Yes.

2932. Did you make the statement of your own free will? Yes.

2933. Did you, or did you not say, "A man came to me about sixteen months ago, and said that he could show me a way to make tickets"? Yes; but he did not tell me at that time.

2934. Did you or did you not tell that to Mr. Vernon? Yes, I think I did.

2935. Was that a lie or not? I do not mean that he told me at that time. Of course he made my acquaintance first. I meant that that was the first I saw of the man. That was what I was asked. After that he told me how to do it. He did not tell me at the time. It was not until the bells came back into force.

2936. What did you tell Mr. Roberts? I told him the same.

2937. Did you not tell him most distinctly that it was about eighteen months ago that this man came to you and first spoke to you about faking the bells? No. I said that he had been going about for that time, and that that was the first I saw of him.

2938. *Mr. Brock.*] When did you first tell Mr. Colls about it? The Sunday night before I went to Mr. Roberts. I think I went to Mr. Roberts on the Tuesday.

2939. Where were you when you told Mr. Colls? At his place. It was Sunday night.

2940. *Mr. Thompson.*] Here is what you said: "A man came to me about sixteen months ago, and told me that he would show me the way to make tickets"? I had had several conversations with the man. He was always getting on to the cars, and offering me cigars and so on. I was curious to know what he had to show me. He told me how to put a pin in the bottom of the bell, which would prevent it from registering. That is exactly what I told Mr. Vernon. I am telling you now just what I told him. I did not state then any more than I do now, that the time he showed me how to do it was the time he first told me about it.

2941. How long back from the present time is it since you last saw him? About three months.

2942. How long after you told Mr. Roberts did you tell Mr. Vernon? It was the end of the week; I think, when I told Mr. Vernon, and I told Mr. Roberts at the beginning of the week.

2943. *Mr. Brock.*] As a matter of fact the 17th was on a Wednesday? I think it was on Saturday that I went to Mr. Vernon.

- T. Musgrave. 2944. *Mr. Thompson.*] Having refreshed your memory, are you certain that it was about February or March that this happened? I am not certain about it, but as far as I can recollect it was about that time. I did not take much notice.
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2945. May I ask you why, if this thing happened in February or March, you waited until July before you said a word to Mr. Roberts or to anyone else about the matter? I did not want the man to think that it was me who was the cause of the thing being found out. I thought to myself that he must have a lot of friends and that kind of thing, that his people who knew about it, or who knew that he could get tickets. I have thought there were also a lot of people who might be getting tickets from him.
2946. From whom, the detective? I did not know then who he was. I did not know what he was. I at first thought that he was a detective. I did not know what to think about it.
2947. What was the nature of his threats? When I told him that I would have nothing to do with the bells, he said, "If you say anything about it you will never live to give evidence."
2948. Why did you not give him into custody at once for threatening your life? I was on the car at the time, and I could not very well get off. I did not take very much notice of it.
2949. You thought that was the way in which a detective would act? I did not know.
2950. You knew Moran at the time;—did it not occur to you to go to him and ask him whether there was a new detective at work? No, it did not.
2951. Now let us know when it was that you held up this piece of wire or bent pin, which you were constantly using, exhibiting it to Graham, and saying, "This is worth a tenner a week to me"? I never did anything of the kind.
2952. I thought you said it in a joke? I said something to him about a public-house in a joke.
2953. But you swear you never said anything about the tenner a week? I do not remember ever saying it.
2954. It would not have been a strange thing for you to say would it? I might say it in a joke to him. I do not remember holding up a piece of wire.
2955. Did you take the tickets by way of a joke? I did not take any tickets any more than the four I mentioned, and I put those in the bag.
2956. After Ferrier was caught what did you say to Graham when you got on his engine? I asked him what he had to say about it. He had been up at the inquiry at that time.
2957. Where? He had been before Mr. Roberts.
2958. Not at all? He told me that he had, and he said that I had told Mr. Roberts that he knew all about it. I said that it must be only a tale, or something of that kind. I told him that I did not mention his name. We were talking just while he stopped at Bent-street.
2959. Did you not say to him as you got on to the engine before he said a word to you, "Ferrier has been making a nice mess of it"? I swear I did not.
2960. Will you swear that you did not say to Graham when he told you to be careful that you never could get caught, because you always got the wink from the office? I swear I never said anything of the kind.
2961. Will you swear that you did not say to Graham at another time that Colls would put you fly to anything that was going on? I swear I did not. I never mentioned Colls's name.
2962. Will you swear that you did not tell Graham that you put Fraser's bells for him so that they would cheat? I swear I never did.
2963. Do you mean to say that you never said that you had faked Fraser's bells? I do.
2964. Did you not also say that you refused to put him into the way of doing it until he gave you £50 out of the first £100 worth of tickets? Nothing of the kind.
2965. You swear you did not say it? I do.
2966. *President.*] We want to know where the shop is at Newtown, or wherever it may be, of which you told Graham? That is nonsense.
2967. Will you swear that you did not tell Graham several times that you had a say in a shop at Newtown? I may have mentioned it in just the same way that I mentioned the public-house—jokingly.
2968. But you did say when he was pressing you again and again to know what you did with the tickets—you know that he did press you again and again? I believe he asked me what I was doing with the tickets.
2969. I was saying that over and over again he pressed you? No, I do not think he did.
2970. Well, a great many times? Well, he might have said to me, "Do you get rid of any tickets," or something of that kind, as I said just now jokingly.
2971. Did he not press you again and again to know what you were doing with the tickets? No.
2972. You swear that? Anything that passed between me and Graham was a joke. It was said just as we happened to pass one another.
2973. *Mr. Thompson.*] Do you know Murray? Yes.
2974. Do you remember giving your register to Murray with a pin in it? I never did.
2975. Do you remember his asking you what line you were on, and your being in such a state of mind that you could not tell him? I have no recollection of anything of the kind occurring.
2976. Don't you remember that you felt so faint that you could not answer his question? I swear I did not.
2977. Will you swear that you did not tell Graham distinctly that this thing happened? I swear I did not do anything of the kind.
2978. Don't you remember feeling so flabbergasted that you could not tell Murray the name of the line you were on? Nothing of the kind.
2979. Do you swear that no such conversation ever passed between you? No such conversation as that.
2980. What was the conversation that did pass then? Graham used to say to me, "I suppose you are doing very well now, and have a shop or two round about." I said to him at another time, "I am going to take a public-house next week." You see he had been telling me about the other men doing so well. He had also told me that he felt sure that there must be something of the kind going on, as he knew other men who had been sacked, or had left and had gone into business, some of them being able to keep hotels.
2981. Will you tell me what was to be the reward of this man for showing you how to fake the bells—what profit was he to make out of it? I was to give him the tickets.
2982. *Mr. Brock.*] To whom? To Scott; I was to let him have the tickets.
2983. At what price? 10s. for every £1 worth.

2984. Was there not a different value for different tickets; that is to say, were not tickets in twos and threes more valuable than tickets which were single? He never said anything about that. T. Musgrave
2985. Had you an arrangement of that kind with any other people. Did they not give you more money for tickets which were in threes and fours? I do not know anything about it. 31 Aug., 1888.
2986. *Mr. Thompson.*] Have you not three different prices for the tickets, 10s., 12s. 6d., and 15s.? I swear that I never had anything to do with tickets. I never sold anyone any tickets.
2987. Where did you go to during the dinner hour to-day? I went up to my dinner.
2988. Where to? To Mr. Colls'.
2989. We asked you to be here at 2 o'clock, and you did not arrive until a quarter past 2 as you said? I had to walk to Liverpool-street.
2990. Why did you go out of town to your lunch at all? I do not know; I did.
2991. Did you go yesterday to lunch at the same place? I did.
2992. You got here yesterday in time all right? Yes, I caught the tram yesterday; I did not have time to have any dinner at all yesterday; I just caught the tram; to-day I missed it, and had to walk down to Liverpool-street.
2993. And you swear that you went from here straight to Mr. Colls', and back again, and that you did not speak to anyone except the members of his family? I spoke to my sister and mother and the other inmates of the house—that is all.
2994. You did not see your solicitor to-day? No; I have no solicitor.
2995. *President.*] Have you not consulted a solicitor at all? No.
2996. Have you not seen one to-day? No.
2997. *Mr. Brock.*] You mean to say that you did not speak to a solicitor about this matter? No.
2998. Why did you refuse to answer our questions yesterday? I did not see that they had anything to do with the tramways.
2999. *President.*] Having refreshed your memory about this barber living near the Bondi junction, we want to know all you told him? I did not tell him anything.
3000. You swear that of course? Yes. All that passed between us was this: I was in there several times, and he asked me if I thought he could get a license. The man who was there before him had a license to sell tram-tickets. "Tram-tickets" was written up in the window. I told him that he would have to apply down at the office for a license.
3001. Do you remember that night when you took your bells home, and came to the conclusion, after examining them, that they were broken? I do not remember that.
3002. Do you not remember putting in the small nail, or piece of wire about the size of a nail, into the bells, and then finding that you could ring without registering? No.
3003. You never told anyone that, after finding that out, you carried on the cheating for some considerable time before you let anyone else know? No; I never said anything of the kind.
3004. Did you not tell the same person that you invariably used the pin on the twopenny or threepenny section? I never said anything of the kind.
3005. And that when you wanted the bell to register you took the pin out? No.
3006. Do you remember getting sick some time after that? Yes; I was off.
3007. You could not make anything while you were off could you? No.
3008. It was then that you gave the secret to another conductor, a chum of yours, who called to see you at night? No conductor called to see me that I can recollect.
3009. You swear that? Ferrier has been to my place.
3010. Do you remember the first time you put Ferrier up to this? He has not been on the cars since I knew it myself. He has not been on the cars since the retrenchment. I only saw him a few times after the time of my reinstatement.
3011. You absolutely swear that you did not make any treaty with this man for the sale to him of tickets—I refer to Dominick, the barber? I never spoke to him about the sale of tickets.
3012. *Mr. Brock.*] Did he apply for his license? I believe he did.
3013. Did he get it? I did not think so.
3014. Did you put in a word for him? I did not speak to anyone.
3015. Did you not speak to Mr. Colls about it? I think he asked me if I knew anything about it. He said "Your brother-in-law is in the Tramway Department; can't you get him to advise me?" He asked me to ask Mr. Colls where he would have to apply for it.
3016. And he asked you to put in a word for him? I asked Mr. Colls. I said he wanted a license. I think he asked Mr. Colls himself. I forget now.
3017. *President.*] Did you not ask Mr. Colls to put it through for him? No; I do not think so. I do not remember asking him. I was not that much interested in the matter.
3018. Will you swear that you did not ask Mr. Colls to put it through for him? I do not think he could put it through.
3019. Answer the question, please? Well, I would not be sure; he asked me to ask Mr. Colls.
3020. Will you swear that you did not ask Mr. Colls to put it through for him? No; I did not.
3021. Well, to help it through; to get the license granted? I may have said, "You can give him a license;" or, "Can you give him a license?"
3022. Are you in the habit of advising Mr. Colls as to the licenses which should be granted? That is the only time I ever spoke to him on the subject.
3023. *Mr. Thompson.*] Although you were so little interested in the man you did this for him? He asked me to do it as a favour for him. I think he was instructed how to go about it, and that was all.
3024. When was he instructed how to go about it? Mr. Colls told him to apply to the office, and I told him to do so.
3025. *President.*] Do you remember a conversation with him after his license was refused? He told me that he did not get a license.
3026. What else? I do not remember what passed, exactly. I think he expressed surprise that he did not get it. I said that I did not know anything about it.
3027. Will you swear that he did not say something more? I do not remember. I was there talking, and I could not make it out.
3028. Did he not say, "We are off now, then?" I do not know what you mean.
3029. Will you swear he did not say that? I do not remember him saying it.

- T. Musgrave. 3030. Will you swear he did not say that? "We are off." I do not know quite what you mean.
3031. I am merely giving you his phraseology? I do not remember hearing precisely that.
- 31 Aug., 1888. 3032. Will you swear that he did not say so? "We are off"?
3033. Yes? I do not know what you mean. I do not know why he should say so. I cannot quite remember the conversation we had. I never remember anything taking place in that respect.
3034. Will you answer the question or not? I am answering it as best I can.
3035. Will you swear that he did not say that? I do not remember hearing him say it.
3036. Will you swear he did not say it? It is of no use trying to make me swear that he did or that he did not. I cannot swear either way.
3037. Will you swear that he did not say it? I will not swear that he did not use those words, but as to what it was I do not know.
3038. *Mr. Brock.*] When you were asked yesterday if you knew Dominick, the barber, you pretended not to remember that such a man existed? I did not know the man at all by that name.
3039. Then it transpired that you might have gone into his place once or twice to get shaved. Now it appears that you interested yourself in him sufficiently to endeavour to get him a license? I did not know at first who the man was you were referring to. I thought you said he had a barber's shop in Oxford-street.
3040. *President.*] Will you swear that you do not know a barber in Oxford-street? I do not know a barber there personally.
3041. What do you mean by personally? Not to speak to.
3042. Have you never been into a barber's shop in Oxford-street? Yes, several times; but Wigzell is the only barber I know by name. I knew Dominick when you made it clear to me who the man was. At first I did not know who you were referring to; I know that they called him "Dom." I did not know him by the name of Dominick. When you said Dominick it did not strike me about him; I had forgotten all about it.
3043. You say that this man Scott, for showing you how to do it, was to get the tickets which you managed to manipulate? Yes.
3044. Scott appears to have completed his part of the bargain;—how often did he come to you and request you to complete your part? He came to me on the next night, and asked me how I was getting on; if I had made anything, and how the thing was working. I said that I had not tried to do anything with it, and that I would not have anything to do with it.
3045. How long was it after he made this stipulation with you that you took the tickets on the Waverley run with Graham and Reid—when they saw you? I think it was a week or ten days afterwards.
3046. And will you swear that that was the first time after he had shown you that you had put it into operation? That was the first time; when I got home that night, and saw it would answer, I never did anything with it afterwards.
3047. Did you have a meeting with this man Scott on that evening after you had made this trial which was witnessed by Reid and Graham? No, I did not see him that night; I saw him only about once afterwards.
3048. *Mr. Brock.*] Did you tell Scott that you had shown it to Graham? I did not tell him; he asked me, and I told him, "No." He asked me if I had said anything about it to anyone, and I said "No."
3049. That is the time he threatened you? No; the next night after that he saw me and threatened me.
3050. If he showed it to you one night, and saw you the next night and threatened you, you could not have had much opportunity to show it to anyone in the meantime? No.
3051. Scott must have thought you a nice young man to obtain this information upon the understanding that you were to do a certain thing for him, and then throw him over? I suppose he did, and that was the reason he threatened me. I suppose he thought I was going to inform.
3052. *Mr. Thompson.*] You said that after he threatened you you were frightened that he would do you some harm? I was afraid he might.
3053. Then why did you tell Graham all about it, show him everything, and expose the whole thing on the motor in such a way that it could be seen? I had been speaking to Graham before this time.
3054. Before what time? Before this time when I showed it to him; I spoke to him before I knew how it could be done.
3055. How do you mean before you knew? Before I knew that it could actually be done I had conversations with Graham; I asked him if he thought it could be done, and I said I thought it could.
3056. Why, if you were so frightened, and could not tell Mr. Roberts or anyone else in the Department, did you tell Graham? As far as I know he did not say anything about it.
3057. Why did you tell Graham after you had been threatened, and when, according to your own admission, you were too frightened to tell Mr. Roberts? I do not know why I told him exactly; I did not think he would say anything about it; I told him not to do so.
3058. *President.*] Before we dismiss you I may tell you that it is the opinion of the Commission that you have given your evidence in anything but a straightforward manner; that you have been most untruthful throughout; and that, in our opinion, you stand convicted, upon the evidence given to us alone, of wilful perjury; therefore you need expect no mercy at our hands.

Henry Ferrier called in, sworn, and examined:—

- H. Ferrier. 3059. *President.*] You were employed as a conductor in the Tramway Department some time ago? Some time ago.
- 31 Aug., 1888. 3060. Will you give us the date? I do not remember the date.
3061. How long were you a conductor? Nineteen months.
3062. After that you were paid off under a system of retrenchment? Yes.
3063. When were you re-employed? About a week afterwards—some eight days afterwards. I was employed to go away to Junee as repairer, and they put me wool loading. The wages did not pay my expenses. I was afterwards employed in the workshops at Eveleigh.
3064. Until when? I forget the date. I do not remember the date I left there. I did not take particular notice of it.
3065. Was it July 14? That is about it.

3066.

H. Ferrier.

31 Aug., 1888.

3066. What happened then? A communication was sent to me.

3067. You were dismissed? Yes.

3068. Before calling on you, Ferrier, to tell us what you know about these tramway frauds I think it wise, on behalf of the Commission, to give you a caution? All right.

3069. We wish you to know that we are in possession of a very large amount of sworn evidence, which implicates you and others in these tramway frauds. Bear this in mind, that if, in endeavouring to save yourself or in endeavouring to save others you give evidence which can be proved to be false, you will, as surely as you sit in that chair, be prosecuted for perjury. I think it right to give you that caution, and, having done so, I will now ask you to give the Commission every information in your power in connection with the frauds? Well I do not know what information I can possibly give you at all.

3070. *Mr. Thompson.*] Are you going on that line? No. Any questions you like to ask me I will answer.

3071. You will not run the risk of making a statement? I will make a statement—certainly I will.

3072. It will be infinitely better. Make your statement in your own way. Make it as favourable as truth will permit it to be, and it will prevent our asking disagreeable questions, which we do not care to ask if they can be avoided. Make a clean breast of it, and tell us the whole truth, and you will find that in the end it will be the better way. Not that we can hold out any promise to you in any way, but you will find in this, as in all other matters, that truth is the best? Some time ago—I do not remember the date—this man Greeley came to me and spoke to me, and told me that a man going to Rosehill —

3073. *President.*] Give us something near the date; some time ago is of no use to us? I cannot remember the date—I cannot, really. If I knew the date I would tell you.

3074. But give us something about the time? It was about a fortnight before I was dismissed from Eveleigh.

3075. You are bearing in mind the caution I gave you? I am bearing it in mind.

3076. Well, go right back to the first that you knew about the frauds? I tell you I knew nothing about it at first before Greeley spoke to me.

3077. What was the first? The conversation I had with Greeley.

3078. When you said that you did not know anything about it at first what were you alluding to? There is no first so far as I am concerned.

3079. Go back to the first of your connection with the frauds? I am not connected with the frauds in any way.

3080. Well, tell us what happened about a fortnight before you were dismissed? You will not allow me to tell you.

3081. Go on with what you were saying? It is no use my going on.

3082. If you do not go on you will find yourself somewhere else. You will find yourself committed for contempt. Don't think you are coming here to humbug us? I don't think anything of the kind.

3083. Then go on from where you left off? I had a conversation with Greeley and he said that some man going to Rosehill had said that he was paying conductors as much as £10 a week. I said I did not believe it, and he said, "Oh you know something about it." I told him I did not know anything about it. After collecting his fares he came back again. I thought some one had been joking, and we started speaking about it again. I cannot remember all the conversation. I said to myself some one has been joking with him, and I thought I would have a joke with him myself. I said, "How much will you give me if I show you how to do it?" He said, "I will give you £10." I said, "I will show you." He said "When?" I said, "Any time you like." He said, "Saturday night." I said, "All right, Saturday night." He said, "Come down to my house." I said, "All right." I went down to his house on Saturday night; I did not know how to get out of the joke. I did not like to tell him I was joking. I did not know how to get out of it, I said that it was too dangerous, and that we should be getting into trouble. He asked me who the others were who were doing it. I said, "No one is doing it now." He then wanted to know who were the men who bought the tickets. I did not tell him any names at all, because I could not. There were other conversations. I cannot think of all that really did take place. After I left him I never gave the thing a second thought. I promised to meet him again on the Monday night. He said, "Will you see me again." I said, "I will see you on Monday night." I went away and left him. I was coming down town accidentally and got on to his tram at Park-street. I had to come to Hunter-street. When I was getting off he said, "Arn't you going to do these bells for me." I said, "I am not going to do them at all," and I went away. I think that is about all that took place.

3084. On that occasion? It was something to that effect. There may have been other words but I cannot remember them all.

3085. What were you doing riding on different men's cars after you had left the Service? If I wanted to come into town or go out anywhere I would get into a car; that is all.

3086. Without paying? Sometimes I paid and sometimes I did not. Some of the conductors would charge me and others would not.

3087. You were frequently in the habit of getting into the cars? Not frequently; perhaps sometimes; two or three times a day.

3088. On whose cars did you ride? No one's in particular—anyone—the first that came to me.

3089. Will you swear that you were not frequently riding short distances on cars with Musgrave, Fraser, Connors, Yelland, and Scott? I swear that I do not live out of town. I live in town, and I get on to the trams at Belmore and come up to King-street.

3090. Do you know Musgrave? I know Musgrave well. I worked with him for nineteen months. He was conductor at the same time that I was.

3091. Did you ride with him? I have ridden sometimes on cars with him, but not frequently.

3092. With Fraser? I have been on cars he has been in charge of.

3093. With Connors? Yes, I think so.

3094. With Yelland? I may have. I have ridden with all the conductors.

3095. With Scott? Yes.

3096. But you denied this when I put the names to you collectively just now? Denied what.

3097. You swore that you did not frequently get on to cars with these men? You said frequently, and I said that I had not. I swear that I did not frequently ride with any one of these men.

3098. Not with any of them? Not frequently. I have been on their trams.

3099.

- H. Ferrier.
31 Aug., 1888.
3099. Suppose we were to say two or three times a week? I may have been once in a week and perhaps not.
3100. With each of them? Perhaps I would not see any of them for some time.
3101. If there were five of them then perhaps it would be five weeks before you rode a second time with the same man? Perhaps I might ride on one man's tram two or three times a week. If you were to name the whole of the conductors I should have to say yes to your question.
3102. Since you have left the Tramway Department? Yes.
3103. What is the total of your free riding since you left the Department? I could not say.
3104. Would it be worth £5? Not that much.
3105. You said that Greeley came to you on his car? Yes.
3106. What were you doing on the car? I was riding home from my work.
3107. You say he came to you? Yes.
3108. You did not get on to the car to him? Not the first time.
3109. And the second time? I got on then to come to town.
3110. You swear you did not make overtures to Greeley? Not till he spoke to me first.
3111. When you were at Greeley's house you admit that you were there to show him how to put the register wrong? So he thought.
3112. You admit deceiving him? Yes.
3113. Did you not tell him that you would in half-an-hour put his bells so that he might take the money of Moran, Wigg, or the Commissioner himself, without detection. Be careful. You are on your oath? I may have said that. I do not remember saying it. If I said it I did not do anything. Anything I said I will own to; anything I did not say I will deny. I will not swear that I did not say these words because I may have said them.
3114. Did you offer to buy tickets of Greeley? I said that if he had any tickets for sale I would buy them off him.
3115. And pay him 15s. for every £1 worth? Yes.
3116. You remember Musgrave's bells being taken from him on one occasion? I do not know whether he had his bells taken from him or not. I will swear I never mentioned Musgrave's name to him.
3117. And you swear that you did not say to Greeley in his bedroom, that you knew when Musgrave's bells were to be taken away, that you knew it was going to be done?
3118. You will swear that? I will.
3119. I suppose you know who heard you? I know that. I have seen the papers and I know who was there, but I will swear that it is not so.
3120. But how could they hear you if you did not say it? I never said it; I know who heard my conversation, but they did not hear that.
3121. Did you say that they were going for another man but that he was put fly? I may have said it; I said a lot of random things.
3122. You said that they were going for another man, although you did not say that they were going for the first man? I do not remember saying it.
3123. Did you say that Greeley would have no difficulty in making more than £10 a week over his business? I believe I did say that.
3124. What did you gauge that by? Because he told me that he was only making 30s. a week himself.
3125. But whose makings did you gauge it by? By his telling me that this man was paying £10 a week to other conductors.
3126. That made you tell Greeley that he would not be much good if he could not make £10 a week? Yes.
3127. Did you tell him to let the thing blow over before he did anything further? I do not remember ever saying that.
3128. And that he should get shifted to the Coogee and Waverley line? I told him that. How I came to tell him that was that he said that they had a down on him. I said, "Why do you not get shifted off here on to another line?"
3129. You did not tell him to get the shift because on these lines they were mostly twopenny sections, and the traffic was irregular, on account of its being composed of holiday people; also that the tickets were cleaner? I do not think I said that.
3130. After that night you knew perfectly well that your little game was up? I did not; I never had any little game.
3131. You did not know your game was up? No.
3132. You did not know at the time that anyone had heard what you had said, but you knew it afterwards. You knew that what had passed between you and Greeley in that bedroom was known to a third person? I saw it in the papers.
3133. You knew that very night that the conversation which passed between you and Greeley in his bedroom had been communicated to a third person? That night you say.
3134. Yes? I did not.
3135. You did not see Greeley that night in conversation with a third person? That night?
3136. Yes? I did not. I saw him in the hotel. He had a person with him in the hotel after coming from his house. After that I never saw him.
3137. When was it that you told Musgrave that the whole thing was blown. Was it the nextday or the night after? How do you mean that the whole thing was blown?
3138. Answer the question? I did not see Musgrave for some time afterwards.
3139. How long? It may have been a week afterwards.
3140. We do not mean the Saturday, we know all about that; we mean before that? It was very nearly a week afterwards.
3141. That you first saw Musgrave after you were in Greeley's bedroom? Yes.
3142. That you swear? That I swear.
3143. What did you tell him? I'm blest if I know what I told him now. I could not say what conversation we had.
3144. You could not say? I never think of my conversations with people.
3145. Do you mean to tell us that your conversation was not wholly and solely on the subject of these tram frauds? I told him I was dismissed.

3146. Do you mean to tell us that you had no conversation with him till you were dismissed after your night at Greeley's? After that night I had no conversation with him till I was dismissed.
3147. Did you send any message to Musgrave? No message at all.
3148. You had an interview in which you told Musgrave that the game was up. You can deny it as much as you like. It is immaterial to us what you deny. We are going through a matter of form and it will be better for you to go creditably through it rather than discredibly? I saw him after I was dismissed.
3149. But not before? I do not remember seeing him before. I don't think I saw him. I am sure I did not.
3150. You described the whole process to Greeley did you not? He gave me an insight into it first.
3151. What is the process? He told me to work the piece of wire.
3152. Are not you afraid to sit there and perjure yourself? I don't know. I swear I do not know the process.
3153. You don't know it now? I swear it, beyond that it was worked with a piece of wire.
3154. You swear that after doing it for months you do not know now? Doing what for months.
3155. You swear that you do not know how it is done now? I do not know how it is done. I never interfered with the bells in my life. I never saw the inside of a bell in my life. I do not know how it is worked. I swear that.
3156. Do you mean to say that after Musgrave fixed your bells up he did not show you how it was done? Musgrave never put a hand on my bells in his life. He never showed me how it was done.
3157. *Mr. Thompson.*] Will you swear that you did not tell Greeley that you would fix his bells for £10? Yes, I could not have done it if he had given me £1,000. I may have said so but I could not have done it.
3158. What were you going to do with the £10? I was not going to take it.
3159. What were you going to do with the bells? I was not going to take them either.
3160. Did you not tell Greeley that as the Department had a set upon him he was a damned fool if he did not make as much as he could while he had the chance? I believe I did.
3161. And when Greeley told you that he could not do it because he was not up to the way, you told him that you would show him the way? I told him I would show him the way.
3162. Did you tell Greeley that you were in the habit of receiving the straight tip from the office? I told him that but I did not say from the office.
3163. Did you not tell Greeley that there was no chance of a conductor being caught when he was doing this thing because when the bells were fixed the bells and the register always tallied? I do not remember that.
3164. Will you swear that you did not? I will not swear that I did not and I will not swear that I did.
3165. And further that the pin could be easily removed so that if any one should rush the conductor they could not catch him? I do not believe I did. I don't think I said that.
3166. You explained to him this little inside pocket that was used, did you not? No.
3167. Will you swear you did not? I will swear it.
3168. Will you swear that you had not a little inside pocket that you used? I swear it.
3169. Have you all the coats you wore when you were on the tramways? There may be one in the office.
3170. Is there any false pocket in it or in any one of them? There are no false pockets in my coats.
3171. Where used you to put the tickets then? In the bag.
3172. What part of the bag? The bag to receive the tickets.
3173. You put some there? All those I collected.
3174. *President.*] Where did you put those you sold at the oyster-shops? What oyster-shops? I never sold a tram-ticket in my life, unless when I have been riding in a car. I might have sold six pennyworth one day going down to Coogee when I was a passenger.
3175. Do you know the oyster-shop at the corner of Liverpool and Elizabeth streets? Yes.
3176. How often have you been there? Once.
3177. That you swear? That I swear.
3178. Whose company were you in? I was in there with two gentlemen having some oysters.
3179. Who were the gentlemen? Mr. Roberts, the Superintendent, and Regan.
3180. On what occasion was that? About 12 o'clock in the day.
3181. Were you only at this oyster-shop once? Yes.
3182. That is all? Yes.
3183. You swear to that? Yes. That is the only time that I have been in the shop.
3184. Did you go in with Mr. Roberts? He called me over. I was walking past and he called me over and asked me if I would like to go over to Melbourne and try to get on the trams there. I told him that I was there and that I applied for a billet, but that I was too short. He asked me to have a plate of oysters and I went in.
3185. You swear that this is the only occasion on which you went into the shop? That is the only occasion I can remember being in the shop. I think it is the only time.
3186. You do not know the man who kept it? I do not know him. I know nothing about him. I should not know him if I saw him.
3187. *Mr. Thompson.*] You think it safe to swear that, as he has gone away to Greece? I should not know him if I saw him. I know nothing about him.
3188. Is Greeley the only man you have conversed with on this subject? I think he is the only man.
3189. The only man to whom you have made overtures as to fixing the bells? Yes.
3190. Will you swear that you did not go on to another conductor's car and ask him to engage in a traffic of tickets—be careful? I am careful. I do not remember speaking to anyone else about it.
3191. Will you swear you did not go on to Connors' car and make such a proposition to him—to fix the bells? Yes. I swear I did not.
3192. What proposition did you make that time when you went on to Connors' car? I made no proposition to Connors that I can remember. I never remember speaking to Connors.
3193. Have you a good memory? I have not a very bad one. I never think of anything like this.
3194. Are you so continually making propositions to men to be rogues and thieves that it does not stick in your mind;—is that what you mean? I am not continually at it.
3195. When you went in with Mr. Roberts to this oyster-shop do you remember what persons were there? I think only three of us were present. I do not think anyone else was in the shop.
3196. Who was the third person? Regan, a messenger in the Department.

- H. Ferrier. 3197. Were you not frequently seen about this time, when this matter got to be talked about, with Colls on the top of cars in confidential talk? No.
- 31 Aug., 1888. 3198. Have you ever travelled with Colls on the top of the car having a talk with him? I have.
3199. How often? I could not say how often. It may be two or three times. He lives up my way. I take the tram up with him.
3200. What line are you on? I live at Surry Hills and he lives somewhere about there.
3201. Did Greeley when speaking to you name the man who was netting £10 a week out of this job? No. He said some man living at Waterloo was buying the tickets.
3202. And he did not mention his name to you? He said some name; I cannot remember it; I have tried to do so.
3203. Was it Siddons? Some name like that; I would not swear that that is the name.
3204. Had you never heard it before? Not that I know of.
3205. Will you swear that you have not been seen in Siddons' shop a great many times? Where is it situated?
3206. At Waterloo? I swear it.
3207. *President.*] Do you know Nicholas Williams' fruit and oyster shop at the bottom of Elizabeth-street, running into Wexford-street? Yes, I know it.
3208. How many times have you been in there? Several times. I go in there to have oysters or anything I want.
3209. Are you a married man? No.
3210. *Mr. Thompson.*] You know it is a place where there is exceedingly choice company in the way of ladies? I have seen ladies there.
3211. Perfect ladies? Yes, perfect ladies.
3212. Have you betted a good deal on horse-races and foot-races during the last twelve or eighteen months? I bet but to a very small amount.
3213. How much were you and Tommy Musgrave in together in the Newmarket handicap? I did not win much. He won a little and I won about £2 10s.
3214. You were not whacks with him? I was in one wager, but not in that one; I only got £5 off the man and I had to divide it with him.
3215. You and Musgrave were pretty good mates? We were at one time.
3216. Chummy? Yes, we were.
3217. Were you in with him in any of the foot-races? What do you mean?
3218. At the Carrington Grounds or at Botany? I have been out there with him when he has been there.
3219. Were you betting together? No, we have not been in a foot-race together.
3220. Had you no bets with Charles Cook? No, not with him; not that I know of.
3221. How long have you known Charles Cook? I have not known him very long to speak of. I know him by sight, but not very long to speak to.
3222. How long to speak to? Only a few weeks; since this affair started. I have known him longer by sight.
3223. He is a well known betting man about race-courses, is he not? Yes, he is well known. I might have spoken to him several times.
3224. How did you and he get mixed up in this tramway business, that you came to speak to him intimately when these tram frauds came out? I went to a place next to Tattersall's. I was sitting there. It was a billiard-room. There were two detectives there. I was speaking to them. I have known one for many years. I asked one of them to have a game of billiards. We had a game, and while we were doing that Cook came in and sat down. He was speaking to Detective Draper, and was telling him that he was down here about the tram frauds. Draper called me over and said, "You had Cook down there about the tram frauds?" I said, "What has he got to do with it?" Cook said, "They seem to think I know all about it." I heard them speaking together for a while afterwards.
3225. Is that since we began this inquiry? No; soon after it came out in the papers.
3226. Since you were dismissed? Yes.
3227. How many weeks back? Five or six weeks.
3228. Have you not, as a matter of fact, made some bets with Cook on one of the races or at one of the foot handicaps? I might have bet with him. I never take any notice of men I bet with on races out there. I might have bet with him once.
3229. Were you and Musgrave generally together at the races while you were chummy? Once or twice perhaps, that is all.
3230. You cannot remember whether you bet with Cook? No, I cannot.
3231. You cannot remember whether you and Musgrave betted with him or whether you betted with Cook for yourself and Musgrave? I have no one in particular to bet with. I bet with anyone; but I bet a very little.
3232. *President.*] Have you and Musgrave had a talk about this matter since your dismissal? Yes. I have spoken to him about it.
3233. What was the subject of your conversation? I am blest if I know. I could not think of all our conversations. We were speaking about it generally.
3234. We can scarcely believe that you could forget such a thing as that, Ferrier; because, however much you may brazen it out, we cannot help thinking that a man in your position, dismissed summarily, must have felt what happened? I did feel it. I felt it very much. I feel it now.
3235. It is only reasonable to suppose that you got talking about this matter, and you must know what you were talking about, and we need not tell you that Musgrave is as much implicated as you are yourself, because you know it? I know nothing at all about it.
3236. Therefore we naturally conclude that you and he having been talking about the matter you would be able to tell us of the subject of your conversation? I could not tell you, because I cannot think of it. We were talking together.
3237. How long was it from the time you were dismissed till he was also dismissed? I do not know when he was dismissed. I have not the date.
3238. You know he is dismissed? Yes.
3239. How soon did you know it? One of the conductors told me on the day. He told me that he was being dismissed that morning.

H. Ferrier:
31 Aug., 1888.

3240. *Mr. Brock.*] What day was that? I could not say.
3241. *President.*] How long was it before you saw Musgrave from the date of your own dismissal? Very nearly a week.
3242. On what day of the week were you dismissed? On a Thursday.
3243. When did you see Musgrave after that? I do not know on what day it was, but it was nearly a week afterwards.
3244. Was it Saturday or Sunday? I could not say on what day it was.
3245. You swear that? I could not say on what day it was.
3246. You met him on the Saturday, did you not? I met him one Saturday afternoon.
3247. You were dismissed on a Thursday;—was it on the following Saturday? It was the next Saturday. I think I saw him coming to work the next Saturday after I was dismissed.
3248. That is not a week? I saw him waiting for a tram.
3249. Had you then a long conversation with him? He knew it all.
3250. Have you had no long conversations with him since? I have had some, but not long ones.
3251. How many? Three or four, I think.
3252. It might be six, or seven, or a dozen? Not that many.
3253. *Mr. Thompson.*] Tell me this: As you are a great chum of Musgrave's; do you know a man named Scott, *alias* Brown, *alias* Curran; he used to be a good deal on the cars? I do not know him.
3254. You never saw him? I never saw him in my life.
3255. Did Musgrave not tell you that he was intimate with a man of that name? He never did.
3256. Did he never tell you that he knew a man who called himself Scott? No. I only knew one man named Scott, and he was a conductor.
3257. When did you have your first conversation with Musgrave as to the possibility of the bells being faked? I never had any conversation with him on the subject at all.
3258. Are the conversations you have referred to the only ones you are going to admit? They are the only ones I have to admit.
3259. You swear that you have never had a conversation with Musgrave on the subject of manipulating the bells? I do.
3260. *President.*] Do you remember the Saturday following your dismissal? Yes.
3261. Had you a black eye on that day? I had one split clean open.
3262. You saw some conductors? Yes.
3263. How did you account for your black eye? I told them that a detective gave it to me.
3264. Did you mention any names? I said the tram detectives gave it to me.
3265. Did you say they did it because you were too fly for them? I do not remember saying it. I was very tight that night. I had had a lot of drink too much.
3266. Are you in the habit of indulging? Not often. I do drink sometimes. I drink very heavily; too, when I start.
3267. How often have you been with Musgrave in Williams' shop? Never in my life.
3268. You swear that? I swear it.
3269. Do you know a man named Mulligan there? I saw him there one day.
3270. How do you know that his name is Mulligan? He has known my people about twenty years. I do not know him well.
3271. Where do you come from? From Young.
3272. Did you know Musgrave at Young? No, I was born at Young, but I lived at Cootamundra for fourteen years.
3273. You did not know Musgrave in the country then? No.
3274. *Mr. Brock.*] Does your father live at Cootamundra? Yes.
3275. *President.*] You are in the habit of going to gambling rooms? No.
3276. How often have you been? I could not say. I have gambled a bit in my life. Not much.
3277. How often during the last six months have you been gambling? I could not say. About four or five times perhaps.
3278. At what houses were you? I decline to answer that question. I don't see what it has to do with the case.
3279. *Mr. Thompson.*] We think that it has something to do with it? I do not see why I should answer it.
3280. *President.*] I insist on your answering it? I do not see why I should. Anything to do with the case I will tell you about, but this has not.
3281. *Mr. Thompson.*] Do you know that you can be fined £20 and sent to prison for six months in default for refusing to answer? Then I shall have to go to prison.
3282. The Act says: "Any witness shall be subject to the same liabilities in any civil or criminal proceeding as a witness giving evidence in any case tried in the Supreme Court." For refusing to answer the question, you may be sent to gaol until you purge your contempt, that is, until you choose to answer. That is one punishment, and we may double it in this way: "Any person who shall neglect to produce any book or shall refuse to answer any questions put to him by any Commissioner touching the subject of the inquiry shall be liable to a penalty not exceeding £20, to be recovered in a summary way, to be recovered before any two Justices of the Peace." Then in the Justices Act there is a proviso "that in case a fine of £20 is imposed on any person, and that the fine is not paid, it may be recovered by levy and distress, and in default of sufficient distress six months imprisonment may be inflicted"? I do not see what this question has to do with the case.
3283. Were you not actually caught gambling in a public-house somewhere up at the end of Oxford-street not long since? I was caught in an hotel; but I was not gambling.
3284. *President.*] You swear that? I swear I was not gambling.
3285. Do you swear that you were not throwing dice when the seizure took place? I swear it.
3286. *Mr. Thompson.*] Do you know that you were being watched all the time? No, I do not.
3287. You were not subpoenaed as a witness in the case in which the publican was pulled up and fined for allowing it? No, the hotel-keeper did not know my name.
3288. Will you swear that you were not seen by the police and the detectives actually throwing the dice some time before they entered? Yes. I swear they never saw me throw the dice. I never threw a dice that night. I was not taking any part in it. I was sitting down. I had no money to gamble with.
3289. *Mr. Brock.*] Or you would have gambled? I might. If there was any gambling going on I might have gambled.

- H. Ferrier. 3290. *President.*] How often have you actually gambled during the last six months? Not very often.
 3291. How often? Five or six times.
 31 Aug., 1888. 3292. Have you been gambling since you were at Colls' place? I decline to answer that question—I don't see what it has to do with it.
 3293. During this gambling of yours how much did you win, or how much did you lose; how did you come out? I never won much, and I never lost much. If I go gambling I never take much money with me—only a few shillings.
 3294. *Mr. Thompson.*] Are you afraid of being robbed, or are you so good at it that you can scoop the pool? I never lose much money in gambling.
 3295. Who were with you that night in Colls' place? There were five or six there that night—tramway men, firemen, and others.
 3296. Name them? Fraser was there, Turner, Shields, Brown, and Sheehan.
 3297. What were the stakes they were playing for? I do not know what they were playing for, or whether they were playing for stakes at all.
 3298. Do you know that there was a lot of money on the table when the police came in? I did not see a lot of money there.
 3299. Did you see any money there? I saw some money paying for some drinks.
 3300. Was not the money scooped up when the seizure was made? I did not see any seizure made. A policeman rushed in and put his arms over the table. I did not see any money there. He may have got money, but I did not see any.
 3301. *Mr. Brock.*] Do you remember the day when you, Cook, and Musgrave were together in the tram? We were never in the tram together.
 3302. You swear that? Not to my knowledge; not in company.
 3303. Were you not in company on the tram together? Never.
 3304. How often did Cook get up with you? I never saw Cook on my tram.
 3305. You never saw Cook on Musgrave's tram? Never in my life.
 3306. Did you ever see Cook and Musgrave together? I swear I never did.
 3307. Will you swear it? Yes.
 3308. Do you know where Cook's shop is? He has a shop in Liverpool-street.
 3309. You have been there? Yes; I have been shaved there.
 3310. Does he do the barbering himself? No; a boy shaved me when I was there.
 3311. Do you know the other Cook? Yes; there is a George Cook, who used to be in King-street.
 3312. *President.*] A brother? I do not know.
 3313. You do not know this man Cook intimately? Not intimately; I have seen him often enough.
 3314. You have not often met with him in shops and different places? I was never in a shop with him in my life.
 3315. Will you swear positively that he never had any tickets from you? He never had.
 3316. You have seen him with tram-tickets, have you not? Never in my life.
 3317. Did you ever see him in his own shop selling tram-tickets? I never saw any tickets there.
 3318. *Mr. Brock.*] Was Musgrave living at Young? No, about Yass.
 3319. Where do you live now? At Surry Hills.
 3320. *President.*] With your mother? Yes.
 3321. That was where you proposed to leave the registers for Greeley, was it not? Yes.
 3322. How did you propose to leave them there? I said that I would leave them there and that he could call for them.
 3323. You did not say that you would leave them there in a basket? No, I said in a parcel.
 3324. That was after you had rigged them for him? Yes, after I was supposed to have fixed them.
 3325. Where did you see Greeley again after that bedroom scene? I think I saw him on the Monday night.
 3326. When was the bedroom scene? That was on the Saturday.
 3327. What passed on the Monday night? I was speaking to him coming down. I jumped off the tram at Hunter-street. He said, "You are not going to fix those bells?" and I said "No."
 3328. Did you give any reason for not fixing them? No; I ran away up the hill. I had an appointment.
 3329. You did not say, "I would not do them now if you gave me a £50 note?" Something to that effect.
 3330. You did not say when you had that interview in his bedroom that the thing was blown? No; I did not.
 3331. And that he must remain quiet for a bit? I do not remember ever saying that. I cannot think of all the conversation.
 3332. It is important for you to remember? I never gave it a single thought afterwards. I did not think the man was such a fool as to say anything about it.
 3333. *Mr. Thompson.*] What were you dismissed for? I do not know.
 3334. Was there a light in this bedroom where you had the interview? No.
 3335. Was it not a funny thing to go and play in the dark a practical joke such as you say you were playing? I did not know what was up. He asked me to come upstairs, that was all.
 3336. Knowing all that we know about this matter we cannot swallow what you tell us now? I cannot help that. You say you doubt that I am telling you the truth; if so, what is the good of your listening to me at all.
 3337. We listen to you because we are obliged? If I am not telling the truth you are not obliged to listen to me. What is the good of accusing me of not telling the truth.
 3338. Did it not occur to you when you found yourself going into a dark bedroom to turn round and say "Come, we have had enough of this?" I was not afraid of going into a dark room. There was nothing against me that I should be afraid of going into a dark room.
 3339. *President.*] You were in too great earnest to turn back from a dark room? I was not in earnest at all.
 3340. You state that deliberately, and swear it? I swear deliberately that I had no intention of ever touching the bells.
 3341. And that you had no intention of taking them away and getting them done? I swear that too.
 3342. Or that you did not say that you could get them done for £10? I swear it. 3343.

3343. *Mr. Brock.*] What was your object in doing it at all then? Only as a joke. He came to me for information, and I told him I did not know anything about it. H. Ferrier.
3344. *President.*] When you went to Greeley's house and ascended that dark staircase, did you not tell him that you were very nervous about it? I do not remember ever saying it. 31 Aug., 1888.
3345. That is a convenient way of getting out of it? Not at all. If I said so—
3346. And you spoke in whispers? Very likely; not very loudly.
3347. This is the way you carried on your great joke—telling the man that you were very nervous? I do not believe I said so.
3348. Will you swear you did not? I will not swear I did not, but I do not remember saying it.

SATURDAY, 1 SEPTEMBER, 1888.

Present:—

A. RICHARDSON, Esq., PRESIDENT.

R. W. THOMPSON, Esq., M.P., | F. A. BROCK, Esq., J.P.

Henry Ferrier recalled, and further examined:—

3349. *President.*] How long is it since you have been off? Since the 14th July; I think that was the date. H. Ferrier.
3350. About six weeks? Yes. 1 Sept., 1888.
3351. I want to know how much money you have received from Musgrave during that period? I have not received any money from him.
3352. You swear that? Yes.
3353. How much money have you received from him during the past six months? I have not received any money from him.
3354. Do you swear that positively? Yes.
3355. You swear positively that during the last six months you have received none from him? Yes.
3356. Will you swear that you have not said you need never be short of money, because you could always get a fiver when you wanted it, as they knew that if they did not give it to you you would round on them? I swear I did not.
3357. You were almost ready to swear that before I had completed the question? I knew when you started what you were going to ask me.
3358. You are sure you did not say that you could always get a fiver when you wanted it, because if you did not get it they knew you would round upon them? I did not.
3359. Did you say then that you need not be short of a fiver at any time? No.
3360. Not even in joke? No. I am short of money now; I have been short of money for months; I have not a shilling in the world to bless myself with.
3361. *Mr. Brock.*] What is the name of your solicitor? I have none.
3362. What is the name of the solicitor who is acting for the lot of you? There is none acting for me individually.
3363. But acting for you, Musgrave, and two or three others? There is none to my knowledge. I will swear that I know of no solicitor acting for me individually or otherwise.
3364. And you have not consulted any solicitor? None whatever.
3365. *Mr. Thompson.*] Will you swear that with reference to rounding upon people you did not say that there were those high up in the office who had everything to do with the matter, and that if they did not take care you would round on them? I did not say so.
3366. Or anything like it? No.
3367. *Mr. Brock.*] Did your solicitor tell you that you could defy the Commissioners? I have no solicitor, and I have seen no solicitor.
3368. Did not one of your mates tell you that he had seen a solicitor, and that the solicitor said that you could defy the Commissioners, and that you need not answer questions? He did not; I have had no advice at all.

Archibald Fraser called in, sworn, and examined:—

3369. *President.*] You have been a conductor in the tramway service? Yes. A. Fraser.
3370. You occupy a somewhat peculiar position, Fraser; if we understand rightly, on seeing your name mentioned in connection with these tram frauds you were so indignant at such a connection that you took it upon yourself to go away from your office and declined to take up duty until your character was cleared? Yes. 1 Sept., 1888.
3371. Of course if you feel that you are upon that high pedestal of innocence that your name is above mention and so forth, this may have been an exceedingly honourable course for you to adopt. Looking at the matter in that light, I suppose we are not to expect any great information from you in regard to these tram frauds? I know nothing about them.
3372. You know nothing whatever about them? I do not.
3373. Do you know anything of a man named Musgrave? I know him well.
3374. In your opinion is he a man whose word could be relied upon? As far as I know it is.
3375. You would at any time readily accept his word, I suppose? I don't know. I never had any dealings with him in any way.
3376. But you know him well? I know him as a fellow-workman, that is all.
3377. Would you believe him on his oath? I should think so.
3378. If he swore that anything was true, would you believe it? I would.
3379. If he said that such and such a thing was the case, you would believe it? I would believe a man on his oath.
- 3379½. You would only believe him on his oath; would you take his word at any time if he said a thing; would you say, for instance, "Well, Musgrave has said it, and he would not tell a lie," or would you say, "Musgrave has said it, and I do not believe a word he says;" you have said you know him well? As a fellow-workman. 3380.

- A. Fraser. 3380. Then if you know him pretty well, what is his character? I do not know his character. I have only known him since he has been in the Department. I had never known him before.
- 1 Sept., 1888. 3381. Have you met him outside the Department? Yes.
3382. I thought you only knew him in the Department; what is his character outside the Department as far as your knowledge goes? I have met him in several billiard-rooms playing billiards.
3383. Have you met him in gambling-rooms? Never in gambling-rooms.
3384. What is your knowledge of him in billiard-rooms? He is a good billiard-player, that is all.
3385. Does he make bets? Yes.
3386. Does he pay bets at once, or does he refuse to pay them? I never knew him to refuse.
3387. Is he a straight fellow? He is straight.
3388. Would you believe or would you not believe his word? If he made a bet with me and I won, I believe he would pay me.
3389. But if he told you a thing would you believe it? It all depends upon what it was.
3390. If he told you something very extraordinary you would not believe him? I would not.
3391. Why would you not? Because I do not suppose he is bound to tell the truth always.
3392. You don't think he would tell the truth? Not at all times; I don't think he would tell the truth at all times.
3393. Although you have told us that you believe him to be an honorable man, and that you would believe him on his oath, you now say that you would not believe his word as a matter of course? I would not.
3394. In other words you have a very good idea that he would tell a lie when convenient. All this is introductory to this. If Musgrave has stated positively that you are deeply implicated in these tram-frauds has he stated that which is true or that which is false? It is false.
3395. Utterly false? Utterly false.
3396. If he has stated absolutely that he showed you how to rig your register has he stated that which is true or false? False; he never did.
3397. If he has stated that out of the first tickets which you abstracted you gave him £50 worth as a fee for learning the secret, has he stated that which is true or false? It is false, every word of it.
3398. You swear that? It is false every word of it; I swear it.
3399. *Mr. Brock.*] You say that Musgrave is not bound to tell the truth, don't you? Not at all times.
3400. Is no man bound to tell the truth? No man.
3401. Yes? Not in the ordinary course of conversation; I should not think so.
3402. You don't think much of lying then, evidently, to start with? When I am on my oath I tell the truth.
3403. *President.*] And when you are not on your oath you please yourself;—is that what you mean? I say that I am speaking the truth here.
3404. That is not an answer to my question. You say you speak the truth when you are on your oath; I ask you what you do when you are not on your oath; do you speak the truth or falsehood according to circumstances, when you are not on your oath? No; but I do not always speak the truth when I am not on my oath.
3405. *Mr. Brock.*] In other words you acknowledge yourself to be a liar? I do not.
3406. You say that a man in general conversation is not bound to tell the truth;—is that your idea of morality? Yes.
3407. Did it ever strike you that if you were to tell a lie to a man in ordinary conversation by means of which you induced him to commit a murder you would be just as much a murderer as the man himself? Certainly so.
3408. You go about and make it a practice to lie? I do not make it a practice to lie.
3409. *President.*] You are in the habit of frequenting billiard-rooms? Not much; I am not a billiard-player.
3410. You just go to look on and to make small bets on the game? I never made a bet in Sydney on the game.
3411. You are a little fond of gambling, are you not? I do a very little of it. I do not do it twice in twelve months.
3412. Have you ever been in a gambling-room since you retired from the Service? Yes.
3413. Might I venture to ask what your business was? It was a public room in an hotel; we were in there to have a drink.
3414. After you had had your drink how was it that you came to throw the dice and so forth? We were throwing dice for drinks, and not for money.
3415. How was it that there was a pile of money on the table? There was no money on the table whatever.
3416. If it has been sworn by members of the Police Force and others that money was on the table, has falsehood been sworn again? There was no money of mine on the table.
3417. Was there any one else's money there? I could not say if there was or not. I do not think there was.
3418. Have you announced to us your code of morality in order to bear out your action on that particular occasion;—you remember what your action was on that occasion in the gambling-house? What my action was?
3419. Yes; your action when the police came in;—what was it? I was seated at the end of the table when the police came in. I had no dice in my hands nor no money. It was at the other end of the table.
3420. Well what happened; had you any conversation with any one? With any one?
3421. We should like to know what the conversation was after the police came? I had no conversation with any one.
3422. Was any conversation addressed to you? They asked us our names.
3423. Did you make any answer? Yes.
3424. What did you answer? I told them that my name was Jones.
3425. That you considered one of your permissible falsehoods? I did not want to be brought up at the police-court about it.
3426. You thought it a better thing under circumstances of that kind to tell a falsehood; I am not surprised at it after what you have told us? Anyhow that was what I said. 3427.

A. Fraser,
1 Sept., 1888.

3427. You were only throwing for drinks? That was all.
3428. Have you thrown for drinks before? In that house on two or three different occasions.
3429. Have you not thrown for drinks in the open bar? No; never.
3430. Have you never seen people throwing for drinks in the open bar or in the little side bar? In the side bar.
3431. What made you lock the inside of the door;—what made you lock the door if you were only throwing for drinks? I never locked the door.
3432. Was it locked? It was.
3433. Who locked it? I do not know. I did not. I never knew it was locked.
3434. You would have us believe that all that was going on was throwing for drinks? That is all I was in. They started before I did. They were in the parlour a long time before I went in.
3435. You tell us distinctly that you were playing for drinks? Yes.
3436. How many hours were you at it? I was there no hours at all. When I first went into the house it was 9 o'clock.
3437. What time was it when you were taken? About half-past 10 when the police came to the house.
3438. Will you swear that you were not engaged in that room locked up for two hours? I will not swear it. I am not certain to half-an-hour.
3439. Will you swear that there was any drinking in the room at all during that time? I swear that there was none in the room where I was.
3440. And yet you were playing for drinks? In the parlour I mean.
3441. You were playing for drinks in the parlour;—what were you doing in the locked room? We did not have time to have the drinks.
3442. Although you were there two hours or an hour and a half? We were not there two hours.
3443. Were you not in the room for an hour and a half? I will swear that I was not in there for an hour and a half.
3444. Did they open the door for you;—did they unlock it for you? It was not locked when I was in.
3445. For how long was the door locked when the police came? I could not say how long.
3446. Will you swear that it was not locked for at the very least an hour? I swear that I was not in there an hour.
3447. How long? I have no idea; but it was not an hour.
3448. But during the time you were there there was no drinking in that locked room? No.
3449. And yet you were playing for drinks only? We were playing for drinks.
3450. Which never came? We asked for them, but they never came.
3451. I suppose you throw the dice, and whoever is lowest has to pay for drinks? Whoever is lowest has to pay.
3452. How many were there throwing for drinks? I think six or seven.
3453. There were seven;—how long does it take seven to throw to see who has to pay for the seven drinks? Not long.
3454. Would it take more than 5 minutes? It would not.
3455. Then in 5 minutes these seven thirsty men would demand their liquor? I was not thirsty myself.
3456. It seems that they were locked in the room for a whole hour without tasting a drop? Yes; some were in there before I went in.
3457. Is it reasonable to suppose that these men occupied 5 minutes in throwing for drinks, and then waited in a locked room for a whole hour for the drinks to be supplied? We may not have been shaking the dice all the time.
3458. I never mentioned that—answer my question;—do you consider it reasonable or unreasonable? To suppose that we could be locked up there for an hour?
3459. To suppose that you could be locked up there for an hour without a drink, although that is the purpose for which you were there? I do not know what the others might have been doing. I was not locked up there an hour. They may have been drinking before I went in.
3460. Is it not an absolute fact that when the police made the seizure there was only one glass in the room, and that the glass with which the dice were being thrown? That is a fact.
3461. Do you know Ferrier? Yes.
3462. Have you gambled with him? I never gambled with him.
3463. Was he not there this time? Yes, he was there.
3464. Do you mean to tell us that you and Ferrier have not played in that house until early morning? Yes.
3465. It is not a fact? It is not a fact.
3466. You swear that? I swear it.
3467. You swear that you two, after having been in there for several hours, have not come out at 2 o'clock in the morning and walked along Crown-street, half drunk and singing? I swear it.
3468. Will you swear that it is not true? I am quite safe in swearing that.
3469. Were you with Ferrier that night he got a black eye—the night he was so drunk? No, I was not with him.
3470. *Mr. Thompson.*] You know nothing about it? I know that he had a black eye.
3471. Do you know that he was drunk? I did not know that he was drunk.
3472. Do you believe that he was? I believe he was.
3473. *President.*] But it is not a fact that you and he have played together till early in the morning, and that you have gone home together drunk and singing? It is not a fact.
3474. Well, did you go home sober and singing at 2 o'clock in the morning? I never went home with Ferrier at 2 o'clock in the morning. I am never out until that hour in the morning—not more than once in two years.
3475. How long have you been in the Service? A little over two years.
3476. Are you married? I am.
3477. Have you a large family? No, only one.
3478. What are you doing now? I am not doing anything.
3479. You are waiting for the decision of the Commission? That is what I have been waiting for all along.
3480. Will you swear that? I will.

- A. Fraser. 3481. That you are not in business at the present time? My wife is in business.
 1 Sept., 1888. 3482. Was your wife in business while you were working for the trams? No.
 3483. Only since you have retired? Only since I have retired.
 3484. Did you not purchase the business? My wife purchased the business.
 3485. How can she purchase it; I thought that husband and wife were one, and that all the money was the husband's? I am not up in law, but I suppose that what is a man's wife's is his.
 3486. Will you be good enough to say what you gave for the business? £100.
 3487. You managed to save a little then while you were in the tram service? I never saved a shilling while I was in the tram service.
 3488. This was money then that came from other sources? It was money that my wife had when she was married.
 3489. Where is your business? In Cleveland-street.
 3490. What is it? A tobacconist's and hairdressing saloon.
 3491. Do you sell train-tickets? I do not.
 3492. You never sold them? No.
 3493. Never in your life? I never sold any.
 3494. *Mr. Brock.*] Will you tell me what you heard had been said about you inducing you to give yourself a holiday during the past few weeks by putting yourself out of employment and riding the high horse? I have not been riding the high horse.
 3495. Standing on your dignity then? Yes, that is right.
 3496. What did you hear inducing you to take that extraordinary step? I did not hear anything.
 3497. Was anything said to you inducing you to take this step? No, nothing was said to me. What I saw in the papers induced me to take the step.
 3498. *Mr. Thompson.*] You see a mere flam in the newspapers and you cut yourself off from the Department in the way you have done;—is that so? That is so.
 3499. What did you see in the newspapers;—will you tell us the substance of it? I never saw anything about you leading me to suppose you would do such a thing. —
 3500. What was said about you? I have not the paper, and I could not tell you exactly.
 3501. Tell us the substance; how were you spoken about? It said that strong suspicion attached to me in consequence of my somewhat mysterious association with Ferrier and Cook.
 3502. Who is Cook? I do not know the man. I never saw the man that I am aware of.
 3503. *Mr. Brock.*] Is this business settled on your wife? It is not settled at all yet—the money is not paid over yet.
 3504. I thought you got £100 with your wife when you were married? So I did—more than that—but it is not settled yet.
 3505. You said it was out of that money that you bought the business? That is what I meant.
 3506. Is it so settled that you cannot touch it;—has she a separate estate under the Married Women's Property Act? No.
 3507. You have full control over it? Yes.
 3508. And over any money she brought to you? Yes.
 3509. *Mr. Thompson.*] How long have you been in the business? A week last Tuesday.
 3510. *Mr. Brock.*] Whom did you marry? I decline to answer that question.
 3511. But you must answer it? I will not.
 3512. It is only a question of going to the Registrar-General's Office;—whom did you marry? I don't see that it is necessary to say.
 3513. But we do see that it is necessary? Then I decline to tell you.
 3514. Where were you married? In Cowra.
 3515. Where were you born? At Windsor.
 3516. What were you doing up at Cowra? I decline to answer that question. I was a miner at Mount Macdonald for a considerable time. I don't see that your question is necessary.
 3517. *President.*] It looks suspicious when you do not like to answer these questions. Have you had any conversation with Musgrave or Ferrier since they gave evidence? Yes.
 3518. I suppose they told you how finely they baulked the Commission upon certain points when they were pressed to give answers? No, they did not.
 3519. Did they tell you that they had refused to answer certain questions? They told me that they had.
 3520. *Mr. Brock.*] Will you answer this question? I will answer anything in reason.
 3521. It is for us to decide whether it is in reason or not. Whom did you marry? I married a Miss Kerr.
 3522. Where did her parents live? They lived on Howell's Creek, near Burrowa.
 3523. Was he a free selector? No, he was a small squatter; he kept an hotel there on the roadside; he was a dealer as well.
 3524. How many acres had he? Thousands.
 3525. How many? I do not know; he was also a dealer and storekeeper.
 3526. What is your wife's Christian name? Catherine.
 3527. *President.*] I think I understood you to say a little while ago that you did not know a man named Cook? I still maintain that I do not know the man.
 3528. Do you know a shop in Liverpool-street—No. 94? I know two or three shops in Liverpool-street.
 3529. Is there not a tobacconist's and barber's at No. 94? I know where Cook's the tobacconist is, and I think there is a barber in the shop.
 3530. Do you mean to say that you do not know the man? I do not.
 3531. Is it a fact that you have been in the shop since these exposures? Only once since;—that is the only time.
 3532. Have you had any conversation in that shop? I asked the man if Mr. Cook was in, and he said, "Cook does not live here."
 3533. Have you had conversation in that shop? I asked the man if Mr. Cook was in. He said, "Mr. Cook does not live here—he comes in for a shave as well as anyone else." He added afterwards, "I suppose you are from the Tram-Office?—the Cook you want does not live here."
 3534. What did you want there? I wanted to ask him what he had had to say about me. I had heard that he had had a lot to say.

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3535. *Mr. Thompson.*] Well, according to the papers, he must have had a lot to say, or at all events something;—and you were curious to know what it was he said? I was.
3536. Did you not follow him up after you had been to the shop? I never went after him.
3537. You made no attempt to find him? Not the slightest.
3538. *President.*] Do you know an oyster-shop kept by Masoora, at the corner of Liverpool and Elizabeth streets? I do not know the name, but I know the shop at the corner.
3539. You have known it for many months, have you not? I have known it for some time.
3540. Did you ever go into that shop with a portmanteau or bag in your hand;—be very careful how you answer? I may have had a bag in my hand. I have been in and had oysters, in uniform, many a time.
3541. What did you take your bag in for? I could not leave it out in the street.
3542. I am not referring to your tramway-bag. Did you not go into this shop with a sort of travelling bag or portmanteau? No, never.
3543. Be very careful, please? I do not ever remember going in there with a bag.
3544. Did you ever go in there with a box? No; that I will swear. It is not likely that I would be carrying a box about in that way.
3545. You do not remember going in with a bag or bundle? No; I cannot remember what I have been carrying when I have been there.
3546. You have been in there so often? Not often, but at different times.
3547. Scores of times? No, not scores of times.
3548. When did you last see the man who kept it before the present man—I mean the man who went away to Greece? I do not know who kept it before. The same man has always been there since I have been going there.
3549. Will you swear that you did not know the partner who went away to Greece? Would I swear I did not know him?
3550. Yes? I do not think I know anyone who worked there. I might know them if I saw them.
3551. Do you mean to say you have heard from me for the first time that this man went away to Greece? For the first time.
3552. You did not know where he had gone? I never knew he had gone at all.
3553. Will you swear that? Yes.
3554. Do you know a man named Graham in the Department? Yes.
3555. Have you been in there frequently with him? I never was in there with him.
3556. But you have been there frequently with Musgrave? I never was in there with Musgrave.
3557. You swear that? I do.
3558. Now we are on the subject of shops I want to ask you about a few more: Have you been in the habit of frequenting a shop in the Newtown Road where tramway-tickets are sold? No; I never was in a shop in the Newtown Road.
3559. Perhaps I may help you by telling you that it is the shop in which Musgrave has a say, to use his own words? I do not know anything about it. I never was in the shop. I do not know where the shop is.
3560. You have had Musgrave running as assistant with you on the Bondi line, have you not? I think I have been assistant with him, but I will not be certain on what line.
3561. Do you remember a man who used to get on to the tram and converse with Musgrave? No, I do not.
3562. Not getting on as an ordinary passenger, but getting on to the tram and having particular conversations with Musgrave? No, I do not remember it.
3563. You would have us believe that you have not the slightest idea of anything wrong going on in connection with these tickets? No, not the slightest.
3564. Not the slightest? No.
3565. It came upon you as a great surprise? Yes.
3566. It was a perfect shock to you when you saw your name in the paper? When I saw my name in the paper it was.
3567. You had no idea whatever that anything of the kind had been going on? Not the slightest.
3568. *Mr. Thompson.*] You had not even heard it reported publicly? I did not believe it.
3569. And you did not hear it spoken of among the men? Yes; you could hear that and nothing else.
3570. Even before the exposure? Not before it came out in the papers.
3571. Not before? I never heard a word of it.
3572. Was it not common talk among the men? It was common talk in this way: They would say, "How much did you make to-day?" or something like that.
3573. And that arose from nothing you think—that is to say, that no man was making more than his proper earnings? I do not know what they were doing.
3574. And will you absolutely swear that you never put a pin in your register? Yes, I will swear that.
3575. *Mr. Brock.*] Or a piece of wire? Or anything.
3576. *Mr. Thompson.*] Have you done anything in the way of racing? Yes, sometimes I have.
3577. Have you made anything worth speaking about during the last two years? I have not made much.
3578. Were you in with Musgrave in the Newmarket Handicap when he made that lump? No, I was not.
3579. Do you mean to say that you cannot remember as a fact whether you did go out with Musgrave as a conductor? I remember going out with Musgrave as a conductor.
3580. On the Bondi line? Perhaps. I cannot say whether he was assistant or whether I was.
3581. Was he not always junior to you? Yes, I was always senior to him.
3582. Then how came you to be an assistant? That is often the case. We ranked the same, but I was getting more wages than he was.
3583. *Mr. Brock.*] How often did you run together in the same line? Not very often, not more than two or three times at the very outside.
3584. Did he never say anything to you about faking the bells? No.
3585. You never had a conversation with him about it at all? Never.
3586. And you never knew that he knew how to do it? No, I do not.
3587. Do you know now that he knew how to do it? No, I do not.

- A. Fraser. 3588. *Mr. Thompson.*] You do not believe then apparently that anything of this kind ever was done? Not to my knowledge. It could be done and I would know nothing about it.
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3590. How used you, when you were a conductor, to deal with the tickets that you took? That I took?
3591. Yes? Supposing that as a conductor you went out with your uniform and bag and so on, how used you to deal with the tickets you took, not when you were tearing them up, but when you were recording them with the bells? How used I to take them?
3592. How used you to deal with them? I put them in the bag.
3593. Always? Used you to take your dinner and your other meals with you in the car? Not always.
3594. Suppose you were away at the dinner-hour—you would have your meal on the car, would you not? Certainly.
3595. If not, you would have them in the yard or at the terminus? Yes.
3596. How do you carry your meals with you? I have a can; sometimes I used to have a basket.
3597. Will you swear that you never used to carry your dinner in your pocket? I never carried my dinner in my pocket.
3598. On no occasion? I am quite certain about that.
3599. Not as a blind to something you wanted to hide? I am quite certain I did not.
3600. Did you ever alter your uniform in any way to permit of your carrying an extra weight of any thing? No; I never.
3601. Were you provided with uniform trousers as well as uniform coat? Yes.
3602. Do you understand the question I put to you. Did you ever alter your uniform in any way? No; I never altered it in any way.
3603. Did you allow anyone to alter it for you? No.
3604. Did you lend it to anyone? No; I do not remember lending it to anyone.
3605. Did it ever come back to you from anyone altered in any way? No.
3606. Did you, although you did not alter it, make an addition to it. Now Fraser I will time you, if you are going to take all this time to answer such a simple question. How long are you going to be? You ask me did I ever put any addition to my uniform. No; I do not think I ever did; I would not be certain; I may have put a pocket in.
3607. You swore just now that you had never altered it? That is not altering it much.
3608. *President.*] What did you put a pocket in for? To carry my books; I always had more than I could put in my breast-pocket.
3609. *Mr. Thompson.*] Did you carry a big Bible about with you? No; I do not read it.
3610. What books had you to carry? A pocket-book, a rule-book, and a time-table.
3611. Will you give us some idea of how big your pocket-book would be—your departmental pocket-book I mean. You had no business to carry anything else? I had to carry the time-table and the rule-book. The pocket-book provided is about the same as the one you have in your hand; just the same I think.
3612. And the time-table;—how big is that? I think it is about as thick as that, and a little wider.
3613. You do not mean one of the ABC tables? No, a service time-table.
3614. How many pockets had you in your service coat, that is, how many pockets did you find there when you got your coat? Three.
3615. As you think you added a pocket to your coat will you tell me how big that pocket was? I do not know what sort of pocket I added to it.
3616. What have you done with that coat? I sent my uniform into the office, but I think I have a coat or two yet left at home.
3617. Uniform coats? Yes.
3618. Worn out coats? No, I have a new one. I could not find it when I packed the things up, because we were just moving.
3619. Have you an added pocket in your new coat. Do you invariably put a pocket in your uniform coat? I do not know. I do not think I did.
3620. What particular coat was it that you did put it in as you have some remembrance now about it? I cannot remember what coat I put it in or whether I put it in any or not.
3621. Will you swear that in view of the particulars which you have given us as to the necessity for putting this pocket into your coat in order to permit of your carrying certain books. You swore you know that having taken your oath you would tell the whole truth, although you admitted that you might tell a lie outside your oath, you said that when on your oath you invariably tell the truth. I have not the slightest hesitation in saying that you are shirking the truth if you are not doing something worse. You said you had to alter your uniform because the pockets were not big enough to hold your books. Do you suppose that anyone will believe you when you now say that you do not know whether you did it or whether you did not. Your way of giving evidence makes one very suspicious? I remember that I added a pocket to one coat, but I do not know what coat it was.
3622. On what part of the coat did you put this pocket? It would be in the inside.
3623. In the breast of it? Yes.
3624. Why did you not hand in all your uniform coats? I could not find them just at the time.
3625. How was it that you happened to have this one so handy? I think I sent in two, I would not be sure.
3626. *Mr. Brock.*] Did you send in the one with the pocket in? I will not be sure.
3627. Is this coat yours? Yes, that is mine.
3628. How do you know? I know the pocket.
3629. Which one? This one inside.
3630. *Mr. Thompson.*] That is the pocket you have been speaking about is it? Yes.
3631. That is the pocket you did not know whether you had put in or not? Yes.
3632. It is made of velvet is it not? I think so.
3633. Will you give us an idea what the length of it is? I don't know I am sure.
3634. It is about 8 x 6 is it not? I suppose it is about that.
3635. Will you swear that you put that pocket in for the purpose of carrying a pocket-book and time-table because the pockets already in your coat were insufficient? Yes; I swear that that is why I put it in.

3636. What used you to carry in the other pockets? I could not carry much in one of the pockets. There is a hole in it. A. Fraser.
3637. *President.*] Did you send your memorandum-book into the office? No, I did not. 1 Sept., 1888
3638. Why did you not? I did not think of it at the time. I can send it in though.
3639. You know that it is usual to send anything of the kind in, do you not? I do not know that it is.
3640. Do you know a conductor named Keen? Yes.
3641. What do you know of him? I know nothing of him. I have worked with him once, and that is about the only time.
3642. You are not prepared to certify as to his character? I am not.
3643. I want you to turn your attention to an occasion on which you met Keen coming out of a shop on the Newtown Road. Do you remember it? I do not.
3644. I will try to refresh your memory. When Keen came out of this shop you asked him if it belonged to him. Do you remember that? No; I do not remember it. I do not remember meeting Keen out at all.
3645. You do not remember asking him whether a shop in the Newtown Road belonged to him, and his replying to you in the affirmative. Will you swear that no such conversation happened? I do not remember it.
3646. Will you swear that you did not say to Keen, when he told you that the shop belonged to him, that you could always sell him two quid of tickets if he wanted them? I swear that I never said that.
3647. You swear that you never said it? Yes.
3648. And if Keen has absolutely sworn that that conversation took place between you he has sworn that which is false? It is a deliberate falsehood.
3649. How long had you your bells before you left the Service? How long?
3650. Yes. Did you not give them up when you gave up your coat? Yes.
3651. How long had you had them? Before I left the Service?
3652. Yes? I could not say.
3653. Will you give us an idea of how long? I have not the slightest idea. I have had a good many pairs of bells.
3654. Had you them six months? I do not think I had. I do not think I had them more than three.
3655. You are aware of the fact that the bells you gave up had been tampered with, are you not? No; I am not aware of it.
3656. We can inform you of the fact that the bells you gave up, and which you had had for three months, had been tampered with? Not by me.
3657. Will you swear that they were not tampered with by you? I swear it.
3658. It is awkward that they should have been in your possession for three months in this condition. Are you curious to know what they would do? Yes.
3659. Do you not know very well yourself? No, I do not know.
3660. This register that has been returned by you is in such a condition that when a pin is inserted it rings without registering the fares? I know nothing of that.
3661. That is the awkward condition in which your bells were returned after you had been using them for three months. Have you anything to say to that? I know nothing whatever about it.
3662. And you say you may have had them for six months? I may.
3663. However long you had them you know nothing as to their being in this condition? I know nothing about it.
3664. If the bells therefore had been opened and a portion had been filed away it had been done entirely without your knowledge? Entirely.
3665. Do you know a man named Hunt? Hunt?
3666. Yes? I know several named Hunt.
3667. I mean a man who has a shop in Crown-street? Yes, I know him.
3668. Are you in the habit of frequenting that shop? Yes; I live a few doors from there.
3669. You are pretty often there? Very often.
3670. Do you know that he was fined for selling tickets without a license? I do.
3671. Where did he get those tickets from? That is hard for me to say.
3672. Don't carry on this fool's game any longer? What fool's game?
3673. This game of telling untruths? I am telling the truth.
3674. You have not the slightest idea where he got the tickets? Not the slightest.
3675. You know that these tickets he sold were not in sheets, but were in twos, threes, and fours? I never bought tickets from him.
3676. But you were often there, and therefore, I suppose, have often seen tickets there? I have seen him selling tickets while I have been in the shop.
3677. What did he keep the tickets in? I could not say; I was never behind the man's counter.
3678. Where did he get them from when he sold them? From behind the counter somewhere.
3679. Did he not lift something out from behind the counter? Not in my presence.
3680. And you swear that you never saw the stock of tickets from which he was selling? I have seen him sell tickets.
3681. But the stock? I never saw that.
3682. When was he fined for selling without a license? Not long ago.
3683. Since this blow-up has occurred or before? Since.
3684. Has he ever had a license? Not that I know of.
3685. How long was he selling tickets without it? I do not know. He was selling when I moved into that street.
3686. How long ago was that? Eighteen months.
3687. During the whole of that time, as far as you know, he has been selling tickets? As far as I know.
3688. And he has never had a license? I do not think he ever had one.
3689. Do you know a barber who keeps a shop at Waverley, not far from the Bondi junction? No.
3690. You don't? I don't; I don't know anyone there.
3691. You do not know Dominick the barber? I do not. 3692.

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3692. You swear that? I swear it.
3693. Or Tom the billiard-marker? No.
3694. We must have been egregiously misinformed, then;—I would like, for your own sake, to refresh your memory about this conversation with Conductor Keen? I cannot bring to mind ever seeing him out. The only time I was ever in his company was at night. We went to North Shore together. It was church-time on Sunday night. I believe that was the only time.
3695. Have you ever been cautioned by anyone about suspicious conduct on your part? No.
3696. You are quite sure? Yes.
3697. So that this conversation sworn to between yourself and Keen is a pure fabrication? I do not remember saying such a thing to Keen.
3698. Were your transactions so multifarious in that way that you do not remember one or two of them? I do not remember being in his company except when we went to North Shore.
3699. Did you ask him then if he had a shop in the Newtown Road? No, I did not.
3700. *Mr. Thompson.*] Do you remember the subject of your conversation with Keen that night? We went over to see the North Shore tram-cars. That is what we went over for.
3701. How did you happen to go with Keen to see the North Shore tram-cars? He asked me to go, and paid my fare over and back.
3702. You had no conversation with him before? Nothing, only what we had in the conductor's room. I do not think I ever worked with him.
3703. Yet he singled you out to join in this little excursion to see the tram-cars? Yes.
3704. And during that little visit no conversation turned up about the tickets? No, none.
3705. *President.*] You did not press him about them, and say, "I have not had any of those from you yet;" will you swear that? I will swear I did not say that.
3706. *Mr. Thompson.*] Did you consider it your duty, while you were in the Department, to behave honestly in all respects by the Department? Yes, I did.
3707. And you did so? I did.
3708. You have already told us something that shows us that you did not? I did as far as I know.
3709. You consider it your duty, and you did it? Yes.
3710. Did you not know that Hunt, in selling tickets without a license, was cheating the Department, and cheating you as one of the public? No; I did not.
3711. And you do not know that it was wrong? I do not know that it was wrong. I think that at that time anyone could sell tickets without a license.
3712. Therefore he ought not to have been fined? There has been an alteration since then.
3713. Do you know when the alteration came in? I could not say how long ago it was.
3714. But roughly? I have not the slightest idea how long ago it was. It might be three or four months, or it might be six months.
3715. What took you so often to Hunt's shop? I used to go in there to pass the time away.
3716. You told us that you betted a little on horse racing; were you concerned in any of these foot handicaps? Yes; I have been to the Botany and the Carrington grounds.
3717. And have betted there? A little.
3718. You were a bit of a runner yourself? I never could run.
3719. Do you know a man named Scott, *alias* Curran, *alias* Brown, a great chum and pal of Musgrave's? I do not. I do not know any of Musgrave's pals.
3720. Do you know a man named Whetton? No; I never heard of the name.
3721. Did it never occur to you to ask Hunt how he came to be selling tickets in the way he was after you knew that he ought not to sell them without a license? No; I never asked him anything about it.
3722. It never occurred to you to ask him? No.
3723. It never occurred to you to inform the Department that he did this thing? No.
3724. You would have thought that that was informing? No.
3725. Has anybody tried you at all, to see whether you would go crooked with regard to selling tickets? No.
3726. No one has suggested it or tried it? No.
3727. Did you never hear of a man going about trying the conductors, a man who nearly got his neck broken on one of the cars one day, asking them if they could sell tickets in the cars? I have heard it lately.
3728. Only since this inquiry? Only since. No man ever came to me about it.
3729. You did not hear it from the conductors long before there was any noise? I heard Grecley say in the room that he had seen a man with a bag full of tickets.
3730. In what room was that? In the conductors' room in the yard.
3731. Do you mean tram-tickets? I do not know what sort of tickets, he said "a bag full of tickets."
3732. Did he mention the man's name? No; he did not.
3733. You are sure? Quite sure.
3734. Was that in the presence of several others besides yourself? Yes; several.
3735. How long ago is that? About five or six weeks ago, or it may be only four weeks.
3736. At any rate it is since you dismissed or suspended yourself? No; it was before.
3737. *Mr. Brock.*] You were awfully indignant at being accused of this? I was.
3738. What would you have done if any of the conductors doing it had suggested it to you? I would have had nothing to do with it whatever.
3739. What would you have done if you got the slightest inkling that such a thing was being done. Since you are such a moral man what course would you have taken? Well I am a bit moral sometimes.
3740. Supposing it had been suggested that you should join them in this game? I would not have joined them.
3741. What would you have done? I would not have done anything.
3742. You would not have gone to the Department and reported it? No; I would not.
3743. But if you had looked at it going on you would have been as guilty as the men who were doing it? But I never looked at it.
3744. *President.*] You told us just now that you had never been cautioned by anyone as to your conduct being under suspicion. I should like you to reconsider that answer? I never was cautioned.
3745. Do you know a gentleman named Finegan in the Department? Yes. 3746.

3746. Will you swear that he never came to you and said, "Fraser, you had better look out what you are doing, because Mr. Roberts is suspicious of your conduct?" He never came to me and said such a thing. A. Fraser,
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3747. Not in any shape or form? Never.
3748. Have you ever had any conversation with him? Yes; I often see Mr. Finegan.
3749. And never at any one of these conversations did he give you this message, this word of warning? He never did.
3750. That you positively swear? Yes.

MONDAY, 3 SEPTEMBER, 1888.

Present:—

A. RICHARDSON, Esq., PRESIDENT.

F. A. BROCK, Esq., J.P.

Griffith Jones, Esq., called in, sworn, and examined:—

3751. *President.*] You are a solicitor practising in Sydney? Yes.
3752. We have asked you to attend, because we have been given to understand that you have some information to give us in connection with the fraudulent sale of tram-tickets? I decline to mention names, because no good can arise from it. My informant is dead, and he gave me no information as to the parties connected with the transaction. This gentleman said to me one day, not thinking I suppose of what he was saying, "I do pretty well out of tram-tickets." I replied, "How do you do well out of them; the Government allowance is only 1½ per cent.; I should think they were not worth selling. I often wonder that people do not strike and refuse to sell them." He said, "I do better than that." I replied, "How do you do better than that?" He said, "A couple of fellows on the trams dropped in and asked me if I wanted any tram-tickets. I said that I did and I did not. They said they had 20s. worth and that they would take 10s. for them. I took the tickets and asked no questions."
3753. We know the man's name; it was a tobacconist in Oxford-street;—how did you get to know this? It was quite casually.
3754. Why did you not expose the man at once? I did not think it had anything to do with me.
3755. Did you never ask him any questions about it? No; I never thought any more about it. He just said to me, "I asked no questions, and I was told no stories about it."
3756. Did he never speak again about it? No, never.
3757. Did you not actually see him take £10 worth, and give only £8 for them? No; I never saw him either buy or sell tram-tickets.
3758. This was merely a conversation that he did better than under his license;—he had a license, I suppose? That I do not know.
3759. Was that the whole of the conversation? Yes, that was all.
3760. Was that the statement you made to Mr. Roberts? That was the statement I made.
3761. Were you in Mr. Roberts' office on business, or did you go to tell him? I was in on business, and I saw the fraudulent bells on the table. I said, "By Jove, Jim, that brings back to my mind that a fellow said to me some time ago that he could get a pound's worth of tickets for 10s.;" and Mr. Roberts said, "Well, yes, that is how it was done." If I had thought I would have been here I would not have said anything about it.
3762. Is that absolutely all you are able to tell us? Yes, that is the whole.
3763. Did not the same person tell you, mentioning the name of Musgrave, that this individual was making £10 a week selling these tickets? No, and he never mentioned any names. I was standing in the shop, and he simply said what I have told you.
3764. Was he a client of yours? No, he was not a client.
3765. Well why not give his name? It would be a breach of faith, and could do no good.
3766. I cannot understand it being a breach of faith, under ordinary circumstances? Well, when I mean a breach of faith, I thought about his being dead.
3767. And really, at the time, is it not strange that you did not follow it out in your mind? No; I never gave it a thought until I dropped into the office and saw Mr. Roberts explaining to the reporters. I was one of the witnesses as to how the thing was done with the pins.
3768. *Mr. Brock.*] But you do not think that 20s. worth of tickets can be properly sold for 10s.? Certainly not.
3769. Did you not consider it your duty to let the Department know of such a thing being done? No. Supposing a man had twenty boxes of smuggled cigars, do you think I should run down to the Collector of Customs and tell him?
3770. If you saw a man kill another, would it not be your duty to inform of him? That would be a different thing.
3771. *President.*] Do you know a man named Musgrave? I do not to my knowledge.
3772. How long ago is it since this person told you? Eighteen months.
3773. You are quite sure that he did not point out to you any person? How could he? It would be a most singular circumstance if he did show me any person. The whole thing was done in a second.
3774. Was there nothing else? I know nothing more whatever.
3775. It would be very desirable if we could get from this clue some information which would assist us in our work. Do you know if the person who told you had a ticket license? I saw some sheets in the window.
3776. *Mr. Brock.*] In this same shop? Yes.

William Moran recalled, and further examined:—

- W. Moran. 3777. *President.*] You have, I believe, some further information to give us? Yes. On March 29th last I followed Graham on to a Waterloo tram. From seeing him frequently in close conversation with Fraser and Musgrave I suspected there was something wrong. I said to Graham, "You know there is something crooked going on. I know that you know it, and you had better tell me." Graham said, "Well, I know that the Department has been robbed." I said, "How do you know it?" He replied, "I went into either a public-house or oyster-shop with Fraser and Musgrave; they were a bit 'tonicked,' and they had their pockets full of tickets." I asked him how they got them, and he replied, "They faked the bells." Previous to this he had said to me that he did not want his name brought up in this matter, and he would not have it mixed up in the business. Judging from that I thought he might deny having spoken to me.
3778. Did he tell you of the wire then? No not then. I asked him how he knew this and stated he could prove to me that the bells were "faked." I then went to the Superintendent and told him what Graham had said, and asked permission to take a pair of bells out of the office so that Graham might show me how it was done. Mr. Roberts said, "We have heard that yarn before, but I will get you the bells, and see if you can carry it out."
3779. Did you get the bells? Yes. I waited for Graham, and saw him on the top of a tram going home. This would be on the 2nd April. I got into a conversation with him, and he said "Tommy Musgrave is making a punch." I then said, I did not see how it could be done with the bells. He replied, "It is done. They insert a piece of wire in the bell and though it rings it does not register." I then said, "Now Graham, here is a pair of bells; you know how it is done; show me." I pulled the bell out, and he replied, "Well, I do not know how it is done; but I saw it demonstrated to me by Musgrave and Fraser." He told me he could not explain the process of how it was worked, but he knew that something had been done with the inside of them. I had a piece of wire with me, and inserted it in the stock of the bell. He replied, "The inside of the bell has to be faked before it will work with a wire." He told me that things were a bit blown about Greeley's coat, and he said, "I will know when they are doing it again and will let you know. You can then come on them when they have their tickets about them." He said, "Mind you, if my name is mentioned I know nothing about it." I said to him, "Then you know all about it, and it is your duty to assist in exposing it." He replied, "I am not going to be an informer, and if anything happens I know nothing about it." He positively declared that he did not know how it was done, but he admitted that they had proved to him that the bells would ring but not register. I took the bells back to the office, and told Mr. Roberts exactly what Graham had told me, and suggested that the bells should be submitted to examination to see if it were possible to fake them. Wigg and I were told that it could not be done.
3780. By whom? By Mr. Roberts, about three days afterwards—it was an old yarn that it could not be done. This threw me off the scent, and made me think Graham was hoaxing me. After this I kept a watch on Musgrave for some time.
3781. Did you see Graham again? I saw him several times, but he said they were not doing it again yet.
3782. You told him the result of the examination? Yes, and he said it had been done and could be done.
3783. Did you go to see the repairer? No; we have to put in our report or written statement to the Superintendent.
3784. Was Mr. Tyrer there when Mr. Roberts said it could not be done? I do not remember. Wigg was there. I then saw Musgrave collecting tickets just after leaving Bent-street. I jumped on the car to speak to him, but as soon as I stepped on to the car he stepped down on to the foot-board, and as he stepped down I saw in the coat-pocket some tickets.
3785. How many were there? There must have been a good few for me to see them. He hurried along the foot-board and up the opposite stairs. I went up at once, but when I got up I saw that he had removed the tickets and put them into his bag.
3786. Did you challenge him? No; I did not.
3787. Did you see the wire? No; but I was looking for it.
3788. *Mr. Brock.*] It would have been very easy to have taken Musgrave's bell? Very easy, but we have no authority to take bells. I made no remark with reference to it, for I saw that he was "fly," and knew what was up. I went back and told Mr. Roberts what I had seen. I suggested then that he should be pounced upon quickly and quietly.
3789. When did this occur? About the first week in April, just before the Hendy business. Mr. Roberts challenged him when he came back, and he denied it, and denied it indignantly.
3790. Were you present? No, I was not present.
3791. Do you think Musgrave knew who gave Mr. Roberts the information? Certainly he did. Previously to this Wigg and I suspected, from the way he was going around and dodging away from us whenever we got on his tram, that there was something wrong, and Wigg said to me, "If we only had the authority to search that fellow something important would turn up out of it." After this Mr. Roberts arranged to come on him suddenly, and take his bag and bells from him.
3792. Who did he arrange that with? With Wigg. This was about the 23rd April.
3793. Do you think that Colls could get that information? No.
3794. Do you think that Musgrave got it? I do not think so.
3795. Did he know that he was suspected? Yes.
3796. Did they catch him? Yes; they came on him at Queen-street.
3797. Did they search him? No. They took his bells and bag from him.
3798. Were you present? No.
3799. What was the result? The tickets and register were right and square.
3800. Did he show any signs of fear when they took the bag and bells from him? No. He handed them over apparently quite pleased.
3801. *President.*] Is it not a fact that, until Ferrier had told his tale in Greeley's room, the Department was really without definite information as to mode of covering fraud? Yes.
3802. *Mr. Brock.*] But Graham had told you some time before that the bells were faked? Yes; but after he had told me that the bells were faked they were submitted, I was told by Mr. Roberts, to the examiner or repairer of bells, who, Mr. Roberts told me, gave it as his opinion that it could not be done, and this report led me to believe that it was a mistake on the part of Graham.

3803. Was this a professional report? Yes; this was the next step I took,—not yet being satisfied I questioned Graham several times, watched him, and saw him frequently meet Fraser and Musgrave and talk quietly to them. I repeatedly said to him, "Well Graham, are they doing it yet?" and he said, "No, they have given it best; I think they are afraid." On another occasion I met him at Botany and asked him. He then said he did not know—he was having no truck with the other crowd he said. Nothing further turned up for some time beyond our following Cook. We watched him and saw him frequently jump on trams with Musgrave and Fraser, ride to various parts of the run, and then get off. I repeatedly saw Cook coming away from the tram with a bag and followed him. Mr. Roberts sometimes accompanied Wigg and me in order to see this mysterious jumping on and off. The next thing was Greeley's statement about Cook getting on and off, and about Cook's overtures on the day of the Rosehill Races. This took place at (say) 10 or 10.5 a.m. Even at that time, when Greeley told me that Cook said he would show him how to work it, I found it hard to believe that it could be worked in the face of the expert's report that it could not be done. Cook, however, never turned up to show Greeley. After this Ferrier came on the scene, and Greeley told me that Ferrier would show him how it was done. It was on the 27th June. Greeley told me this, and on the 7th July I was in the bedroom when Ferrier came. I had got behind the bed, and Ferrier said when he got up-stairs that he was a bit nervous. He struck a match and blew it out, being apparently satisfied.

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3804. He put the match out? Yes; seemingly satisfied.

3805. How did the conversation commence? I forget how it commenced, but it is just what I have said in my examination previously. This now completes the evidence I can give you I think.

Henry D. Elliott called in, sworn, and examined:—

3806. *President.*] What is your name? Henry D. Elliott.

3807. You have been connected with tramways? Yes, I have been on the tramways in San Francisco, and New York, and elsewhere in the United States.

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3808. We think it would be to the advantage of the Commission to have detailed to them the system upon which the tramways with which you are acquainted are worked? The system is called the bell punch system. It is used in Edinburgh, Dublin, Melbourne, and all over the States, and the following are the particulars of its working:—

COLLECTION OF FARES UNDER THE BELL PUNCH SYSTEM.

Fares to be collected.

A FARE either in cash or tickets must be collected from every passenger except Inspectors in uniform.

Passenger's luggage.

Passengers may carry personal luggage up to 28 lb. weight, or eighteen inches square, free; but such luggage must be put under the seats or carried in the lap. Full fare must be charged and punched for any article over that weight or size. No article to be taken over that size which cannot be put under the seats, or which would inconvenience other passengers.

Care to be used in taking fares and giving change.

Great care must be used to collect the proper fares, according to the rates shown on the printed notices, from each person who rides, and to give correct change. Conductors are expected to pass away the bulk of the copper coin received by them, but must never try to force passengers to take it against their will. Must never give tickets as change.

Method of collecting fares.

Fares to be collected on each trip as soon as car has passed points fixed by notice, beginning at the front of car and working back to rear platform. As the fare is received the conductor should notice the passenger's face so that he may not ask for it again. The conductor must announce distinctly as he reaches each section of car *Fares ready, please.* After first collection, other fares must be taken immediately after the passengers have entered and seated themselves, but must not be taken while passing cross streets.

Fares to be settled before being punched for.

When collecting fares for more than one person, or for children or luggage, the conductor must state how many he requires, and have a distinct understanding before punching as to how many or for what luggage he is to be paid. He must be especially careful in reference to half-fares and luggage.

Mutilated tickets.

If passengers present mutilated or defaced tickets he must refer them to the head office to exchange them.

Action of conductors if unable to collect fare.

If unable to collect fares from passengers, through inability to give change, or owing to a passenger being without money to pay the fare, the *slip* must *not* be punched, but the name and full address of passenger obtained, and entered on back of day report with particulars, and passenger must be asked to call at head office and leave the fare.

Supply of change.

Conductors must keep themselves supplied with small change to the extent of £1 at least for the purpose of making change for passengers. Failure to exhibit change as above, whenever called upon by inspector, will render the conductor liable to suspension or dismissal.

Outfit to be obtained, &c.

A few minutes before starting the day's work, each conductor must obtain from the receiver a bell punch, a supply of up and down trip slips for each rate of fare, trip reports, tickets for sale, day report form, a pocket-book to hold his papers, and he must replenish his small change. Up trip means towards the suburb, down trip from suburb to city. The above out-fit must be carefully examined at the time of receiving it from the officer, and any mistake must be rectified at once, as no claims will be recognised after conductors have left the office window. The punch must be signed for on the proper sheet by both conductor and receiver, whenever received by them.

Position to wear trip slips.

Before starting from either end of route an up or down trip slip, as the direction may require, for the full or half fare, with the blanks properly filled in, must be attached to the coat in the right position, the full fare slip to the left side and the half fare and penny slips, when used, to the right side.

Fares

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Fares to be registered, and in the presence of the passenger.

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Each full, half, or other fare received, whether in cash or ticket, must be recorded on the proper trip slip by the punching out of a number for it. The slip being held with the left hand and punched with the right, the lowest numbers being punched first. The slip must be punched and the bell rung in the presence of the passenger who pays the fare and before others are collected. If change has to be made the slip must first be punched. Any wilful violation of this rule will be sufficient to cause the immediate discharge of the offender.

Directions for making up returns.

When within three minutes of the end of each up trip conductors must make up their trip slips for both half trips, first counting the holes that have been punched out, and entering the number as fares in proper place on the trip slip, count their tickets and cash, fill in the blanks in the trip slips, and copy results on the trip and day reports ready for making returns at the Office. If more than one trip slip is used on each up and down trip they must be numbered consecutively in the proper place and returns entered on last slip used.

Fares collected to be paid in each trip.

All fares collected and cash received must be handed in to the receiver's office at the end of each trip with the proper returns.

Tickets to be kept distinct.

The various kinds of tickets received must be kept distinct and fastened with an elastic band and handed to the receiver in neat condition.

Day report.

After the returns of each trip are made up, but before they are handed to the receiver, the totals from the trip report must be entered in the day report distinctly and accurately at the end of the day's work. The day report must be deposited in the Superintendent's letter-box. Before leaving the receiver's office, after finishing day's work, conductors must prove their day report correct.

Punch to be carried on strap, &c.

The punch must always be carried hanging by its strap outside the coat or overcoat at the right side, and when in use must be held with the handle upwards. Must only be put in coat-pocket when shunting.

Punch to be handled with great care.

Great care must be used in handling the punch. Should it be injured from any cause while in the possession of the conductor he will be required to pay the amount of damage. Should the punch be lost conductor will be charged £12 (twelve pounds).

Handling of punch.

Must never allow any person except the punch inspector to handle the punch after taking it from the office, and must never exchange it with other conductors.

All shorts charged to Conductors.

The register of the punch indicates the number of fares collected, and if the punch system is worked correctly will correspond with total shown by the trip slips and day reports. If it does not correspond all shorts will be charged to the conductor at the highest rate of fares, and must be paid by him unless accounted for to the satisfaction of the Superintendent. Errors of any kind will indicate carelessness, and be a sufficient cause for discharge.

Punch to be returned when going off duty.

The punch must be returned to the receiver every time a conductor goes off duty and obtained when he starts again. At the end of the day he must hand over to the receiver his badge, punch, pocket-book, unsold tickets, and all unused trip slips and other forms and reports. The trip slips and other forms must not be defaced unnecessarily or wasted.

3808 $\frac{1}{2}$. *Mr. Brock.*] Are there any cars in use like those in Sydney? No.

3808 $\frac{1}{2}$. None with doors in the sides? No.

3809. *President.*] Those in use here were brought from Philadelphia and were in use there at that time, 1879? I believe there are none in use there now.

3810. Will you now continue with your description please? These punches are made by a New York firm. They establish one general agency in whatever country the system is to be adopted. This is to prevent fraud and to prevent other people using their bells. The punches are simply lent to the parties.

3811. Is it their punches which are used in the cities you have mentioned? Yes, they are all simply rented to the companies.

3812. *Mr. Brock.*] Was this system tried in New Zealand? Yes.

3813. Can you get a punch? Yes, I will get one from Melbourne. In Dublin they are worked on a ticket instead of a slip. The punches are opened by a word or alphabet. There are two alphabets which spell the word and open the punch. These are the slips used in Melbourne. I got them from a friend of mine. The punch is perforated on one side, and when a slip is punched the bell rings so that it can be heard by everybody. The other side contains a register similar to those you use here. The slip is attached to the conductor's coat, and it has one number for every fare taken. By the colour of the slip the amount of the fare is told. The total amount of money taken at each punching is also shown on the slip. Every piece punched out of the slip goes into the rim of the punch, and is retained there. The punch registers one for each time the bell is rung off whether rung on the slip or not.

3814. *President.*] What do you mean by ringing off the slip? The bell may be rung accidentally but it would still register.

3815. *Mr. Brock.*] What would be the total carrying capacity of your car? I do not know. I have seen a great number on it, over the carrying capacity. The sitting accommodation is generally forty-four. The largest number was when there was a load on the platform besides the car and dummy.

3816. *President.*] How does the conductor take the fares then if his slip is limited to forty-four? He can use as many slips as he likes. He receives in the morning as many as will last him all the day. The half-fare slip is on the right side, and the full fare on the left. Then there is a trip report. These trip reports must be made up at the end of every up-trip, and passed into the office. The punch is kept until the evening.

3817. When does he hand in the trip slips? At the end of every journey. He takes the totals from the slips and puts them on the report.

3818. You have had a good deal of experience in tramway work? Yes, and I am confident that this system would answer here.

3819. Let us understand how you would apply this system to our tramways? There is a receiver at the office, who receives all the cash taken by the conductor on each trip, together with the trip-slip and report.

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3820. *Mr. Brock.*] How does he manage if there are more passengers in the tram than he has on his slip? He would use a second slip, and, if necessary, a third. This could be remedied though by making the slips longer, according to the carrying capacity of the car.

3821. Suppose you run three cars heavily laden, you would be bound to have a conductor on each car? No; I think two would do for the three cars.

3822. Suppose you had two long cars on one occasion and the conductor goes out with these loaded and he comes back with a double car, how would he manage? It does not matter whether the slips are made for the carrying capacity of the car or not. They are usually made so, but it is of no consequence, as when one slip is done with another will replace it. His trip slip will give an account of the number of tickets taken. The punches are sent up to the head office in the evening, or whenever a conductor goes off. When the register is read, if it agrees with the total number of punches in the rim, the tally is right, but if they do not agree the conductor has to pay the deficiency if he cannot account for it satisfactorily.

3823. Do they often show an incorrect return? No; the balance is exact in the majority of cases.

3824. Suppose the man is engaged on the evening or morning trams, when the traffic is very great, would he bring out a perfect balance? Certainly. The rule is made, and should be made here, that the conductor does not start collecting the fares until a certain block or cross street is reached. Then he collects the fares from all the passengers riding on the car. In doing this he has to sell some tickets and give change. At the outset he has six or twelve dozen tickets given him to sell to the public, at the rate here of (say) 2d., or one dozen for 1s. 10d. He is only allowed to sell by the dozen. These tickets are all numbered and lettered. I do not approve of your tickets; they are not numbered or lettered, nor is there any water-line on them.

3825. *President.*] Are you sure of that? Well I cannot see any, and I have looked carefully.

3826. They are water-lined, but I believe the line can be seen only with a glass. What is the object of lettering or numbering them? It is a check to prevent them being imitated. The first sheet of our tickets is numbered A; the next would be B, and so on.

3827. You do not sell to anybody to sell again? There are very few tickets in circulation, except those which are bought from the conductors on the cars.

3828. You think there would be no difficulty in adopting that system here? No. It may not seem so handy at first, but people would soon find the benefit in having it.

3829. You see here tickets are the rule and cash the exception; what is it in New York? The opposite—cash is the rule, tickets the exception, except in the case of regular travellers. You would find if this system was adopted the public would prefer it to the present system.

3830. Say a conductor enters a car going to Waverley, which is crowded from end to end; he commences collecting his tickets from the back of the car he is on;—what is his first process? Conductors always start from the front of the car with us and work backwards.

3831. Under our system he gets rid of each compartment in half a minute; under your system how long would it take? The conductors will take cash just as fast as with your system they take tickets.

3832. Say that one or two out of the ten in the compartment want change for half-a-crown? He will give change as easily as tickets.

3833. I should estimate that it would take three times as long under your system as it does now under ours? Our system can be worked equally as well as yours. Passengers will buy tickets when they get used to the system, especially when they get them cheaper. As regards missing fares here, I have seen several miss their fares. We find that with a full car there are fewer misses than with a light car.

3834. But you do miss fares under your system;—I thought you did not? Well, there are some persons who always make it their object to try and miss paying their fares.

3835. How is your traffic worked? We have first-class and second-class conductors. The first-class conductors work the regular traffic, and are paid regular wages. The second-class conductor we pay by the trip, and he does not do so much work. The first-class are men who have been in the second-class, and have by their conduct received promotion.

3836. When do the second-class conductors work? They work night and day during the busy times.

3837. I want you to consider one of these heavy trips very carefully. We have cars holding ninety, and these when rushed will have 120 packed on them. Our sixty-seat cars will carry eighty on a push. You must remember that you are carrying on the top, and that you have a difficulty in wriggling in and out amongst the passengers, some of whom are jammed on the platform, others on the steps, and who are sitting round the rails. You probably have to sell a dozen or more tickets during your progress round and through this crowd, as well as to give change here and there, besides which you must recognize the fact that the traffic is run with a great deal of danger; you have therefore, at each stopping-place, to look out for passengers getting in and out on the proper side, cross over to the other side to see that everything is clear, and then blow your whistle. How long do you think it would take your conductor to complete his work? Well, say he starts at Market-street, he would complete at Liverpool-street.

3838. You must remember that he has perhaps collected up to a certain point, when he comes to another stopping-place, has to leave the collecting, go through the same performance, looking right and left, before he blows his whistle, then return to the point at which he left off collecting, and begin again. Do you not think he will miss some fares? I do not think he is likely to miss his fares, as he knows from whom he has collected; we miss very few, although we run workmen's trams at about 1½d. each.

3839. Where would you start from to collect an upper-deck load; from the passengers on the stairs? We commence with the passengers who are standing up.

3840. We will say that you have collected all the standing fares, and you have got to the near side of the top deck, when you commence and take four fares; you then come to a stopping-place; you have to look over the side to see passengers getting in and out, then cross to the other side to see that everything is clear, also blow your whistle, and go back to the place where you left off collecting. Do you think you would readily pick up the point where you left off? I think so.

3840½. How do you do with your conductors when they first come on? The conductor is put on trial for a fortnight before we accept him. He is put with an old hand, and when the old hand thinks him fit he is put on by himself. The inspector will then go in the busy time of the day and watch him. He has a good deal of bother at first with his time-card, as he has to be very particular in keeping time. He must collect

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- collect his tickets and get to the time-point at the proper time. If he gets there before the time notified on his card he has to wait till his proper time to start, and to see that everybody is seated before he starts. After two or three trips at different times the inspector makes his report. The inspector very quickly tells whether the man is any good or not, and if he is not he is discharged. During the fortnight he is on trial he receives no pay. Our seats are wider than yours, and there is sufficient room for people to stand between the seats. The conductor has to make entries on his trip report and day report as to the number of fares taken, the amount of cash received, and other items.
3841. When is the man to make these reports? He makes his trip report, and when he gets near the end of the up trip. He commences to fill this in when nearing the end of the journey.
3842. How can he do this and collect his fares at the same time? When nearing the end of the journey there are no passengers getting in, and all the tickets have been collected, so he has nothing to do. He commences making up his trip-report from the trip-slip, by counting the holes punched, and entering their number as fares in the proper place for passengers, employees, &c.
3843. How does he do with Service tickets? He punches for them the same as any ordinary passenger.
3844. You issue Service tickets then? Yes. He then counts all his cash and puts it down, also the number of tickets he has sold. He does the same at the suburban end. He keeps the totals of all his trip-reports, to enter into his day book report.
3845. *Mr. Brock.* What do you mean by up-trip? Up-trip means with us from the city to the suburb; down trip, to the city.
3846. *President.*] Then your terms are the opposite of ours? Yes.
3847. What does he do with these reports? He gives them, together with his cash, to the receiver each trip. If he has rung off accidentally he must report it also.
3848. How do you mean accidentally rung off? By pressing accidentally the lever he rings the bell, and thus registers a fare against him. He must report it, or he will be charged with the amount.
3849. Supposing a man finds himself half a dozen fares wrong? He knows that he will have to pay for them, and will be careful not to make such a mistake. If he does accidentally do so he must report it, and it is an evidence of carelessness. If it occur again the punch is taken from him and he is discharged.
3850. *Mr. Brock.*] The man must know how many there is in the punch from his tickets? Yes; and if he has rung more than that number he makes a report of having rung but not having received any fare for it.
3851. *President.*] Assume a case where a man is about to cheat; he has punched correctly; and he writes on the back of his report: "There was a great crowd on the top, and I was very much pushed and pressed, my bell rung perhaps a dozen times more than it should have done"? We accept this explanation, but if it occur three times he is dismissed as incompetent. We also have private detectives, called "spotters," who receive a certain number of tickets. They travel about on the cars watching the conductors, and they make a report for every ticket used. They take notice of the number of passengers on the trip, and send in a report of the trip in the same way as the conductor. These reports are compared in the office to see if they agree.
3852. How many of these detectives have you? We only have a few of them. They are generally drafted off or discharged.
3853. You must admit that on a crowded car there would be a reasonable chance of the conductor missing a few fares; let us say he is a regular hand and a good careful man; how do you detect him with your "spotters"? He would be called on to make an explanation, which would be considered. Our notices state that it is the duty of the conductor to furnish a fare for every fare received, and the public know this. I have known a case in which a conductor took a fare and did not punch it. The passenger looked up and asked him why he had not punched the fare. The conductor said, "I have punched it with a pencil, my bell is out of order." This may occur, and the passenger not hearing the bell may tell the conductor that he will report him.
3854. *Mr. Brock.*] These trams generally belong to private companies, and they have friends who are always looking after their interests? Yes.
3855. *President.*] When a man is collecting tickets in a crush he may punch only four instead of five? We only allow him to take one fare at a time.
3856. You are still convinced that they could collect correctly with a very crowded car? I am sure they could.
3857. How do they do when the punch breaks down:—what check is there on them then? They must report to the receiver.
3858. A dishonest man may make a harvest on one trip with a broken register? Oh yes, he might, but it seldom occurs that the bells are out of order.
3859. Have you seen any of our crowded cars (say) on the Waverley or Leichhardt line? Yes. When we send out a car that we know will be heavy we send another collector with a bell punch.
3860. How many conductors or collectors would you have on a Botany tram? We would have two—one on the top and one below.
3861. By this means the upper deck man would be free to collect his fares without regard to the safety of passengers getting on and off? Yes; the lower man would attend to that and look after the public safety.
3862. You have a collector on the dummy and one on the car? Yes, and we have inspectors who count all the passengers and then notice how many the conductor's slip shows.
3863. I understood from you a little while ago that this system was so reliable as between the trip-slip and the day report, that they balance exactly;—why then do you require to pay inspectors if that is the case? Yes, providing the conductors are honest, we would not require them, but in order to protect ourselves we keep them, and the conductor does not know the minute one may come. It is a perfect test, and they are employed to prevent fraud.
3864. How much do you pay these inspectors? We pay 6 dollars a day.
3865. How many do you employ? Only a few, say two or three on five or six roads. The head inspector is the only one who handles the punches, opens them, reads the drums, and sees that they correspond with the trip-slips.
3866. In order to make the system perfect with us how many inspectors would you require? About four.
3867. Do they wear uniform? Yes; and they ride free. Spotters get 2 dollars a day.
3868. How many spotters would be required? Two.

3869. What are the duties of the spotters as you call them? They get on a car and count the passengers; then get off. They also notice the number on the conductor's slip, and if satisfactory he says nothing. The next day he jumps on at a different part of the trip, and then possibly does not go on that car again for some days. Of course certain conductors would be followed up repeatedly if they were suspected of being dishonest.
3870. He does not speak to the conductor? No he simply counts the passengers and looks at the slips.
3871. *Mr. Brock.*] Supposing he uses three of these slips how is he to know how many have been taken on this trip? A conductor does not start a second slip until the first is completed or full; that is, you commence at 1 and punch down that side, then turn your slip over and punch down to 44.
3872. *President.*] You seem to think there is some considerable opening for fraud? Oh no if he goes in for fraud he can only make very little. They pay a deposit of £5 when they are put on so they would not make much in a day.
3873. What good is a deposit? If he be found out he loses his deposit and his work.
3874. Supposing his deposit is £10, and he robs to the extent of £1,000; what is the use of the deposit? It cannot possibly be done.
3875. We are bound to say that, in our system, if a conductor comes out with six tickets short or over in a journey he is fairly correct? Yes; but if they do not agree, with our system, he must make up the difference. With us the punch cannot be opened except by a key or alphabet, the only one having it being the head inspector.
3876. How do you do with a heavy load? If we know we are going to have a heavy load we put on an extra conductor.
3877. Recollect that every morning on Marrickville, Paddington, Waverley, and other lines we have very heavy loads? I am convinced that one conductor could collect these fares on the run. Your conductors, after they have collected one lot of tickets simply hang about doing nothing instead of being constantly moving. I have seen them come around twice only in Crown-street. The more a collector is kept going the fewer tickets he misses and we always find that the heavier the load the less the loss of tickets. The fewer the passengers the more fares missed.
3878. You do not use a top deck? No.
3879. How long would it take under your system to collect one of our top deck-cars very much crowded? I think he could collect between Market and Liverpool streets.
3880. He would have to sell some tickets and give change as well. You must bear in mind that your conductor is the only person who can sell the tickets? Yes, certainly he can sell tickets and collect as well.
3881. I can hardly believe that a man would get through his collection with the other business as well between Market and Liverpool Streets with a full car. He would more likely be in Oxford-street before he had completed his work. He might on occasions do it but not as a rule. The looking after tickets, giving change, selling tickets, looking after the safety of the passengers, and blowing his whistle would almost invariably keep him fully occupied until reaching Oxford-street? Well this is the system at work in New York, but there they have no crowded upper-deck cars.
3882. What size are your dummies and cars? They are much larger than those at North Shore, One of our cars carries twenty-two seated inside, and six on each platform, and twenty-two on the dummy.
3883. *Mr. Brock.*] Have you seen your system used on cars similar to our lower deck cars? No; not on these cars. Our cars have a lane through them for the conductors to pass through them, and I would suggest a similar road or track through your cars.
3884. Do you think you could seat four people in each row with, as you suggest, a track through the centre? Yes.
3885. *President.*] But you might find your passage blocked on the busy runs? The way to get over that is to run an extra car at these times, say morning and evening, and it will not occur. We run our cars every 2 minutes, and we can put an extra one on at any time.
3886. If we had cars of the small capacity of those you refer to we should have to run at intervals of half-a-minute on the Paddington line, during the busy times, if we were to prevent overcrowding? I daresay.
3887. *Mr. Brock.*] How do you succeed at night in working your system? We have any amount of light in the car and on the dummy, so that we carry on as well at night as in the day.
3888. Have they double deck cars in Philadelphia? They had, but I believe they have been done away with.
- 3889-90. *President.*] How do you arrange for change? That is another thing in which the inspector's services are needed. The conductor has to find 20s. worth of change himself, and must always have at least that amount of change on him. If an inspector comes on to a car and finds the conductor without 20s. worth of change he reports him, and he may be dismissed or suspended. In our system we entirely depend upon the conductor getting the fare. If he be unable to collect it for any reason he must get the name and address of the person and report it, at the same time asking the passenger to call at the office and pay. There is an office at each suburb and the trip slips are made up, when nearing this office.
3891. You pay a second-class man by the trip; then it is broken pay; a man may make a day to-day, and not make another for two or three days? We have a regular system of pay for them, and sometimes they make more than a regular man.
3892. When does your conductor get fresh tickets? Whenever he gives in his cash he replenishes his tickets. We also allow transfers in our system. In San Francisco you may travel 20 miles for 5 cents, being transferred from one system to another.
3893. How do they arrange the transfer system? A passenger wishes to go to some place not on the line he is entering: he tells the conductor, who gives him a square card with the time at which it is given marked on it; this will carry him on any line he requires to go, the only restriction being that it must be used within the hour in which it has been punched.
3894. There are (say) 300 going to Botany;—could all their fares be readily collected under your system? Yes; I have known conductors who preferred good loads; they would go around the lot and collect, and they never missed a new-comer.
3895. *Mr. Brock.*] People are coming in at Market, Park, and other streets? They would not miss them; every new-comer they would know. Tramways working under this system have paid when they have never paid before.

H. D. Elliott.
3 Sept., 1888.

H. D. Elliott, 3896. *President.*] A great advantage in your system is that you have no commission to pay to people who sell tickets, and therefore you do not run the same risk of fraud as we do? Yes, in our system it is reduced to the conductors, and they can make very little—even if they tried. They pay the money in to the receiver every trip, besides having given a deposit of £5.

3 Sept., 1888.

3897. Are you quite certain after what you have heard about the manipulations here, that no ingenious person could get into the inside of the bell-punch? It is not done.

3898. There will be no such thing as allowing the conductor to take his bell-punch home with him in the evening? No.

3899. And I suppose, even if it cost you the wages of six men to prevent it, you would not allow the punches to be taken home at night? No; they are all handed over to the receiver every evening when the men go off duty, and the men have a sort of reverence for their bell-punch, and they will scarcely allow a person to look at it even.

3900. You can quite understand that under our system you would require some five or six extra men to prevent the bells being taken home? Yes; but we compel the return of every conductor's bell, bag, tickets, slip, and reports at the finish of his day's work.

3901. How do you pick your first and second class conductors? Uniform inspectors note the conductors and men at work, and select the best men. When they find a good man they put in a good word for him; if they find men slack at their work they work them up, and if they do not give satisfaction will discharge them. These inspectors have not only to attend to these duties but they have to attend to everything in connection with the line and the traffic. The men know this, and try to get into the inspector's good graces; and an inspector when he sees a good man will always look after him. With some of the conductors the inspectors seldom or never travel, whilst with others who are slack they will be constantly riding; and if there is no improvement shown the inspector discharges them. The men are usually of a good class. They have to pay £5 deposit, and work fourteen days without pay. They have to find their own uniform. I think in Melbourne gripmen get 52s. and conductors 45s. a week. This is low pay. We pay better in America, because things are dearer all round than here. A conductor of the highest class gets 3 dollars to 3 dollars 50 cents, and a gripman 4 dollars to 4 dollars 50 cents; but they run longer hours than here—say, twelve to thirteen per day.

3902. *Mr. Brock.*] What is the greatest number of cars running together in your system? Two; but we can put on any number, one after the other, at intervals of half a minute between them.

3903. *President.*] You have been on the Botany line, Mr. Elliott, during the interval; what were your experiences? I got on the Botany tram at Bridge-street at 1.6, and at Park-street the first collection was completed, there being twenty or a few over on the top deck. Then thirteen got on and the second collection was made, only seven being collected and six being missed. I counted everybody who came up and out of the thirteen he missed six. Under our system we would have had three conductors. Two people sat on each side of me and did not pay. The conductor was a red-haired man with red whiskers and by his appearance I would have thought him a first-rate conductor. He was a steady looking man. I noticed he said "Any more fares please?" This I think is wrong; he should simply say "Fares please." If these tramways are not handicapped very heavily I would guarantee to collect all the fares. After this he collected the penny sections and got all. There were about 33 on the top deck where I was and only about 22 did he collect. The seats were not anything like full. I stood up to have a view. This was a very ordinary load; there were only a few standing, the majority being seated. I do not think there would be any difficulty in working my system under the present circumstances.

3904. *Mr. Brock.*] Was the lower floor loaded? They were ladies, nearly all,

TUESDAY, 4 SEPTEMBER, 1888.

Present:—

A. RICHARDSON, Esq., PRESIDENT.

R. W. THOMPSON, Esq., M.P., | F. A. BROCK, Esq., J.P.

John Graham recalled and further examined:—

Driver
J. Graham.
4 Sept., 1888.

3905. *President.*] We have recalled you in order to ask you to give some further evidence of importance, and before I do that I may say that, although during your first examination and on several occasions we may have spoken somewhat harshly with regard to your apparent complicity in the matter, and we certainly held considerable doubt as to the genuineness of the transactions on your part, we wish to tell you that, after the evidence we have received from others, we have come to the conclusion that you have acted throughout in good faith; and although you were for some reason or other rather chary in giving information directly to the authorities, still we have corroborative evidence that you did almost immediately make a number of your fellow workmen acquainted with the facts, although you did not give any names. Your evidence, as you may readily imagine, is of a very strong and important character, and I may at once tell you that it has been very strongly contradicted by the person mainly guilty. It is not surprising, perhaps, that the evidence has been contradicted, although the witness was upon oath. But we have sent for you, in order to put these several points to you more strongly again, that you may on reconsideration either confirm, strengthen, or modify them, as may seem to you correct. You remember a conversation which took place between you and Musgrave in the Pitt-street yard on the day on which Hendy was taken off his tram for having tickets unregistered;—I think it was on the 7th April, on a race-day? It was on a race-day; I remember.

3906. You remember telling us distinctly that you observed Musgrave car-cleaning? I observed Musgrave with a broom in his hand, standing in the yard.

3907. And you said to him: "How is it that you are not at the races"? I did not say that. I said, "Tommy, how is it that you are not off to the races?" or something to that effect.

3908. And his reply was — ? That there was something on the board.

3909. I think you said that he accompanied that remark with a wink? Yes.

3910. Now let me ask you, if Musgrave has absolutely sworn that no such conversation ever took place, has he sworn truly or falsely? Falsely.

3911.

Driver
J. Graham.
4 Sept., 1888.

3911. Musgrave has also sworn absolutely that he never said to you on any occasion whatever that he had suffered a loss during the time he was under suspension of some £400 or £500; in fact he swears that he never made any such remark;—has he sworn truly or falsely? Falsely.

3912. Have you the slightest doubt in your mind that he made such a statement to you? Not the slightest. I remember it perfectly well.

3913. Musgrave in his evidence, when he apparently saw that he could not altogether escape from making such a statement, admitted that he went on one occasion and got a piece of wire from you on your engine. He further admits that he put this piece of wire into his register, as you said he did. He admits that he showed you the register number, and then he makes this very important modification in the statement, and swears that it is correct—that instead of collecting a car load of tickets he collected four tickets only—that he was having a bit of a joke with you; and to show you how it was done he collected four tickets, which he put honestly into his bag, showing you afterwards that the register had not moved, and showing you at the same time the four tickets which he had in his hand? I will give you my opinion about it. He got on to the motor between Queen-street and Elizabeth-street, just at the beginning of the twopenny section, and I can solemnly swear that there were more than two passengers in the car that he collected. He went all round the car.

3914. *Mr. Brock.*] You are positive of that? Yes, he went all round the car.

3915. *President.*] Was it a top and bottom car? Yes.

3916. And you heard his bell ringing? Yes; as he went along the side.

3917. Give us an idea of how often his bell rang, speaking within bounds. According to him it rang only four times. He swears that it was on a penny section, and that it happened between the tank and the top of Queen-street? It was between Queen-street and the next stopping-place, and he got off the motor at that place.

3918. Where did he borrow the wire from you? Between Queen-street and Elizabeth-street.

3919. At the commencement of the twopenny section? Yes.

3920. How many cars were there on? Two.

3921. Were they fairly loaded? Yes; I think there were a good few passengers. They were not what you would call loaded. I think we came from Waverley on that trip.

3922. How many passengers do you think there were? I can swear that there were more than twenty in the first car.

3923. And he rang the proper number for the twenty? As far as I could hear.

3924. What is your idea of the number of times he rang? I can say positively that he rang over twenty times.

3925. When he got to Elizabeth-street what did he do? He got off at Elizabeth-street and went along the car. When we got to Regent-street he came on the motor again. He then showed me that the register had not moved.

3926. Did he show you the tickets? He did not.

3927. He did not show you any tickets? No.

3928. He said he showed you four tickets? He did not.

3929. My recollection of your evidence was that he did show you tickets? Not on that occasion. If he did I do not remember. I have seen the tickets that he made on other occasions.

3930. On which you have seen them collected in this improper way? Yes.

3931. Where did this occur? On the Leichhardt line.

3932. In what way did you see them? In his pocket.

3933. Did he show them to you in his pocket? Yes.

3934. How? Putting his hand in, like this.

3935. In what pocket? In his trousers pocket.

3936. You told us in your first evidence that you frequently saw him with the pin inserted? Yes, I have seen him frequently with the pin inserted.

3937. You are positive about that? Yes.

3938. And you are very positive as to his holding the wire up and letting you see it on one occasion? Yes.

3939. And saying, "This is worth a tenner a week to me?" Yes.

3940. You swear to that? Yes.

3941. You frequently saw that the pin was in when Musgrave was collecting his fares? Yes; on several occasions afterwards.

3942. Did he not tell you on several occasions that he was doing it? He did not tell me, but I understood from hints.

3943. What sort of hints would he give you? He would show me his pockets—show me the bulk in his pockets; sometimes in his breast-pocket and sometimes in his other pocket.

3944. Did you ever see that kind of game carried on with a velvet pocket in a coat? No.

3945. Nor anything like it? No.

3946. He swears positively that when he got on to your motor for a piece of wire that was the first occasion he brought the matter under your notice;—is that so? Yes, that is the first time.

3947. When was it that he told you he had been up to this game ever since he had been in the Service a fortnight? That was in a subsequent conversation when we were lying at the cricket ground. On such occasions as that we would have conversations, and they generally turned round to this subject.

3948. He told you distinctly that he had been at this game during the whole of that time? He told me he was at the game from a fortnight after he had been in the Service, and that he was the only man who knew how to do it that way. He was boasting that no other conductor knew how to rig the bells.

3949. *Mr. Brock.*] Did he tell you how he found out to do it? He did not. He told me how he got it out of the office. I asked him, and he said, "I got it out of the office."

3950. *President.*] You are very positive that he told you that he instructed Ferrier, or rigged Ferrier's bells for him? He did not tell me that. He said that Ferrier was at the game too.

3951. In your previous evidence did you not say that Musgrave told you that he had rigged Ferrier's bells for him? If I said that it is correct.

3952. Why do you say now, "If I said that it is correct?" Because I suppose I must have remembered it at the time.

- Driver
J. Graham.
4 Sept., 1888.
3953. Do you remember it now? It is correct. I do not think he mentioned Ferrier exactly, but he told me he had shown others how to rig the bells.
3954. First of all you said, "He never actually told me of others, but I was led to believe from his talk that there were more in it?" Yes; that is so.
3955. Although you said in the early part of your evidence that there was nothing certain given you as to the others; you afterwards said that Musgrave had told you that Fraser had given him £50, or one-half of the first £100 worth of tickets to know how it was done;—do you remember that? Yes; it is a fact. He told me so.
3956. That you swear absolutely? Yes.
3957. What you meant was that Musgrave told you that Fraser gave him £50 worth of tickets to have his bells rigged? That is what I mean.
3958. You have not the slightest doubt about it? I swear that he told me that.
3959. In your previous evidence you also swore distinctly that Musgrave informed you that he gave information as to the manipulation of the registers to Ferrier and Fraser? Yes.
3960. And you still swear positively that he told you so? Yes.
3961. Your evidence is of the highest importance; and it is not satisfactory to hear you say, "If I said so before it is correct?" I do not think I could recollect all that I have said, and I thought you were referring to the first time Musgrave came to me.
3962. Surely you would remember whether Musgrave had told you about Ferrier and Fraser, or whether he had not? I am positive that he did.
3963. But just now you were not. You said, "If I said so the other day it is correct?" I thought you meant at the beginning of the affair. I thought you meant did he tell me about Ferrier and Fraser then.
3964. Have you had any conversation with Musgrave during the last few days? No.
3965. You swear that? I have seen him; but I have not spoken to him.
3966. Did he not try to speak to you? No.
3967. Is he friendly with you now? I do not know. He looked at me. Fraser spoke to me just now in the corridor.
3968. Did Musgrave have any conversation with you after he had given evidence before Mr. Vernon? I don't recollect speaking to him about it.
3969. Did he not say to you, "I have spun a bloody fairy yarn to Mr. Vernon. Mind you say it only happened two months ago?" He did not say that about Mr. Vernon. That was after he had been before Mr. Roberts.
3970. Was that the expression he made use of? Yes; he said he had stuck a fairy tale into Mr. Roberts, and he asked me to say, if I was called upon, that it only happened two months ago; also to say that I spoke from hearsay, and not to say that he told me. He asked me to say that it came from general conversation with other men. He said he did not want me to mention his name in the matter, or something to that effect.
3971. I suppose Musgrave knows the nature of the evidence you have given? If he recollects what he told me he must have a pretty fair idea.
3972. Did your mate, Reid, see Musgrave when he came on to the motor to show you that his register had not moved? My mate told me that he could not swear that it was Musgrave who asked for the wire.
3973. But when he came on after collecting the fares? I could not say whether my mate saw him when he came on then or not.
3974. Is there anyone else who to your knowledge has seen Musgrave with this pin in at any other time? Not to my knowledge, because no one knew positively how it was done.
3975. You do not think he ever showed anyone how it was done. We understand you to say that Musgrave, according to his own statement to you, never showed Ferrier or Fraser how the thing was done, but that he himself did it for them or got it done for them? Yes, that is correct.
3976. There is another important point on which you are utterly contradicted by Musgrave. He was very positive indeed on this point, and said that it must have been a pure fabrication; that is, a conversation which he told you had taken place between him and Murray at the ticket-office. You remember you told us that when he was giving in his register one day he forgot to take out the pin, and that his expression to you was that he was nearly fainting when he discovered that he had made this mistake, and that when Murray asked him on what line he was he was unable to answer? I swear that he told me that.
3977. You say he also told you that he got his register back with the wire in without anyone having noticed it? Yes, that is correct.
3978. There is one point on which you were evidently in error. You told us when you were last here that you were quite certain that Musgrave was on a race tram on the forenoon of the day on which Hendy was taken off, and that Mr. Roberts himself went down to the yard and withdrew him from the run. You were very positive about that; but we have absolute facts from the books and other sources to show that on that day Musgrave did not come on until 2 o'clock, and it is absolutely sworn to us that he did not go out on a race-tram until after 5 minutes past 3 in the afternoon? I know that I saw him, because I was speaking to him.
3979. At what time? In the morning before the races commenced—before the rush commenced to go to the races.
3980. Not on a race-tram? Certainly not.
3981. Where was he? On another tram. I met him in Elizabeth-street.
3982. On duty? He was on the car—whether he was on duty or not I do not know. It was between Market-street and Park-street. I was going out.
3983. Was it after that you saw him with the broom, in the yard, as if he were car-cleaning? Yes.
3984. Can you fix the exact hour when he winked and said that there was something on the board? I could perhaps, if I knew the date. I am sure he was in the yard before 2.
3985. How long before? Some time before.
3986. Before 1? Yes; if I am not doing double shift duty I get relieved before 1 o'clock. I don't know whether I did do double shift duty on that day.
3987. Your main point in this was that he was taken off the race-cars and put car-cleaning, whereas, as a matter of fact, he took a race-tram out at half-past 3 or 4? I saw him on a car when I was going out, and when I came back again he was in the yard with a broom.
- 3988.

3988. It would be between 2 and 3 when you saw him car-cleaning? Before that.
3989. He says he thinks he was put on to take Hendy's place? Very likely. He would be in the yard, and there would be no other spare conductor there. Someone would have to go out with the tram.
3990. There is an exceptional entry in one of the books as to the hour at which Hendy's suspension took place, and it is clear, from this entry, that Musgrave had his trip out to the racecourse after 3'5. It is also certain, from the books, that Musgrave did not come in until 2 o'clock that day, and that if he did he did not get paid for it? I am positive that I saw him in the yard before 1 o'clock.
3991. You went off at 1 that day? I am not sure.
3992. If you are not sure of that you are not sure as to when you saw Musgrave? No.
3993. All you know is that you saw him before you went off? Yes.
3994. Could you have been referring in your own mind to some other race-day—could you have mixed up some other race-day with the race-day on which Hendy was caught? It is possible, but I hardly think so.
3995. Could it have been the Thursday in the same week? I don't think so.
3996. Will you look this up further in your book and let us know? Yes.
3997. *Mr. Brock.*] At what hour was Hendy suspended do you know? I could not say.
3998. *Mr. Thompson.*] In addition to Musgrave saying to you, with a wink, that there was something on the board, he said he had got the straight griffin from the office? Yes; something to that effect.
3999. Has anyone asked you what you had to say about them with regard to this matter? Fraser told me that Tom Musgrave was looking for me, because he wanted to know exactly what I had said.
4000. To whom did he suppose you had been speaking? This was after the inquiry before Mr. Vernon. He wanted to know what I had said to Mr. Vernon, but I was not here. I was in Melbourne at the time they were looking for me.
4001. *Mr. Brock.*] Do you know a man named Dominic, the barber? No; my acquaintance outside the tramway men is very slight indeed.
4002. You said more than once in your first evidence that you knew for a long time that Musgrave was systematically robbing the Government? For a long time.
4003. You are sure of that? Yes; from the time he first told me until I gave information.
4004. You have not a shadow of doubt about it in your own mind? No; because he told me so distinctly that they could not catch him. The only fear he had was that they might catch him with tickets in his pocket after he had given in his bell and bag for the day.
4005. *President.*] And the view of the question that this was shown to you by Musgrave as a joke must be scouted as ridiculous, must it not? Yes.
4006. Do you remember telling anyone that Fraser and Musgrave went into a public-house or an oyster-shop with you, and when there showed you their pockets full of tickets? I do not remember being in Fraser and Musgrave's company.
4007. Do you recollect when Moran got into a Waterloo tram with a pair of bells, and asked you how it was done. You said you did not know, and that it was worked inside. Do you recollect saying that you knew it was done, because Fraser and Musgrave went into an oyster-shop or public-house with you, that they were 'tonicked,' and that they showed you pockets full of tickets? I do not remember saying so.
4008. Do you recollect speaking of Musgrave having his pocket full of tickets in any place? No; I do know that he has done it, because I have seen him with them, but I do not recollect any particular place.
4009. Can you swear that you did not tell Moran that? No; I cannot swear it.
4010. But you do not remember it? I do not; I do not remember being in the company of Musgrave and Fraser together.
4011. You have frequently seen tickets in Musgrave's pockets? Yes; I will give you an instance: He came out late one night; I think it was the last trip to Leichhardt; it was on a Saturday night; he had made a fine old punch that night; he would not come down the Newtown Road; he got off at Leichhardt and ran across Johnson's paddock; he showed me his tickets; he had more than one pocket full of tickets; he showed me the bulk of them.
4012. Do you recollect saying that the thing was blown, and that when he had his pocket full of tickets again, you would tell Moran how to catch him? Yes; something to that effect.
4013. You referred to Musgrave and Fraser? Yes.
4014. Have you ever seen Fraser with tickets? No.
4015. How came you to refer to Fraser? I might not have referred directly to him; I might have mentioned his name, but I know that I mentioned Musgrave's.
4016. Why did you mention Fraser? I knew he was doing it, because Musgrave told me, but I never actually saw Fraser with tickets; I could put my hand on him at any time when he had tickets on him, because I knew—I mean Musgrave.
4017. *Mr. Thompson.*] Did you ever watch to see if Fraser or Ferrier did it? It never cost me a thought; it was only from the hints that Musgrave gave me that I knew that others were doing it. They were completely in the dark about my knowing it.
4018. I should have thought you would have done it from natural curiosity? I took it for granted; Musgrave told me that much about it that I thought they must be doing it.
4019. *President.*] Are you not still very good friends with Fraser? I have been all along up till this morning.
4020. Although you knew that he was robbing the Government? Yes.
4021. You have met him several times since this inquiry has been going on? Not several times.
4022. How often? Once. Last Tuesday.
4023. Have you not told Fraser that you would shield him? No, I never said so.
4024. What did you tell him? Well I did not tell him that, because he did not know that I knew anything about it.
4025. Do you mean to say that in your frequent conversations in Crown-street and elsewhere you have not got on to the subject of the frauds and his dismissal? I have not said anything to that effect.
4026. What do you mean? I have not promised to say nothing which would implicate him.
4027. But since he felt his dismissal so keenly surely he must have spoken to you about the matter? Not about his dismissal. He told me he did not care a damn about that, or something to that effect. I think he told me that if Musgrave got bowled out properly he would tell everything about it.
- That

Driver
J. Graham:
4 Sept., 1888.

- Driver
J. Graham.
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- That is what he told me at Botany one day. I think he said that Musgrave would tell all that he knew if he were bowled out.
4023. Have you not said that you were sorry for Fraser because Musgrave had dragged him into it? I have said that I was sorry for this reason, that he had a wife and children to look after.
4029. You believe that Musgrave had drawn him into it? I believe he did and I said so.
4030. You still believe it? Yes.
4031. I suppose Fraser is pretty comfortably off, is he not? I could not say.
4032. *Mr. Brock.*] Do you know where his shop is? No; I heard he kept a shop near Crown-street somewhere.
4033. *Mr. Thompson.*] You remember distinctly that Musgrave said this to you: "If they say anything to you about the time, say that it happened two months ago"? Yes; that was after he went to Mr. Roberts.
4034. Can you, by anything you can remember with regard to the holidays, tell us how soon after the holidays it was that he first showed you this thing. You remember that at the Centennial time there was the unveiling of the Queen's statue, the laying of the foundation-stone of the Houses of Parliament, and the exhibition of fireworks on the water; you remember all that? Yes.
4035. Remembering that holiday-time, can you tell us how soon after that, or whether it was before that, that Musgrave showed you how to work this thing? I think it was after that.
4036. If so how soon after;—can you give us any idea? I could not say exactly, but I think it was after January, about the Centennial time. I could not swear that it was not before it.
4037. Your own opinion is that it was shortly after? Yes.
4038. At holiday-time he would make a punch? Well he would never be on a car unless it was loaded, because he was a special conductor.
4039. You did not quite finish telling us about the time he made that punch going out to Leichhardt. What made you think that he had made a punch that day? I saw his pockets. He generally wore a light overcoat over his uniform.
4040. *President.*] I suppose there is no doubt whatever in your own mind that both Fraser and Ferrier have been doing this thing? I have not the slightest doubt about it.
4041. Do you mean to say that you entirely took Musgrave's statement for it? Yes, I did. What was the use of his telling me a lie about the thing? Why should he tell me that Fraser was doing it merely for the sake of saying so?
4042. You have no knowledge of Fraser's and Ferrier's complicity beyond Musgrave's statement? Nothing beyond. He was always asking me if I knew of anybody doing anything in that line.

Frank Coll called in, sworn, and examined:—

- F. Coll.
4 Sept., 1888.
4043. *President.*] What is your occupation or business? I am a watchmaker.
4044. At what residence? I am working at Bathurst-street.
4045. At what establishment? At Mr. Hellyer's.
4046. You have been in business for yourself have you not? Yes.
4047. Will you let us know when you were last in business for yourself, and where? Do you mean in my own trade?
4048. In any business for yourself? About three months ago.
4049. Where was it? In Campbell-street.
4050. That is at the Haymarket? Yes.
4051. Do you know certain premises in Elizabeth-street where tram-tickets have been sold? Yes.
4052. How did you come to take out a license for it? Well I took the place; I gave up my place in Campbell-street to take it.
4053. But you never did take it did you? Yes.
4054. You never were there yourself? Yes, I used to be there at night-time and on Sundays.
4055. What arrangement did you make for the management of the business during the day? I had a girl in the shop.
4056. Margaret Riley? No; another girl.
4057. Who then? I do not know what her name was. Several girls have been in the shop.
4058. Was not Margaret Riley there? Not when I was connected with it myself, but since then. As it stands now it is my business.
4059. I don't quite understand. Is it still your business then? It is and it is not.
4060. Who is working it now? Margaret Riley. Let me explain and then you will understand: I cannot be sure whether it was in June or in July that I came to an arrangement with Margaret Riley that she was to pay me £50 for the business. She paid me £30 down and she was to pay the other during September. I then gave over the business entirely to her.
4061. Don't you know Cook in the matter? No.
4062. Has he nothing to do with the business? Nothing.
4063. You do know Cook very well don't you? Yes, I do.
4064. You have been connected with him in business? There are several Cooks.
4065. Charles Cook I mean? I never had anything to do with him.
4066. What about Henry Cook? Yes, I know him.
4067. Do you know George? No.
4068. You know that Charles Cook is connected with that business apparently managed by Margaret Riley don't you? I don't believe he is connected with it. I don't believe he has anything to do with it either as regards the profits or the management.
4069. *Mr. Thompson.*] Don't you know that Margaret Riley is a step-daughter of Cook's, and was living with him for a long while? I believe she is a relation.
4070. When you first took this place did you not take it in connection with Henry Cook? No, I took the place in my own name.
4071. But was it not in conjunction with Henry Cook? He was to have had something to do with it, but we had a disagreement, and that is why I got out of it.

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4072. *Mr. Brock.*] He had an interest in it at one time? Yes; I intended to go into the business and work it myself, but in consequence of some disagreement we had I got out of it.
4073. Have you signed orders for tram-tickets required for carrying on that part of the business? Yes.
4074. *President.*] And you continued to do it after you gave it up? Well I signed for Margaret Riley to get the tickets.
4075. Do you mean to say that you signed once and for all for her to get them, or upon every occasion when they were required? I used to sign five or six forms at a time.
4076. The license being always in your name? Yes.
4077. And it is cancelled now? I do not know whether it is cancelled or not; they refused to sell any more tickets; she wanted the license transferred as soon as she went in, but I would not have it done until she settled with me.
4078. You know the mechanism of tramway registers do you not? I never saw one; that is, I never saw the inside.
4079. We are given to understand that you had one to repair once? You must be mistaken, I think.
4080. You are quite certain that you never repaired a broken bell register for any conductor? Positive.
4081. And you never took one to pieces? Never in my life; I have never had one in my hand; I have only seen them in the hands of the conductors.
4082. You have heard a good deal about these frauds, I suppose? Yes.
4083. Are you able to give us any information? No, I cannot; I do not know more than what I have heard casually, and what I have read; what I have heard has merely been a repetition of what has been in the papers.
4084. You have no knowledge of any conductors selling these tickets? No.
4085. You do not know any conductors? No.
4086. *Mr. Brock.*] Don't you know a conductor named Musgrave? I do not know the names of any conductors, not that I know of. I may know them by sight, and they may know me by sight, but I do not know their names.
4087. Do you know Wigg and Moran, two tramway officers? No.
4088. *President.*] Have you not seen them in reference to your license, and as to the way the tickets were being got for you? Yes; now I think of it I have.
4089. Don't you remember telling them, about a month ago, that you had not signed a requisition for the past two months, and that you had given Cook permission to sign your name? I do not remember exactly.
4090. *Mr. Thompson.*] Do you remember what you did say? I don't think I said much at all; they did not say who they were; they did not say that they were upon the tramways, and I said to myself, "Who can they be?"
4091. *President.*] Don't you remember Moran saying to you, "If anyone has signed your name for you it is a forgery, then, is it not," to which you replied, "No, I have given Cook permission to sign my name?" I don't think so.
4092. Is it a fact that that is how the matter stood? No.
4093. You have not signed for several months? When they came to me I had signed some forms for Miss Riley a few days before.
4094. Will you sign your name to this paper? Yes.
4095. This is your signature to the requisitions you have sent in? Yes.
4096. Don't you remember Moran putting it to you about the forgery? Yes; I do remember something about it.
4097. And did you not reply that it was an arrangement between you and Cook, and that you had allowed him to do it? No, I have not given him that power.
4098. Then if we find that any tickets have been obtained upon any signature other than that which you have given us we shall know that it is a forgery. Is not that so? Well my signature might, perhaps, be a little different from that which I have given you.
4099. But suppose we found that it was absolutely in a different handwriting we should know that it was a forgery? Yes.
4100. *Mr. Thompson.*] You never signed yourself "Frank;" in full? Not on these forms.
4101. What do you sign Frank in full to. Have you two different signatures? I sometimes sign my name in different ways, but I signed it in the way I have given you to these forms in order that it might be more legible.
4102. Then your ordinary business signature is different from that? Yes.
4103. *President.*] Will you give us your business signature? Yes.
4104. I observe that there is an additional initial in your business signature? Yes, "A."
4105. *Mr. Brock.*] Why did you not sign "F. A. Coll" when you were signing for the tram-tickets? Sometimes I do not put the "A." in my signature.
4106. You have a lot of signatures then? I have no fixed style of signing my name.
4107. How old are you? Twenty-four.
4108. Are you a married man? No.
4109. *President.*] Do you remember what caused Moran to speak to you about the forgery. When it came to be a question of ascertaining whose signature had been sent in for the tram-tickets did you not say to Moran, "I have not been near the shop for some time," and did not Moran say, "Well then, if this requisition has been signed with your name it must be a forgery." Is not that the way he put it? I remember something about it, but I would not be quite positive.
4110. At the time he went to you you had not been near the shop for some time—you had given it up altogether? I had very likely been at the shop that morning or on the previous night.
4111. Will you swear that you did not tell Moran that you had not been there for months, and if you did tell him that why did you tell him an untruth? Well these men came to me and asked me all sorts of questions. I did not know who they were and I left them to think pretty well as they liked, and to have their own way.
4112. *Mr. Thompson.*] Then you admit that you may have led them to believe an absolute untruth with regard to your being in that shop? Yes.
4113. *President.*] Did you not say distinctly that you had allowed Cook to write your name for you? I had not allowed him.

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4114. Positively you had not? I had not.
4115. You never authorized him to sign your name? No.
4116. Do you remember the day Wigg and Moran were with you? Yes.
4117. Do you remember telling Cook the next day that two tramway detectives had been with you making some statement about a forgery? I may have told him. I daresay I did tell him.
4118. Therefore you knew these two men after all? Well, I guessed who they were.
4119. We understood just now that you bluffed them because you did not know who they were? I never saw them in my life before to my knowledge. I did not know that they were tramway detectives.
4120. Did you hear it afterwards then? I went round to the shop that night. Miss Riley said something about some one having been there and I said then that I thought it must have been the two men I had seen.
4121. Who did they say they were? They did not say anything to my remembrance. They asked about the license and about the shop in Elizabeth-street.
4122. Was it Miss Riley who said that they were detectives? She did not say they were but I at once thought it for myself.
4123. That was after her telling you that two men had been to her making inquiries? Yes.
4124. Did I not understand you to say in commencing your evidence that you did not know Charles Cook? No; I did not say that; I said I had not been in business with him.
4125. Is it not a fact that you know him very well indeed? No, I am not intimate with him.
4126. Will you deny, that on the evening to which I have been referring, you were closeted with him for two whole hours? That evening?
4127. The evening on which you saw Miss Riley? Certainly I do.
4128. Do you mean that seriously? I deny that I was ever closeted with him for two hours in my life.
4129. Was it on the night after you had spoken to Miss Riley that you had this long interview with him? I could not say; I think I saw him the same night at the theatre. I have an idea that I did. I know that I did not see him at the shop. I met him out somewhere.
4130. You went to the shop that evening and you met Cook did you not? No.
4131. You had a long walk down by Farmer's and so on. You had a long slow walk talking until you got back to the shop; you then went in with him, and you were there with him for another hour? Decidedly not. I do not remember walking out with him.
4132. *Mr. Thompson.*] How did you come to meet him at the theatre? By accident. He happened to go to the same theatre that I went to.
4133. And, notwithstanding all this; do you mean to tell us that you had no business transactions with Charles Cook? I had no business transactions with him.
4134. Although all this signing of the name was going on you never had any connection with him in business? No.
4135. Did he ever show you a bag with a lot of tram-tickets in it? No; he did not.
4136. Did he never tell you that he was doing a good deal of business in connection with used tram-tickets? No; he did not.
4137. You are quite certain about that? Quite.
4138. Then there must be a terrible lot of liars about? I am not so intimate with him as to permit of his telling me anything like that.
4139. You would be surprised to hear what people say of your intimacy with Cook. At how many other places have you been in business besides the shop in Campbell-street and the shop in Elizabeth-street? I had a place in Abercrombie-street at one time.
4140. And where else? I was once at Glebe Point.
4141. How far away from that shop at Glebe Point did one of the Cooks have a shop? When I first went there one of the Cooks was next door to me.
4142. Which one was that? Henry Cook.
4143. From being next door to one another at Glebe Point you turned up together in partnership at Elizabeth-street? Yes.
4144. You must have begun business pretty early in life? Well, I don't know.
4145. Where did you serve your apprenticeship? Where I am working now—at Hellyer's.
4146. Is it not a fact that you have been knocking about in various places since you left Hellyer's during the past three years? I can tell you where I have been. When I left Hellyer's I went to a man named Elbert in George-street. I was with him eighteen months, or it may have been a little more. When I left there I took a shop at Glebe Point.
4147. That was the first flutter on your own account? Yes; after that I went to Melbourne.
4148. And you were there about the time of the big jewel robbery, for which Cook was pulled up? I could not say; I have been back from Melbourne about thirteen months; I was over there five months.
4149. Did you ever hear anything of this jewel robbery? Yes, I heard of it. That was before I ever knew the Cooks.
4150. When you came back what did you do? I opened a shop in Abercrombie-street.
4151. From Abercrombie-street you went to Campbell-street, and from Campbell-street to Elizabeth-street? Yes.
4152. How long is it since you saw Dominic Lacerda? I see him when I go to work in the morning; I pass him at the door, and I say "Good morning."
4153. Do you mean the old Dominic or the young Dominic? The old Dominic is the only one I know.
4154. Where do you live now? At Redfern.
4155. And the old man lives near you? He used to have a shop next to mine. He has a shop next to where I used to have one. I don't know where he lives.
4156. How long is it since you and Cook were at Dominic's together? I was never there with Cook.
4157. How long is it since you and Cook were at Dominic's place together? At his shop?
4158. Yes? I cannot remember ever being there with Cook.
4159. Will you swear that you have not been? Let me see. When I had a shop next door I think Cook came to see me once, if that is what you mean. He may have seen Dominic at the same time. That is the only time I remember being at his place with Cook.
4160. And where is that shop—in Liverpool-street or in Campbell-street? In Abercrombie-street.

4161. *President.*] Did you ever go to races with Cook? I was never on a racecourse but once in my life.
4162. And that was with Cook? No.
4163. You were a great friend of Mr. Thomas Walker's once upon a time? Yes, I was on fairly good terms with him.
4164. You used to recite at his seances;—did you not? I used to get paid for reciting at his lectures.
4165. You know that the people at the oyster-shop were in the habit of selling second-hand tickets? At what shop?
4166. In Elizabeth-street? Never to my knowledge did they sell any tickets.
4167. Do you know Pietro Gaspardo? No, I never heard of him.
4168. How long is it since you first took this shop? It was in April, I fancy.
4169. About five months ago? Yes.
4170. *Mr. Thompson.*] What did you and Henry Cook fall out about in connection with that business matter? Well there was an arrangement about fittings. He was to fit the place up, and he did not do what I wanted done, and I said, "I will get out of this as soon as ever I can."
4171. How did you first become acquainted with the Cooks? I do not know exactly.
4172. You do not know? I think I met him one morning about three or four years ago at the Gaiety Theatre.
4173. How do you reconcile that with your evidence that you did not know Cook till you came back from Melbourne thirteen months ago? If that is put down it is a mistake. I have known Cook to speak to for three or four years.
4174. Did you know a Cook in Melbourne, at Emerald Hill? No, I did not know any Cook at all at Melbourne.
4175. *Mr. Brock.*] Did you ever hear that the proprietor of that shop in Elizabeth-street was suspected of selling second-hand tram-tickets? No.
4176. *President.*] Your shop is not an oyster-shop? No, mine is a fruit and confectionery shop.
4177. Have you ever heard it reported that the proprietor of the oyster-shop at the corner of Liverpool and Elizabeth streets was buying tickets from conductors? No.
4178. Have you been there at all? I have been in there to have oysters.
4179. Have you never met Cook there? No, I went in there last Saturday night with several friends.
4180. Do you know a man named Ballard, a watchmaker, living at Waterloo? No, I do not know him. I don't know him by that name; I might know him by sight. A great number come into the shop where I work. I don't remember hearing of the name.
4181. This Ballard has a shop near Siddons' at Waterloo. Do you know Siddons at Waterloo? I am not well acquainted with Waterloo.
4182. But you live there? No, more over towards Darlington; I live at Shepherd-street, Golden Grove.
4183. You do not know Siddons? No, not at all.

John Connors called in, sworn, and examined:—

4184. *President.*] You are a conductor in the tramway service? Yes.
4185. How many years have you been so employed? About four years this month, on and off.
4186. Are you on any particular line? No.
4187. You are what they call an extra conductor? An assistant conductor.
4188. We have sent for you to give us all the information in your power in connection with these tramway-ticket frauds? Yes.
4189. We believe that you have some information you can give us, and we will ask you to give it as fully and clearly as possible. You know a man who was a conductor some time ago—a man named Ferrier? Yes.
4190. Were you intimate with Ferrier? I was always an enemy of his.
4191. You have had some conversation with him, have you not, on the subject of the disposal of tickets, and so forth? No conversation.
4192. What happened? I left Bridge-street one afternoon at 2 o'clock to go to Botany, and as we turned the corner of Devonshire-street into Castlereagh-street Ferrier and another man got on to the car.
4193. Who was the other man? I do not know. I should know him if I saw him.
4194. Was he a conductor? No. I came down the stairs and asked Ferrier where he was living. He told me at Cleveland-street. We had got to Cleveland-street by that time, and he got off.
4195. What made you ask Ferrier where he lived? I had not seen him up that way before, and I knew that he lived somewhere off Oxford-street.
4196. Were you enemies at that time? Yes.
4197. What do you mean by enemies? He was always up to some tricks in the room; and when the men would go to sign on or off duty he would put a pin in them, or pinch them, or something of that sort. On two different occasions he did this to me and I hit him. I knew that he was a notorious liar. I never cared about being with him at any time.
4198. You asked him where he lived;—what did he say when he got off the tram at Cleveland-street? When he got off he said to me, "Can you give me a couple of pounds worth of tickets?" I said, "If you want a couple of pounds worth of tickets you had better go to some ticket-office and get them." He then walked up Cleveland-street, towards Elizabeth-street. I saw Ferrier in the same way about a fortnight afterwards. I did not notice him getting on to the tram on that occasion. I do not know where he got on. The same man was with him. The man who was with Ferrier gave me 6d, and at the same time that he did he gave a bit of a cough. They dropped off as we were going along between Elizabeth and Queen Streets, Paddington.
4199. Did he pay for Ferrier then? Yes.
4200. Was not Ferrier a conductor at that time? No; that was all that ever passed between Ferrier and myself, and that is all I know about him.
4201. These are the only occasions on which you saw Ferrier? Yes.

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Conductor
J. Connors.
4 Sept., 1888.

4202.

- Conductor
J. Connors.
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4202. *Mr. Brock.*] What is the man like who was with Ferrier? He was a man of similar build to Ferrier, only he was dark. He had a little bit of black side-whisker, and a black moustache.
4203. Had you ever seen him before? No.
4204. Have you ever seen him since? No.
4205. You have no idea who he was? Not the slightest. I think it was this which led to its being said that I was in mysterious company with Ferrier and Cook.
4206. You heard it said that you had been spoken about as constantly keeping mysterious company with Ferrier and Cook? Yes.
4207. Did it make you indignant when you read that in the papers? Yes. Cook I have never seen in my life to my knowledge.
4208. *President.*] Have you never had anything against you before that you should have been so indignant about this matter? Not that I know of.
4209. Is it not a fact that you have been charged with being drunk on your car? Yes, I was.
4210. And you were let off? Yes.
4211. Is it not a fact that you frequented racecourses and gambling places, and kept your wife without money? I never did.
4212. You swear that? I swear that I never frequented racecourses or gambling saloons.
4213. If your wife said that she said that which was not true? She did.
4214. How long have you been married? Four years last July.
4215. Are you aware that your wife has complained of your treatment of her? She may have done.
4216. Without any cause whatever? Yes.
4217. Don't you remember an occasion when you were sent for by Mr. Roberts? Yes; he sent for me and asked me if it was a fact.
4218. And you denied at the time that you were in the habit of getting drunk, and squandering your money in gambling? Yes, I did.
4219. You denied that you were in the habit of getting drunk when you were not on duty? Yes.
4220. I cannot understand a man being indignant at seeing his name in the papers in this way when he has such records as these against him? There is no truth in what the wife has stated there, no truth at all.
4221. *Mr. Brock.*] Are you living with her now? Yes.
4222. *Mr. Thompson.*] Is it not a fact that she was obliged to live away from you for some time? It is.
4223. Why? I was living in the house with her people. They were always going on at me, constantly nagging. Her mother told me that the best thing I could do was to live with my people, and let my wife live with her. I went away, and allowed her a pound a week. While I was allowing her this I discovered that she was working in a private bar. The house was kept by a man named Lysaght; I waited there one night till the house was shut up; I saw her get into a cab with two other barmaids and three men. There was a man to each woman. They drove away down to the Circular Quay, and went together to a house at North Shore; I then refused to support her. She summoned me, and there was a verdict with consent, allowing her 15s. a week.
4224. But you are now on good terms with her? Yes; I am now.
4225. You have been steadier lately? Yes; since I found that she had turned over a new leaf as I thought.
4226. It was this disturbance that led you to drink? I do not mean to say that I was ever a drunkard.
4227. Is it not abominable that you should get drunk on your tram, in charge of public property and public life? I was accused of being drunk, and I denied it at the time.
4228. Were you not taken off your tram and another man put in your place? Yes.
4229. What is your age? Twenty-eight.
4230. When had you first any inkling whatever of these tram frauds? I first heard of it when I was in the conductors' room on a Thursday or Friday night.
4231. How long ago? Only a few weeks ago.
4232. Do you mean to tell me that you never heard anything about it before. It all appeared in the papers? Yes.
4233. It appeared in the papers six weeks ago? I heard about it then. I heard it just before the deputation waited on the Minister. There were five or six men in the room talking about it. That was the first I heard of it.
4234. Who were the men? I could not say. Foreman Halliday was one of the men in the room. I told them all that Ferrier got on to my car on one or two occasions and I told them what he had said.
4235. Don't you know Conductor Musgrave? Yes.
4236. Have you had no conversation with him about this matter? Never.
4237. *President.*] And what you have told us is absolutely all that you know? Yes.
4238. We can understand that a young man who was so indignant at the mention of his name in the newspapers in connection with this thing, would be most desirous of giving us the fullest information in his power so that his name might be thoroughly cleared? Certainly.
4239. *Mr. Thompson.*] Were you one of the men who attended the meeting at which the deputation was appointed? I believe I was. There were two meetings; I was at one but I do not know at which.
4240. *Mr. Brock.*] Were you one of the deputation? No.
4241. *President.*] Do you remember who formed the deputation? M'Mahon, Peters, Morgan, Jessop, and I think George Fraser was one.
4242. *Mr. Thompson.*] When you were at this meeting do you mean to say that a great deal more did not come out as between the men than what you have told us of. You met together and you were very indignant—naturally so provided you were all honest—that this kind of thing should be said about the tram conductors generally. You took the matter up to get the thing righted, and the outcome was the appointment of this Commission. Yet not one of you men who moved in the matter have given us one atom of information that would lead to anything definite; you yourself have told us nothing except this little thing about Ferrier? I said nothing at all at the meeting I sat there and listened to the others.
4243. Did they not mention the names of the men who they had reason to suspect were acting dishonestly? I never heard them.
4244. Do you mean to say that talking among yourselves before this noise occurred you never heard of the men who were making money out of the tickets and who were buying houses and land? I have often heard

heard of the joke when men have been running out to the racecourse they may have said, "How much have you made to-day?" That used to be a regular by-word and it was always put down as a joke.

4245. *Mr. Brock.*] Were you ever out there on the same tram as Musgrave? Yes.

4246. How long ago? I could not exactly say how long it was. Something like a month before he got discharged.

4247. Do you mean to say that you never had any conversation with him about faking the bells? No never.

4248. Did he never tell you that he was making a good thing out of it? No.

4249. He never referred to it in any way? Never to me.

4250. And you never knew that it could be done? No I did not.

4251. *President.*] You know driver Hadwell? Yes.

4252. Don't you remember some months ago at the Leichhardt terminus showing Hadwell and Simpson the way in which the bells could be worked by inserting a pin, and telling them how it was said that this game was being carried on? No, never.

4253. Do you swear that? Yes.

4254. Do you remember having any conversation with driver Hadwell on the subject? Yes.

4255. What passed? Well it was not before this thing was spoken of.

4256. Where did the conversation take place? It was not with Hadwell alone; there were five or six others.

4257. That is not the conversation I want you to try and remember; the one I refer to was with Hadwell and Simpson at Leichhardt? I never had it.

4258. Did you never run there with them? Yes.

4259. And you never had any conversation of this kind? Never.

4260. *Mr. Brock.*] Do you know Archibald Fraser? Yes.

4261. Have you had any conversation with him about it? No.

4262. *Mr. Thompson.*] Who are the men among those you know who used to be most conspicuous on the racecourse betting and gambling? I never was at the racecourse further than running out there with the trams.

4263. Did you not go to the Rosehill Races once? It was when ten or eleven of us were discharged. That was when I was up there.

4264. Were you there on the 1st July, 1886? Yes, I think so.

4265. *President.*] Listen to this: "He came to me at 1 p.m. in a drunken state only a short time before he was going on duty, and on the following Saturday he went to the Rosehill Races. If he was on a different run he would not have so much spare time." That is a statement by Mrs. Connors? That is not true. I have been out there only once and that was when we were discharged.

4266. You never have been to any racecourse except when on duty? No, with that exception.

4267. *Mr. Thompson.*] You distinctly deny showing Hadwell at any time the way in which the bells were faked? Yes.

4268. *Mr. Brock.*] Do you know yourself how to rig the bells? No.

4269. Did you ever hear it said that it could be done by inserting a pin in the slot at the bottom? I heard it said one night when Hadwell and Simpson were talking; it was on a Saturday night after the thing had appeared in the papers and they were talking about it.

4270. But you did not hear of it before? No.

4271. And you did not think it was going on? I had not the slightest idea of it.

4272. You did not even suspect Ferrier? No, I did not. When Hadwell was talking he said he believed there were two men who used to put pins in their bells, and collect a couple of car-loads of tickets without any of the fares being registered. That was all that ever passed. That was the only conversation between myself and Hadwell.

4273. *President.*] Don't you remember telling Hadwell at Leichhardt that it was a great shame that these men could not be caught at it. That is a remark I made in the yards. It was not at Leichhardt.

4274. Do you know Cook? Not that I know of. When I was brought down to identify the man who got on to the tram with Ferrier, Cook was brought down to the office with Ferrier, and I said that he was not the man who got on to the tram with him. That is all I know of him. The first I saw of him was on the Friday fixed for the deputation.

4275. You have never seen him on a tram? Not to my knowledge. He may have been on my car at different times, but I should not know him.

4276. You do not know of anyone, with the exception of Ferrier, who got on to your car and made overtures to you about the tickets? Nobody.

4277. If anyone has said that some man was constantly getting on to your car at different places trying to tempt you to defraud the Government that is utterly untrue? It is.

4278. *Mr. Brock.*] Were you not speaking about these frauds some time ago? No. The first time it struck me about the frauds was when they were talking of it in the room. That made me mention the matter about Ferrier in the presence of the others.

4279. Were not your suspicions aroused when Ferrier made overtures to you? I had not the slightest idea then of what he meant, but when I heard them talking about it it struck me that that was what they must mean.

4280. You did not think he did it with any improper motive? No, I did not.

4281. *Mr. Thompson.*] Why did you tell him to go and buy the tram-tickets at a shop? He was always at some sort of trick of this kind, and I said it to put him off.

4282. *Mr. Brock.*] Suppose you had £2 worth of tickets what would he have given you for them? I don't know. He would not have given me 20s. in the pound. They would have been of no use to him at that rate.

4283. You are pretty well convinced now, however, that these frauds were carried on? I suppose I shall have to be convinced now.

Conductor
J. Connors
4 Sept., 1888

James Siddons called in, sworn, and examined:—

J. Siddons.
4 Sept., 1888.

4284. *President.* What business are you in, and where do you reside? At the corner of Botany-road.
4285. And you are in business there as what? I have a general store at the corner and a hairdressing-room along the side.
4286. Do you sell tram-tickets? I have not sold any for five or six months.
4287. Have you ever had a license? Yes.
4288. When did you give up your license? My license was cancelled.
4289. What for? That I do not know.
4290. You have not the slightest idea? No.
4291. Was no reason given to you? No reason at all.
4292. Did you receive any letter from the Department? One informing me that my license was cancelled.
4293. And nothing happened to disclose to you the reason it was cancelled? No.
4294. Had you ever any transactions in tickets with any of the conductors? No.
4295. Do you know a conductor named Greeley? Yes.
4296. Do you mean to say that you have not made overtures to Greeley? No, I have not.
4297. I mean for the purchase of tickets from him? No.
4298. You had better be careful? I have nothing to be careful about that I know of.
4299. I presume you know the object of this inquiry? Yes.
4300. You know that certain frauds have been going on? Yes.
4301. And that this Commission has been appointed to get at the very bottom of them? Yes.
4302. We have sent for you because we believe you have it in your power to give us certain information, and we have it in our power to say to you that we are not seeking you in the matter, and that if you will give us information which may lead to the conviction or finding out of those employees of the Government who have been dishonest, no action shall be taken against you, although what you tell us may connect you with those transactions. It is of the highest importance that we should get to know who these dishonest men are? I know no more than what I have mentioned.
4303. What tramway employees have been in the habit of frequenting your shop in uniform? Several. I could not tell you exactly who. I do not know many by name, but I know a good many by sight.
4304. You know Greeley by name well? Yes. I have heard his name since these frauds came up. I cannot say that I knew his name before.
4305. If Greeley has sworn positively before the Commission that on several occasions you made overtures to him for the purchase from him of tram-tickets has he sworn falsely? Yes, he has.
4306. You absolutely swear that no such thing has ever taken place? I do.
4307. You say you had a license? Yes.
4308. For how long? Upwards of two years.
4309. Do you remember on one occasion a little girl coming into your shop to buy some tickets and your refusing to sell them? There have been several hundreds, I dare say.
4310. To whom you have refused to sell tickets? Yes.
4311. Why? Because at the time I had not a license.
4312. Did many people come when you had no license? They came in dozens. I dare say fifty every day.
4313. When you have had a license have you ever refused to sell tickets? I never refused while I had a license.
4314. I presume you will not deny that you have sold from your shop tickets that have been used before? I am certain I have not. Not to my knowledge; of course I have bought tickets of a man named Gain, on the Botany-road.
4315. Who is he? A storekeeper.
4316. And in what shape have you bought them? In £1 worth, or £2 worth, or 10s. worth.
4317. But in what shape? In sheets.
4318. Have you not purchased tickets from any one which have not been in sheets? No.
4319. You must know perfectly well that you have sold tickets in a very dirty condition, and that you have sold them in ones and twos? Of course I have sold them in ones and twos; I don't deny that at all.
4320. The tickets to which I refer were in a very dirty condition. You sold them frequently and to all appearance they had been used before? Not that I am aware of.
4321. Do you deny again that you refused on one or two occasions to sell some tickets to a little girl or a little boy who came into your shop for them? Did I refuse?
4322. I mean while you had a license? I could not answer that question; I may have done so because several times we have been out of tickets.
4323. Will you deny that on one occasion while you had your license a little girl asked you for tickets and you said, "Who sent you?" and you followed that up by saying, "Was it Moran who sent you?" I deny that.
4324. Do you deny it absolutely? Yes.
4325. Do you deny that on another occasion you asked, "Who sent you?" and followed it up by saying, "Was it two men?" Yes I deny that.
4326. And you followed it up by saying that you would not let her have them because you knew that Wigg and Moran had sent her? No, I cannot say that I knew them by those names.
4327. You did not know Wigg or Moran? Not by name.
4328. Who is Moran? The gentleman sitting over there.
4329. Do you know a conductor who is in the habit of leaving his tram and going to your place for a shave? I could not say that I do.
4330. Do you know Ferrier? No, not that I know of.
4331. Or Musgrave? No.
4332. Or Fraser? Not that I know of.
4333. Greeley then was the only man whose name you have ascertained. Can you explain that? It is since these frauds, since there has been so much talking about it.
4334. Have you not had several conversations with Greeley on the subject of tickets? None whatever.
4335. And we are to believe that Greeley has concocted this story entirely? I cannot say what you are to believe; I do not know anything at all about it.
4336. I will put it in another way: Greeley must have concocted it? If he says I had any conversation with him with regard to tickets he must have been telling lies.
- 4337.

J. Siddons.

4 Sept., 1888.

4337. Have you seen Greeley since this inquiry commenced? Yes.
4338. Have you had any conversation on the subject of the frauds? None at all.
4339. You were not in any way curious on the subject? I cannot say that I was.
4340. Greeley did not tell you that he had been obliged to give evidence with respect to these transactions? No.
4341. If any one states that they bought tickets from you in ones and twos, and that they had evidently been used before, is that true? I could not say about ones or twos.
4342. Or that they had evidently been used before? Not to my knowledge.
4343. Is it not a fact that Greeley frequently left his tram, and remained in your shop till the tram returned? I could not say that.
4344. *Mr. Thompson.*] How long is it since you were up for fencing that stuff? Somewhere about twelve months ago. You must understand that there was no evidence at all.
4345. You were one of the unfortunate ones who got blamed for a thing you did not do? I was unfortunate. I have not got over it yet, I can assure you.
4346. What was it? I took two rings from a young fellow who owed me some money, and in time it came out that these rings were stolen. A party came round and asked me if I bought them, and I gave them to him. About a week afterwards they arrested this young chap, and served me with a summons. I reserved my defence, and got committed for trial. Then I was discharged without any evidence at all; that is to say, the jury discharged me on the evidence of the Crown.
4347. And gave you the benefit of the doubt? Yes.
4348. Is there ever any gambling at your shop? No.
4349. No play of any kind? None whatever.
4350. Don't the conductors make it a sort of lounging-place? No; nobody does. I have nobody there.
4351. *Mr. Brock.*] What did you pay for these tickets that you bought at the other shop? The same price that is paid everywhere—a pound for a pound's worth.
4352. But when you buy from the office you get commission? Yes; $1\frac{1}{2}$ per cent. But I do not always happen to have £5 by me, and that is why I have sent out for them. At another time I should have had to leave my shop to come into town, and should possibly have lost 3s. in custom for the sake of making 1s. 6d.
4353. You never sold tickets which had been used then as far as you know? No.
4354. How could you sell them and not know it? Why do you say "not as far as I know" if you had not done it? I don't know.
4355. You do not appear to be quite sure whether you have or have not sold second-hand tickets? I am sure, as far as that goes, that I have bought them from the shop I mentioned.
4356. But you said just now that as far as you know you had not sold any of these second-hand tickets? Well I could not swear to anything I do not know.
4357. And you don't know whether you have sold second-hand tickets, or whether you have not? You might say that this man of whom I bought them had second-hand tickets. How was I to know?
4358. Then it comes to this, that you cannot swear that you have not sold second-hand tickets? I can swear that I have paid the full price for every ticket I have sold.
4359. But how could tickets which you say you bought in sheets have been used before? I could not say.
4360. You swear that you have never bought them otherwise than in sheets? Yes, I swear that.
4361. And yet you are not able to swear that you have not sold second-hand tickets? Of course I can swear that in one way I have paid the full price for every ticket I have sold, and I have bought them in sheets; but how can I say that they have not been used before? Gain can swear that he sold the tickets to me, and I suppose he knows whether they were second-hand or whether they were not. If you call Gain's tickets second-hand tickets I have bought them; if they are not second-hand tickets I have not bought any.
4362. You swear that you never bought tickets except at that shop and at the office? I never have.
4363. You swear that? Yes.
4364. You also swear that you never tried to buy any second-hand tickets? Yes.
4365. Do you persist in swearing that you do not know Musgrave? Yes.
4366. Do you know Fraser? No.
4367. You have never heard of him? Not that I know of.
4368. Do you mean seriously to say that you do not know Fraser? I do not know him.
4369. You do not even know his name? No.
4370. You might hear a dozen names and yet not know them? Yes.
4371. You do not know a man called Fraser, a conductor in the tram service? No.
4372. Do you know a man named Ferrier in the tram service? No.
4373. *President.*] I must press you to let us know the names of these other men who used to go into your shop; we cannot really credit that you do not know some of their names? There is a young fellow living about a quarter of a mile beyond me who used to be driving a van, but I cannot tell you his name. I might be able to tell you if you mentioned it.
4374. Is he a conductor? Yes.
4375. Describe him? He is a young fellow, rather tall. He shaves all round. He has very light whiskers, and he used to come there regularly.
4376. You say he is a tall man? Not particularly.
4377. What line is he on? He has been on the Waterloo line on several occasions.
4378. How long has he been on the trams? I could not say.
4379. How long is it since he was a van-driver? About six or seven years ago.
4380. And you do not know his name? I know his name, if I can think of it.
4381. You knew this man seven years ago, you know all his movements, and yet you swear that you do not know his name? I know it if I can think of it. A man who is asked a question has not always an answer at his fingers' ends.
4382. What color is his moustache? About the color of my own.
4383. What street does he live in? I think he lives on the new estate. He is the owner of a couple of houses over there.
4384. *Mr. Thompson.*] He lives in one of them himself? Yes.

- J. Siddons. 4385. Think of one or two of the other men who have been in the habit of frequenting your place, coming in to get a shave and so forth? I daresay a thousand come into my shop through the year.
- 4 Sept., 1888. 4386. *President.*] But not all conductors in uniforms? Well, it would be very rude of me if I were to ask the name of every customer who comes into my shop.
4387. We should not expect that, but when men in uniform are in the habit of frequenting your shop you get to know their names; you hear them talking to one another. Greeley, for instance, would say, "Halloa, Connors; how are you this morning?" and so on? Well I cannot think of any names at present.
4388. Did you know conductor Morgan? Not that I know of.
4389. With regard to the man you have been speaking of is his name Clements? Yes.
4390. *Mr. Brock.*] How long is it since you have seen him? About a fortnight ago.
4391. Is Greeley a man who gambles? Not that I know of.
4392. Do you know anything of his private life? No.
4393. Where does he live? I could not tell you.
4394. Is it not strange that this man should come in and swear most positively that he has had all these conversations with you and that he has received these overtures from you making up an absolutely perjured yarn in order to get you into a mess? I look at it in this way: If this man has sworn this and knew that he could get me into a mess, why did he not do so?
4395. Have you seen him since he has given his evidence? I do not know when he gave his evidence.
4396. When did you last see him? I rode down in the same tram with him the other day.
4397. Were you speaking to him? No; I just bade him good morning.
4398. Did he appear friendly? Yes.
4399. He always was very friendly was he not? Yes; as far as saying good morning goes.
4400. When you made these overtures he did not refuse them? I never made any.
4401. *Mr. Thompson.*] Do you go to the races? No.
4402. Nor to foot races? No.
4403. And you do not make a book? No.
4404. *President.*] I think you would have adopted a better course had you been a little more communicative? I could not be.
4405. Do you know Powell the barber? Yes.
4406. Is he near you? Yes.
4407. Do you know that a number of tramway employees are in the habit of frequenting his place? I could not say.
4408. Do you know that there is a little playing going on there? I could not swear it.
4409. And you never thought of getting up a counter-attraction to divert the custom? No; I am in the wrong family for that.
4410. What do you mean? We are a little bit too highly respected for anything of that sort.
4411. *Mr. Thompson.*] Pray who do you belong to that you are disposed to brag of your family in this way? Well I have got my name to look after. I was born within a few yards of where I live, and I have been there all my life.
4412. You do not suggest that anything disreputable went on in Powell's shop? Well, you cannot call playing anything else.
4413. You would condemn it? Yes.
4414. Playing a hand of cards for cigars; you would condemn that as being disreputable? Yes.
4415. In short you are the man we should expect to give us all the information you can? I have none that I know of to give you.
4416. You would not allow card-playing in your own house? My wife would not if I did.
4417. *Mr. Brock.*] Did you never play cards? I have done so.
4418. How long since? Four or five years ago.
4419. Do you know a man named Cook? Yes.
4420. Charles Cook? I could not say whether that is his name.
4421. Were you in partnership with him at one time? No.
4422. What was he? The Cook I mean was on the tramways.
4423. We mean the Cook who is a barber and bookmaker? I do not know him.
4424. He lived close to you at one time did he not? Not that I am aware of.
4425. You remember Cook selling off a barber's shop three or four doors from you, opposite Powell's? There was a barber's shop opposite Powell's, but I did not know that that was the name.
4426. *Mr. Thompson.*] If you heard the name would you remember it? I think it was Turner.
4427. Did you never meet Turner or Cook? I should not know them if I did.

Francis Joseph MacMahon called in, sworn, and examined:—

- Conductor 4428. *President.*] You are a tramway conductor? Yes.
- F. J. 4429. How long have you been in the Service? Eight years on the 11th October next.
- MacMahon. 4430. I will tell you what has led us to send for you: You attended a meeting of the employees, and you were elected as one of a deputation to wait upon the honorable the Minister? Yes.
- 4 Sept., 1888. 4431. Were you the chairman of the deputation? Yes; I was also chairman of one of our meetings previous to the deputation. Mr. Schey introduced the deputation.
4432. You held your meeting because you felt that these frauds affected the whole of the Department—that they indirectly affected every man in the employ? Yes.
4433. It is a matter of some little surprise to the Commission that you, as well as others who formed the deputation have not given us a little more assistance than you have done? I have never been asked to do so up to the present time.
4434. But you took a great interest in the whole affair. You waited upon the Minister as chairman of a deputation, asking that a Commission might be appointed, and therefore it seemed to us that you were very highly interested in the matter? So we were.

4435. And therefore we should look to you for some little information. We should expect that you would rather go out of your way to give us some little information; so far you have given us no help at all? I did not think I could call and ask to be present for the purpose of furnishing information; I thought that if any information was required of me I should be sent for.

Conductor
F. J.
MacMahon.

4 Sept., 1888.

4436. *Mr. Thompson.*] Are you in a position to give us any information that will take us one inch beyond what has already become known? I am in the dark as far as that is concerned; I do not know what has already become known.

4437. *President.*] What do you know of the matter. Just let us know what was the first thing you heard in connection with these frauds. Did you hear nothing before the whole thing was disclosed in the press? I did not know anything until I saw it in the papers—that is, in the *Star*. That was the first I heard of it; that was the first intimation I had in reference to these frauds.

4438. That was the first inkling you had that there was any fraud whatever going on? Yes; that was the first inkling or information I had of any fraud taking place. I saw it stated in the paper that frauds were being committed by conductors; mentioning, I think, ten, and going into certain theories as to how it could be done. Of course I thought it was not feasible.

4439. Did not the papers give any names? I thought it was not feasible that such a thing could be done, and knowing the facilities for fraud in every quarter, I thought that if any fraud was committed, it must be done somewhere else, and that in order to cloak the thing over the odium was cast upon the conductors.

4440. Do you mean to say that you had not heard of conversations constantly taking place among conductors and drivers many months ago? What conversations?

4441. Nothing very definite as to fraud, but conversations in which frauds were suggested, or in which the possibility of frauds was suggested; and that sort of thing—as to how it could be done and what they made, and so forth. Why, we understand it has been a standing joke for months and months, if not years, in connection with race-trams for instance? I have often heard the remark used jocularly, but at this stage you must excuse me if I raise an objection. I don't wish to treat the Commission with any discourtesy, but I think that Moran should not be present at this inquiry, he being an officer of the Department. It would prevent men-speaking perhaps as they otherwise would do. There is always a possibility of these things being carried to the heads of Departments, and so a certain amount of intimidation is exercised.

4442. Is there anything you could state in Moran's absence that you cannot state in his presence? I could not say that there was.

4443. If you would rather that he should not be present we will ask him to go out? I would rather that he should be absent than present. You were just speaking to me about things being said in jokes. I remember some time ago, being in the office, I heard the Superintendent of Tramways remark to some men, "How much have you made to-day?" and I thought it was a very nasty remark.

4444. Do you mean Mr. Roberts? Yes. I heard him say it in a jocular way to the men. I did not like the remark at all. I thought it came from him with very bad grace, although it was in joke. Ever since then it has been a joke among the men.

4445. How long ago is that; is it a matter of two years ago? More than that—four or five or six years ago, when the office was in King-street.

4446. Surely it is not so long ago as that? I think it is nearly six years ago since I heard that remark, and I thought it came with very bad grace from Mr. Roberts. That was the outcome of the remark among the men, "How much have you made to-day?"

4447. You don't think that the outcome of this joke among the men was some knowledge of this kind of thing actually going on? I do not think it was.

4448. *Mr. Thompson.*] You think it began with Mr. Roberts then? In some way like that.

4449. *Mr. Brock.*] Don't you think Mr. Roberts may have meant to ask the conductors their opinion of what business had been done; that is, not what they made for themselves, but what they had made for the Service? I do not think it could be applied in that light at all.

4450. Is it not quite possible that a master—a man having a large factory or some business—might say to one or two of the men, "How much have you made to-day?" meaning not for themselves but for him? Yes, I see what you mean, but I do not think it could be applied in that way. If it was meant in that sense anyone with any sense at all would know it.

4451. *President.*] You think if it had been meant in that way you would have known? Yes; because it would have been impossible for a guard to form an estimate in any case of what he has been doing during the day.

4452. *Mr. Brock.*] But any conductor could form some estimate of what he had taken? They could not do so. They simply have their bells, and they ring and ring away.

4453. But they handle all the tickets? Yes, but they could not tell what they had taken in any one day.

4454. You have been in the Service seven years, and you mean to say that you could not tell any one roughly what you had done for the Department on any particular day? No, I could not, unless I took the trouble of counting as I went along.

4455. I do not mean accurately; I mean roughly or approximately. For instance, you might come home and say to your friends, "We have had a good day to-day; we must have made so many thousand or hundred tickets," as the case may be. Don't you think it is likely that anyone knowing that you could give that information would put the question in that way? If it had been asked of me on that day of course I should consider for a few moments and then reply to the question. If it had been put to me in that way it would have been very different but in the way it was put to me; it had a different bearing altogether.

4456. *President.*] The question is are you not able to form a pretty fair estimate of what your takings are during a day? I never took the trouble to estimate one.

4457. *Mr. Brock.*] I expect the Superintendent met you and said, "Have you had a good day to-day, or have you had a bad day?" Don't you think that is the way in which he meant it, meaning, of course, the Department? Such questions are never put to us, and never have been.

4458. But you say that this question was put to you on one occasion only, and that that was over four years ago? I think I heard it put once, and that is all; that is in the way you describe; but in the other sense I have often heard it said. I think I have heard it many times from Mr. Roberts, himself in a jocular way.

4459. When would it be said by him—when the conductors were going in with their returns? It occurred in this way: We were in the office waiting one day; it was one Sunday morning; Mr. Roberts came through, and as he passed he made that remark.

4460.

- Conductor
F. J.
MacMahon.
4 Sept., 1888.
4460. If he said it to you at that period of the day he could not have expected that you would have made much? When I say the morning I mean about dinner-time, say.
4461. What conductors were present on that occasion? I could not recollect.
4462. *President.*] But you recollect the expression? Yes.
4463. It struck you as being singular? Yes, I thought it was not very pleasant.
4464. Was Mr. Roberts on such terms as those with the conductors. Did it not indicate his being on rather more friendly terms with his subordinates than the head of a branch should be? He did not address me personally—he addressed us all. He is very friendly with all of us—too much so, I think.
4465. You mean that he is what is called free? Yes, too much so for a gentleman occupying the position he does.
4466. You would rather he kept you more at a distance? Yes, I think it would be better for all if that were done.
4467. But still you have no reason to suppose that this remark was anything more than a jocular one? No, I have not.
4468. A bit of chaff? Yes.
4469. *Mr. Thompson.*] You appear to think that it was very misplaced? Yes, the reason it made me think so was this: I came from a position which I had held for a number of years. I had been at Kidman's, managing his shop, and I used to have thousands of pounds passing through my hands. When I came into the Tram Department I thought this was a very nasty remark to make, after I had been in such a responsible position before.
4470. But it was not addressed to you particularly? I do not think so. It was addressed to us in a body.
4471. You think that he had meant to ask you what you had made in an unfair and an improper way, not what you had merely made in the exercise of your duties? Yes.
4472. *Mr. Brock.*] That is the construction you put upon it? Yes.
4473. *President.*] Was any answer made to this by any of the men? I could not remember.
4474. Did you resent it yourself? I did not. I was only new in the Department, and I would not be so impertinent as to resent it.
4475. *Mr. Brock:* How many others were there? There were several.
4476. Cannot you remember the names of any of them? I could not, really.
4477. *President.*] And you think that it gave rise to this chaff among the men. You did not think that the chaff was used from a knowledge on the part of some of them that there were black sheep in the flock who were doing that kind of thing? I do not think that was the origin of it.
4478. Have you any reason to suspect any of the conductors of improper practices? No; I have no reasons whatever.
4479. *Mr. Brock.*] What line are you on? Waverley, Woollahra, and Bondi.
4480. You said that you were a manager at Kidman's, and that thousands of pounds passed through your hands;—I suppose you were in receipt of a good salary? About £2 10s. a week.
4481. Did you consider that being a tram-conductor was a better billet than that? Mr. Kidman gave up the shop at the corner of Harris-street and Parramatta-street. It expired when the lease expired, and he did not renew it. I then went up to Bathurst.
4482. Could not Mr. Kidman have put you in somewhere else? Not very well. Then I took a holiday for a while. I was not very well at the time. The reason I came on to the trams was principally to benefit my health, and to get shorter hours. The hours in a grocery business are very long, from 7 in the morning until 8 o'clock at night.
4483. Do you consider that the work of a tram conductor is very healthy? Yes; I have been very healthy since I have been at the work. Outdoor occupation has agreed with me.
4484. The work is a trifle light, I suppose? The running about and the vibration make you extremely tired in the legs, but there is nothing further than that. Before I was ordered to the country Dr. Sparke advised me to leave the grocery business.
4485. *President.*] Beyond what you have told us there is no information which you can give us? None.
4486. *Mr. Brock.*] You never suspected that any of these frauds were going on? No; I had no suspicions.
4487. Although you were on the Waverley line? I had no suspicions whatever.
4488. Did you never hear any rumours at all about it? No, I never heard any rumours.
4489. *Mr. Thompson.*] Did you never hear what driver Graham has been saying to lots of men about as to what he had seen? I never knew anything about it until the frauds were exposed. Then I heard something in reference to it.
4490. *President.*] Is the paragraph which appeared in the *Star* on the Saturday what you are referring to? That is part of it. In the Monday's issue there was an elaborate display. It was said that men were making £10 a week by putting pins in their registers. The paragraph you have was published on the 14th, and the elaborate description was published on the 16th.
4491. Did you never hear of certain conductors being suspected and having their bells taken off them on the trip for examination? No; I never did.
4492. Do you know Musgrave? Yes, well.
4493. Have you been on the same tram with him? On many occasions.
4494. And he never had any conversations with you about this matter? None whatever.
4495. *Mr. Thompson.*] Did it not strike you that the returns of some men were marvellously small as compared with what they ought to be? No.
4496. Were not these returns noticed when the men came into the office? We never knew anything about the returns of passengers.
4497. Where was the question asked you as to what the traffic had been and so on? It was not asked of us in that sense.
4498. *Mr. Brock.*] Did you never hear anything about the trams not paying? I have repeatedly read about it.
4499. And you know nothing about the matter further? Only what I have read about it.
4500. *Mr. Thompson.*] Were you never told that the returns which you and Musgrave passed in for the same tram were marvellously different—that yours were much the larger number; and that his were comparatively nothing? I never heard so at any time. I never heard it mentioned. I never had any inkling of it—from the number of tickets which one man and another sent in.
- 4501.

Conductor.
F. J.
MacMahon.

4 Sept., 1888.

4501. *President.*] Have you ever sold tram-tickets? No.
4502. It was alleged that you had on one occasion, was it not? Yes; anonymously. I wish they would do it openly, and put their names to it. I would give £10 if they would.
4503. You never had a license? Not to sell tram-tickets.
4504. You have got a shop though? Yes; I keep a shop. The Commissioner gave me permission. My wife keeps it. It is on the Glenmore Road.
4505. *Mr. Thompson.*] Had your wife been in business before you married her; was she a business woman? No.
4506. She had no shop when you married her? No; but she had been accustomed to business.
4507. You bought the business then? I put her in it.
4508. Had it been an established business before you went into it, or did you set it up and start it? There was no shop in the neighbourhood where I went to live, and I took a house and converted it into a shop. My wife carries it on when I am away, and when I am at home I do a little at it myself.
4509. What family have you? Five children. I do not go drinking and gambling at races. I thought I might as well do a little in business, as others were buying and selling houses and land, and all that kind of thing.
4510. Others were doing this, and yet you had no suspicion of them? No.
4511. *Mr. Brock.*] You made rather a strange insinuation just now, when you referred to the buying of houses and land? I think you misunderstood me.
4512. The emphasis you used would certainly lead one to do so? Will you repeat your question?
4513. *President.*] The emphasis you used led me, as well as Mr. Brock, to misunderstand you, if you did not mean to convey an insinuation against others of the tramway men, leading us to suppose that they did this kind of thing? I did not mean that.
4514. I thought you meant to say that those who gambled and bought houses and land could not have done so honestly? I meant that others in Government positions all over the country were buying land and building houses, acting quite honestly. As I could not do that kind of thing I thought I might as well keep a shop.
4515. But you spoke of gambling and horse-racing? Well, sometimes people are successful in gambling.
4516. Then, again, you said that you did not drink? Well, I don't.
4517. But you evidently thought that some one else did? I did not think they did so dishonestly. I had no reason to think so. If I had any reasons I would state them.
4518. You don't even think that they gambled dishonestly? I do not think they do.
4519. Did you ever go in for these vices? No.
4520. Then you do not know much about it? No. The extent of my gambling is an occasional half-crown in a sweep. I don't consider that gambling.
4521. *Mr. Thompson.*] Among those you know in the Department who gamble and go to horse-races, are there any whom you could reasonably suspect of having done so from means outside of their salaries? No; I have no reason to suspect any men at all.
4522. You were, as I understand, one of the main hands in getting up the agitation by means of which this Commission has been called into existence. Am I right? You are.
4523. Why did you take the step which led to this Commission being called into existence if you could not help us further than you have done? Well the statement in the papers implied that ten conductors were doing certain things, and it went on to speak in such a manner, that it threw suspicion over the whole of us, and a lady said that in future she would not pay any more fares in tickets but that she would pay in cash, because she knew very well that if she paid in tickets the Government would not get them. That appeared in the *Star*.
4524. Have you suffered any insult while discharging your duty as a conductor? A few remarks have been passed in a casual way, but they have not been impertinent to me. They all know me very well upon the line. I do not think any of them would say anything to me to hurt my feelings in that way. You asked me just now if I sold tram-tickets; I think that in my own interest it is desirable that I should say a little more on that subject. One of my children had a quarrel with a child of a Jew named Prince who lives opposite to where I do. His children broke my window with a stone; I complained of it, and threatened to summon them for breaking the window; however, I did not do so. A short time afterwards little Prince struck my little boy I threatened to strike Prince's boy, and I told him I would strike his old man too. This is about six months ago, and after that Prince kept throwing off at me about my keeping the shop, and that he would do this, that, and the other. An anonymous letter came to the Department—I think there were two, one to the Commissioner and one to Mr. Roberts—stating that I was keeping a shop and selling tram-tickets, and of course I replied to this and stated that I did not sell tram-tickets and never had. I challenged any inquiry from the Department, or from anyone in reference to this statement.
4525. How long ago is it since that letter was sent in? About six months ago.
4526. That is before the noise of these tram frauds got about? Yes; it was only done from spite to injure me in the shop that was all.
4527. As regards the shop did you build it yourself or are you renting it? I am not renting it now; I rented it for the first eighteen months I was in it. I have purchased it. I have paid a deposit on it and I am paying the balance off. I bought it from Mr. Hart. There were two houses together. The house next door I rent. I borrowed £500. I made a bargain for a piece of land over on the Duxford Estate. I bought it for £7 a foot and sold it for £10.
4528. What price did you give for the house? £800. I bought it of Mr. Hart, a builder, of Redfern. I cannot remember exactly the circumstances of the purchase. I know I borrowed £500 from the bank. I think I put £100 to that. I believe I had to borrow another £50 to make it up. I think I gave £600, and then I gave a promissory note for the remainder, covering the land I held on the Duxford Estate.
4529. I suppose you do well out of this business conducted by your wife? Not much. There is nothing much in grocery. It is not worth bothering about. There is another shop around there now. We take a few pounds a week.

William Dolan called in, sworn, and examined:—

- W. Dolan. 4520. *President.*] You are a conductor? Yes.
4531. How long have you been in the Service? About seven years.
- 4 Sept., 1888. 4532. We have sent for you to see if you are in a position to give us any information whatever bearing upon the tramway frauds? Yes.
4533. Is there anything that has come to your knowledge in connection with them? The only information I can give is that it happened about four or five months ago. I should say it was about four months ago. I was on a Botany trip. I was coming in from Waterloo. A man stood on the front of the back car. I was collecting fares, and I asked him for his fare. He said, "You are a fool to be ringing for tickets; I can show you how to make 30s. or £1 a week." I said, "Do you take me to be a damned rogue as you are yourself? I have two minds to pitch you off the car, and if you do not get off at the next stopping place I will put you off." This was between Belmore and Liverpool Streets, and at Liverpool-street he got off.
4534. Do you know that man? I could not be positive that I could identify him. I know he is a short man.
4535. Have you seen him again? I have not.
4536. Have you heard anything in connection with him? No. It was dark at the time. I think he had a black moustache. I know he was a short built man, with either a black or brown moustache. I will not be certain which.
4537. Beyond that little incident you have nothing to tell us? Excepting this, that a Chinaman said to me, "Do you sell tickets?" I said, "No, I sell no tickets." I thought he was only skylarking, and I took no notice of him. That happened about two or three months ago I suppose.
4538. Still it looked as if this Chinaman had been getting tickets? It looked so. Of course he might not have done. He said it in a laughing kind of a way, and I took no offence at it.
4539. Was he a big Chinaman? Yes.
4540. Was he a man who came in and out pretty frequently? I have not seen him lately. He did at that time come in very frequently.
4541. You do not know what his name is I suppose? No, I do not.
4542. You have no reason to suspect any of the tramway employees? No; I have no reason whatever.
4543. Of course you must be aware that it is exceedingly desirable that we should get at the very bottom of this thing? Yes.
4544. Were you one of those who waited with a deputation upon the Minister? No, I was not; I attended the meeting.
4545. It seems to us that we have hardly received that assistance from the men that we had a right to expect? I am well aware that everybody would be pleased to give any explanation they can.
4546. The men got up an indignation meeting. They waited upon the Minister, and it was certainly understood that they would do all in their power to enable the Commission to get at the bottom of the matter, and we have some reason to complain that not any of them have come forward. You say you were not one of the deputation? No, I was not.
4547. *Mr. Thompson.*] We do not get a trace that we can follow up, no little clue even? No doubt some of them must know something about it.
4548. *President.*] Are you acquainted with Greeley? He has been on the Waterloo line for the last four years. I am on the Waterloo line.
4549. Do you know him well? Not very well. We have not been the best of friends lately.
4550. Have you any reason to suspect him? No, I have no reason to suspect him.
4551. But you do, nevertheless? I do, nevertheless, as you say. I can't say why I do, but I do.
4552. Did nothing more take place between you and this man who made this offensive offer to you? No; I would have thrown him off the car had it not been between two stopping places. He cleared out at Liverpool-street.
4553. *Mr. Thompson.*] At that shop? Well there is a shop on the opposite side. A Greek, I think, keeps it.
4554. I suppose it is difficult for you to understand how honest men could receive overtures of the kind you have described and play with them? I do not think any honest man would play with overtures of that kind. Previous to my being on the trams I was five years in the Artillery. I am a master gunner, and I had the mounting of all the guns at the South Head.
4555. Have you ever had any conversation with other conductors about these frauds? No; I have heard rumours in the conductors' room—just hearsay, that is all; but you cannot take any notice of it.
4556. How long since? This is since the Board has been sitting.
4557. But I mean before the frauds became public? I never heard the slightest mention of it. I never thought there was such a thing going on.
4558. Did you report this offensive offer made to you? I do not think I reported it officially. I think I mentioned it to some one—to Moran, I believe. I never sent in any official correspondence.
4559. *Mr. Brock.*] Did you ever hear of a man named Cook? Yes, I have heard of him since this matter began.
4560. Have you ever seen him? No; not to my knowledge.
4561. He answers your description of this man? The man I told you of was a short, thick fellow. He may have had a little whisker, but he had a black or brown moustache, very heavy.
4562. *Mr. Thompson.*] Was he a sharp speaking man? Yes, he spoke pretty sharply. I think he was at the Botany handicap. I believe I had three cars on at the time.
4563. He was standing under the ladder, I suppose? Yes; I will not be certain whether I had on two or three cars. If I had on three cars it happened on the middle car; if I had on two cars it happened on the back car, underneath the front part.

Patrick Stack called in, sworn, and examined :—

4564. *President.*] You are a conductor? Yes.
4565. How long have you been in the Tramway service? Seven years.
4566. I suppose you have heard a good deal about these frauds? I have.
4567. How long ago did you first hear of them? The first I knew of them was from what I saw in the papers.
4568. Before you saw the paragraph in the *Star* you never had the slightest inkling that there was anything improper going on? I never heard of it. I never thought there was such a thing.
4569. Were you at the public meeting? I was.
4570. What did you say? I said that it looked very bad for a clerk in the Department to be along with a man who had been suspended from the tramways for dishonesty.
4571. Was he suspended at that time? Yes.
4572. Who is the man you mean? Ferrier.
4573. And you saw Ferrier with whom? Mr. Colls.
4574. When and where? I could not give you the date, but I mentioned it at the meeting. I got Ferrier to substantiate what I had said at the meeting.
4575. You saw these two together? Yes.
4576. Where? I was down town on private business in the morning. After I had done it I wanted to catch the man I was to relieve to ask him to do a trip extra for me, because I could not go on. When I came to Market-street I saw Mr. Colls along with Ferrier. The tram upon which I expected to see my mate came along. The two of them got together on the tram. I got up behind them. They went on to the top of the car and stood alongside one another. I was standing close to them. When I came to Crown-street junction I came down, and Ferrier went away with Colls in the direction of Colls' house. Ferrier himself does not live in that direction.
4577. You are sure Ferrier was dismissed at the time? He was dismissed long before that.
4578. You are quite sure of it? It was about four days before the meeting. If Ferrier had not been dismissed I should have had no cause to complain of Colls being seen with him. I should not have noticed the fact of their being together?
4579. *Mr. Thompson.*] It would not have been a matter of observation? No, not at all. But the two of them were talking in the street, and then got up on to the tram. It was dinner-time, and seeing Ferrier go up the hill with Colls it struck me that it did not look well. I would be very sorry to be seen in Ferrier's company myself, or in the company of any one who would be implicated in a thing like that.
4580. Is it not a fact that you said something at the meeting about Colls being a brother-in-law of one of the men who had been stealing? Yes; he is a brother-in-law of Musgrave, and Musgrave himself had been suspended and was implicated in it.
4581. *Mr. Brock.*] What do you suppose Ferrier did walking with Colls? One can draw their own conclusions as to things of that kind, but with due respect to you Colls' brother-in-law was implicated in this matter at the time.
4582. You think that Musgrave being Colls' brother-in-law, and being implicated in the matter, it did not look well for Colls to be seen walking with Ferrier? That is just what I think. Ferrier had been dismissed, and Musgrave had been suspended if not dismissed.
4583. He was not dismissed, was he? But he was up two or three times before he was dismissed. Mr. Roberts had him up several times before this meeting about the bells. Ferrier was dismissed, and the other man had been up before Mr. Roberts, and he was afraid of something coming.
4584. What made you think that? Because he was up once or twice at Mr. Roberts' office about the same thing.
4585. Can you tell us anything more? I knew nothing till I saw it in the papers. I did not dream of anything being wrong with the bells or with the tramways.
4586. You had seen it in the papers before you saw Colls and Ferrier together? Yes; a good bit before that. If I had seen them together before I saw it in the papers I would not have thought anything about it.
4587. *President.*] Did Colls challenge you on the morning after the meeting about having made a misstatement about his connection with Ferrier? Well Colls said that he had never done anything to me that I should say anything about him at the meeting. I told him that I had said nothing except what I had seen.
4588. You made no apology to Colls? I could not do so. He knew it was true. If he did not he could have called upon me for an explanation.
4589. *Mr. Thompson.*] He has not spoken to you about it since? Never since that morning.
4590. *President.*] Could you repeat the statement you made at the meeting? No; but you know the meaning of what I said. Ferrier was in the room at the time.
4591. Were you wrongly reported in the newspapers? I do not know how the report went in.
4592. You saw the newspapers? Yes; but I do not know exactly what they said.
4593. I presume Colls came to you on seeing it in the papers? Yes; or he might have heard of it before he saw the papers at all.
4594. *Mr. Thompson.*] You stuck to what you had said, and you had no apology to offer because you had spoken the truth? Yes; Quin, the guard upon the tram who took Ferrier's ticket, could substantiate what I said.
4595. You do not know whether at that time Musgrave was stopping at Colls'? I did not know he lived there.
4596. *President.*] Do you know where Ferrier lived? I do not know; I think he lived somewhere out at Newtown; he did not live in Crown-street anywhere.
4597. Did he not live in East-street? I don't know; it is not near Crown-street.
4598. *Mr. Thompson.*] How far did the two of them go together? I do not know; I left them at the Crown-street junction.
4599. *President.*] Are you sure that you know Musgrave and Ferrier apart? I am quite sure that I should not confound them; I know them too well; I have known them for years, ever since they have been on the trams.
4600. *Mr. Thompson.*] How far did you see Colls and Ferrier go together? I got down at Crown-street junction, and they went away towards Surry Hills.

Conductor
P. Stack.

4 Sept., 1888.

- Conductor P. Stack.
4 Sept., 1888.
4601. What time was it? It was on the 2 minutes past 1 tram.
4602. You were merely going home to get your dinner? Yes.
4603. That is how conductor Quin came to be taking the tickets? Yes; he is my mate; I went on to the tram to see him.
4604. You did not hear what Colls and Ferrier were saying, did you? No. They were standing at Market-street when I came up; they might have been there half-an-hour before for all I know.
4605. Did you hear their conversation on the top of the car? They were not talking there.
4606. When you told Colls on the morning after the meeting that you had only spoken of what you had seen did he make any reply? No; he did not contradict me; he thought, I suppose, that I had no right to mention his name at all.
4607. He seemed to feel a little hurt? Yes.
4608. You mentioned at the meeting that Musgrave was a brother-in-law of Colls? Yes; I was under that belief; he passes as such.

Ambrose Scott called in, sworn, and examined:—

- Conductor A. Scott.
4 Sept., 1888.
4609. *President.*] What position do you occupy in the Department? I am a full conductor.
4610. How long have you been in the Service? About five years and a half.
4611. Are you able to give us any information in connection with these ticket frauds? None whatever.
4612. What was the first that you heard in connection with the matter? The first information I knew about it was what Greeley gave.
4613. How long ago is that? About two months ago now.
4614. Did you hear it from Greeley? No; it was the talk of the yard.
4615. You mean the meeting between Greeley and Ferrier? Yes.
4616. That was some little time before anything appeared in the Press, was it not? Yes, it was about four or five days before.
4617. Was it before Ferrier was dismissed? Yes, I think it was.
4618. Briefly what did you hear? I heard that Ferrier had met Greeley and had told him about the manipulation of the bells, and that Greeley had invited him to his house, where I was told Moran was at the time, and so the whole bubble was burst. That is all I heard.
4619. You are sure that was before Ferrier was dismissed? I think it was about a day previous—not very long.
4620. Have you never had any conversation with conductors or drivers on the subject of the frauds generally? None whatever.
4621. Have you never heard them talking about it as to how much the conductors made and so forth? No.
4622. Were you ever a party to this joke that seemed to be going the round of the conductors as to what they made when they went to the races in connection with the trams? I do not think so.
4623. Did you never hear it? I may have heard it.
4624. That is to say, one conductor would say to another, "How much did you make to-day?" and so forth? Yes.
4625. Have you any idea of the origin of that? None whatever.
4626. Do you know driver Graham? Yes.
4627. Have you ever had any conversations with him? No.
4628. On what line were you? On the Waverley line.
4629. Do you know Musgrave? Yes.
4630. Very well? As an employee.
4631. Was he not your assistant for some time? I have had him on and off.
4632. Have you ever had any reason to suspect him? None whatever.
4633. You always thought him honest? Yes.
4634. Did you ever see him with his pockets bulged out with tickets? No.
4635. He never told you that he was putting a wire in his register? No.
4636. I suppose you would converse with him frequently? Oh, yes.
4637. He never told you that his life was almost pestered out of him by a man who kept getting on to his tram two or three times a week suggesting, to him that he should defraud the Department? No.
4638. He never mentioned a syllable of it to you? Not one word.
4639. Nor did he ever show you that by fixing a wire at the foot of his register he could defraud the Government? No.
4640. *Mr. Brock.*] He never told you that he knew a namesake of yours? No.
4641. He never told you that a man named Scott used constantly to get on to his tram? No.
4642. Has anyone ever got on to the tram to you and made overtures of an improper character in regard to the tickets? No one.
4643. Are you married? No.
4644. *Mr. Thompson.*] Musgrave has mentioned a man named Scott. He swears that this man was repeatedly trying to get him to sell him tickets at a less price than that at which they are sold to the Government. Are you that man Scott? No.
4645. He said that Scott showed him how to fake the bells. You are not that man? No; not at all.
4646. *President.*] He said that this man Scott was known to all the conductors under various names, Brown and Curran for instance. Did you ever hear of a man going under either of these names? No.
4647. *Mr. Brock.*] Were you always on the Waverley line? Yes.
4648. *President.*] Don't you think it highly probable that if a man such as I have described was constantly getting on to the tram, that this man Musgrave would have mentioned it to you, or that if he had not mentioned it, you seeing that he was always talking to Musgrave would have observed it? Yes; I think I should have observed any one particular man constantly doing so.
4649. I suppose there are particular men getting on to the tram at the present time in the ordinary way whom you notice? Yes.
4650. Does it not seem to you that if this man had been getting on and teasing Musgrave in the way he is represented to have done, that Musgrave, if he had been honest in the matter, would have mentioned to you the trouble he was in, and the way in which he was bothered? Yes; I should think so, certainly.
4651.

Conductor
A. Scott.
4 Sept. 1888.

4651. Especially as the man was a namesake of yours? He never told me that he knew any namesake of mine.
4652. Did he give you any confidence in the matter at all? No.
4653. *Mr. Thompson.*] He never asked your advice or hinted at anything of the kind? No.
4654. *President.*] He never showed you a wire and told you that this certain wire was worth a tanner a week to him? No.
4655. He never gave you an illustration of how he could collect a car-load of passengers and pocket the whole of the tickets? No.
4656. *Mr. Brock.*] Did not Graham ever say anything to you about it? Never.
4657. Was Graham often the driver of the car on which you were conducting? Not often. I might have had him once in six months. He was a special engine-driver, and he might come on in case of a breakdown, or anything of that kind.
4658. He would not be there twice in a fortnight? No.
4659. *President.*] We have very strong proof that Musgrave and Graham were frequently together;—how could that happen if you say that Graham was so seldom on the line? Musgrave was an assistant conductor, and Graham was a special driver. He used to take out special cars anywhere. I think Graham was a special driver for two or three years. If Graham was going out on a special run anywhere he would take the first assistant conductor the foreman could lay his hands on. That is the way they met I suppose.
4660. Permanent drivers and permanent conductors, as a rule, go together I suppose? Yes.
4661. As far as we can understand, Graham has repeatedly observed certain things in connection with Musgrave when riding on the Waverley line in connection with him, and I cannot quite understand how that can be if he met Graham so seldom? On a Saturday's service there was a special run up to Waverley at one time, and they always used to take that one run. It was the 1'4 from Bridge-street.
4662. Yet you say that you and Musgrave were very frequently together? Not frequently. He was an assistant conductor, and might be booked for me now and again. I might have him for a week and then for another six months I would not have him.
4663. *Mr. Brock.*] You were never sufficiently long with him to become a chum of his? Never.
4664. Do you not meet him off the trams in the yard? I have seen him off duty.
4665. Have you often been in conversation with him? No.
4666. *President.*] Where were you before you came into the tramway service? On the railways.
4667. Where were you? I was a booking clerk at Newtown and Ashfield.
4668. How came you to leave? My services were dispensed with.
4669. Why? I cannot say.
4670. Was any charge made against you? None whatever.
4671. Was it owing to retrenchment that your services were dispensed with? That I do not know.
4672. You must know something about it? I wrote to the Department several times, and could get no explanation. I took what papers I had received from the Department, and the copies of the letters I had written, down to Mr. Barton, the ex-Speaker. He wrote a note to say that he was perfectly satisfied with my explanation. I gave that note to Mr. Goodchap, and Mr. Goodchap placed me on the trams.
4673. Who was over you on the railways? Up at Ashfield I was under Mr. Bissett. When I was there there was a sum of £4 missing one day. I was suspended for two or three days. I was then reinstated and sent down to Newtown. I was at Newtown for about two months. I went on my holidays and came back again, and I was there about a week when my services were dispensed with.
4674. And nothing fresh had occurred? Nothing whatever.
4675. Are you in debt at all? No.
4676. You do not owe anything to anyone? I might owe two or three pounds—nothing more.
4677. But only in the ordinary way? Yes.
4678. Therefore if people say that you owe money they say that which is not true? They say that which is not true. I suppose the whole of my indebtedness would not come to £5.
4679. Do you know a man named Keen? Yes.
4680. Do you owe him anything? Not a penny.
4681. You swear that? I swear that.
4682. How long have you known Keen? I knew him at Ashfield first of all.
4683. What was he then? He used to do odd jobs as a painter.
4684. Perhaps a little debt was incurred then, and it has escaped your memory? I never had any monetary transactions with him whatever.
4685. It is only fair to you to say that Keen in his evidence said that you owed him 10s., and that you had owed it to him for seven years, and that he could not get it out of you? I never owed him a penny in my life, and he has never made any application to me for money.
4686. *Mr. Thompson.*] Were you ever examined as a witness in a case at Windsor? Yes.
4687. Did you swear then that you were a married man and a householder? No, I did not.
4688. If I can show to you that you did, what do you expect at our hands? I suppose if you can prove that, you can do what you like with me.
4689. But what do you think ought to be done? Well, you know what perjury is.
4690. Do you speak to Keen? Yes.
4691. If he says, "I never speak to Scott now," is that true? It is a lie.
4692. Have you had any quarrel with him? Not the slightest.
4693. Did you not tell Keen that you were dismissed, because £4 was missing out of your cash at Ashfield? No.
4694. I suppose as a matter of fact it was known that £4 was missing from the cash, and that you were taken to task about it? Certainly, I was in charge of the money.
4695. Were you one of those who attended the meeting out of which the deputation came? No.
4696. Do you attend gambling saloons and racecourses? I attend racecourses now and again. I was never in a gambling saloon in my life.
4697. And you only attended racecourses as any other man would? That is all.
4698. Have you heard nothing at all with regard to all these villains, who have been going about procuring the sale of tram-tickets, faking the bells, and all that kind of thing? I have heard a lot since the inquiry was first started.

- Conductor
A. Scott.
4 Sept., 1888.
4699. But not before that? No, nothing whatever, except the rumour that there were forged tickets. That I heard in the press now and again.
4700. Do you know Dominic the barber? I know Dominic Lacerda.
4701. Where is his shop? At Waverley. This side of the Bondi junction.
4702. What do you know about Dominic? That he has shaved me; that is all.
4703. Do you mean to say that Dominic has not made any mention to you of tram-tickets? None whatever.
4704. Has he never expressed to you an anxiety to get a license? No.
4705. Are you quite sure? Positive.
4706. Have you often met Musgrave there? No.
4707. But you have met him there sometimes? Never.
4708. You know that Dominic is a crooked stick—that he is no good? No, I do not.
4709. *Mr. Brock.*] You are positive you have never met Musgrave there? Quite positive.
4710. *Mr. Thompson.*] How do you know that Dominic Lacerda is the man's name. That is not the name over the shop? I do not think there is any name at all over the shop.
4711. Do you know a jeweller's shop in the same neighbourhood where the conductors congregate a little? I know that there are two or three jewellers' shops there, but I have never seen any conductors congregating there.
4712. Do you know Constable Stove? Yes.
4713. Have you ever had any conversation with him on the subject? No.
4714. Where do you live? At 189, Windsor-street, Paddington.
4715. How old are you? Twenty-six.
4716. You were very young when you were in the Railway Service; how old were you when you joined? Eighteen or nineteen.
4717. How long were you there? Eighteen months.

WEDNESDAY, 5 SEPTEMBER, 1888.

Present:—

A. RICHARDSON, Esq., PRESIDENT.

W. THOMPSON, Esq., M.P.,

F. A. BROCK, Esq., J.P.

Patrick Quin called in, sworn, and examined:—

- Conductor
P. Quin.
5 Sept., 1888.
4718. *President.*] You are a conductor in the Tramway Service? Yes.
4719. How long have you been in the Service? About six years and one month.
4720. We sent for you to ask you more particularly one question;—do you remember on one occasion Mr. Colls riding on your tram in company with Ferrier, who at that time had been dismissed from the Service; it was in the middle of the day, about 1 o'clock? I remember Mr. Colls and Ferrier rode on the same place on the car, but I could not be sure if they were together, that is, if they were in one another's company.
4721. Did they go up together? No. To the best of my recollection Colls got up at Market-street, and Ferrier got up at Liverpool or Bathurst streets.
4722. Where did they both get down? Ferrier got down at College-street, and went along Liverpool-street towards Woolloomooloo. Colls got down at Foveaux-street.
4723. Are you quite certain about that;—are you sure they did not get down together? I am quite certain of that.
4724. You are quite sure they did not pass the Crown-street junction together? Quite sure.
4725. Is there any information you are able to give us in connection with these frauds? None. I know nothing whatever about them.

James Roberts called in, sworn, and examined:—

- Supt.
J. Roberts.
5 Sept., 1888.
4726. *President.*] You are Superintendent of Tramways? Yes.
4727. How long have you held that position? About eight years.
4728. We want you to be good enough to give us as briefly and concisely as possible a history of your knowledge of these frauds;—when you first heard of them; what steps you have taken in regard to them, and so forth? The first inkling of the frauds I had was in reference to conductors sending in reports in connection with Service-tickets, which are supposed to be used only by the officers of the Department. When the tickets were being taken from the passengers they would say from what shop they had purchased them. At first I did not take any notice of it, but when it became so general I took notice of it, and I saw Mr. Vernon immediately.
4729. How long ago is that? I think it is about seven months. Then I took Wigg and Moran into my confidence.
4730. That was about Centennial time? Yes, about that time. Then I began to suspect that something was wrong with the conductors. I then began to think that some of the men were supplying certain shopkeepers with tickets, and among the tickets these men had received some of the Service-tickets that had inadvertently been introduced. They would probably sell them to a low class of people who would not know the meaning of the cross on the tickets.
4731. You thought that these people were getting the Service-tickets, not among tickets which had been properly obtained, but among dishonestly obtained tickets? Yes. There were several reports from private gentlemen, among them, I think, Mr. Brock, to the effect that certain shopkeepers were selling dirty or soiled tickets. I immediately made inquiries about the places reported to me. I watched them myself, and I found that children were taking their tickets there and getting lollies for them; they would probably get about a pennyworth of lollies for three-penny worth of tickets. Then these Service-tickets began to come in much oftener. I spoke to William Moran, and we agreed to watch and see what

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what men we thought were doing it. We thought it a bit queer that some of these men we suspected would get off the tram at Liverpool-street, and some at Bathurst-street. There used to be meetings between two or three tram-guards, and this aroused my suspicion as to who the men were.

4732. Who were the men you suspected? The first men were Ferrier, Musgrave, and Fraser; within the last two months I have suspected Connors. I noticed that Ferrier met him on two or three occasions. Wigg and Moran had seen Cook get on to the tram with this man Ferrier. I thought there could be no good in these meetings between Fraser, Ferrier, Cook, and Musgrave; then Ferrier was also in the habit of getting on to several conductors' trams, going short distances, and then getting off again. I tried to block Ferrier from getting into the Service, and I would have done more if I had had my way. I blocked a man named Paulsen who wanted to get back into the Service. I did not give him the reason then. I did not let anything transpire as to why I objected. He was sent up to the railway station, and I took another man from the railways into the Tramway Department, an old conductor, a man named Head. Wigg and Moran were watching, and when they saw Ferrier and Cook meeting, they used to come down and tell me, saying that there was something on on such and such a night with them. I then used to go in their company. These men were just as fly as men who were considered to be thieves would be. Musgrave and Ferrier were very smart, and if they saw me looking about everything would be in the best order.

4733. How long is it since you took Musgrave's bells from him? It was one night, I suppose a couple of months ago; it may be a little more.

4734. You and other witnesses seem to forget the time which has elapsed since the men were dismissed; it is nearly two months now since Ferrier was dismissed? Then it must be four months ago.

4735. Quite two months before there was any *exposé*? Yes.

4736. You suspected him strongly at that time? Yes.

4737. Had he not reason to think that you suspected him by that very act of yours? Of course he had.

4738. Did you not tell him that you were going to do the same thing to all the rest? I could not say. I said I was going to take several of the bags, I think.

4739. This was after you had taken Musgrave's, and had found that things were all right, I suppose you did not want to make him suspicious? I did not want to let him to think that he was the only one marked out; his tickets corresponded with the register, and I gave him a fresh bag and bells.

4740. Did you know at that time of the faked bells? I knew there was something on the board; I did not know that Musgrave was one that was doing it.

4741. When you had his bells in your hand, why did you not try it? I took them off him and put them into the bag.

4742. When he saw you I suppose he put his bells right? He could not see me; I was in the Queen-street waiting-room, and directly the tram drove up I went out and took his bells and bag from him. I came into town with him, and gave the bag up to Mr. Primrose; there was no pin in it.

4743. But he could not always have a pin or a piece of wire in his bells? No; he must register sometimes. I am not saying the pin was in that night.

4744. If you knew how the bells could be faked why did you not see whether they had been tampered with when you took them away from him? The wire would have been in the bag. I came so suddenly on to him that he could never have touched his bells with his hand at all.

4745. *Mr. Thompson.*] That would be when he came off the penny section? He came from Ocean-street, down to Queen-street—a penny section.

4746. He would not be using the pin there? No; it would probably be on a twopenny section.

4747. *President.*] You knew the game which was being played; I suppose you knew that they were putting in this pin when they liked, and that when they did put it in the bells would ring without registering; that they put the tickets they collected elsewhere, so that at the close of the day the bells and bag would agree. Did you understand that? Yes.

4748. Then where was the utility of your taking his bag and bells at all? I might have caught a man with the wire in his bag, or he might have put it in his register; he had no idea that I was going to take his bag that night; probably he did not intend to put the wire in until he got some distance on the twopenny section.

4749. Then you fully understand that the taking of the bells for comparison with the bag was of no use whatever? Not of any use.

4750. Because they would agree? My idea was to see if the piece of wire was in; to see if the bells were faked up then.

4751. But you surely don't imagine that he would have had the wire in his bag; if he hadn't it in his bells, do you seriously think that he would have put it into a bag which he intended to hand into the Department; he would naturally put the piece of wire into his pocket? He might have intended to take it out when he was collecting his fares again; he might have put a piece of wire into his bag just before he came to his stopping-place.

4752. There would be no difficulty in his taking the wire out of his pocket again when he wanted to use it; why should he put it into his bag? Someone might see him.

4753. But he might stand on the top of the stairs or under them? Well my idea of taking the bags and bells was that I thought I might get the pin or piece of wire in them.

4754. I cannot see the object of your taking the things if you did not afterwards try the bells to see if they were faked? I handed the bells over to Mr. Primrose; they were tried in the office and found to be all right. He could not have done it with those bells.

4755. Will you go on with your statement? A man named Keen was the first man who came to me; he told me that he had heard from driver Graham that Fraser and Musgrave were defrauding the Department by using pins in their bells.

4756. Was that after you had taken Musgrave's bells? Before. That was how I first got an inkling about it. I asked Keen if he thought his authority was good, and he told me that it was Graham. I said to him, "You had better see Graham, and ascertain if he has any objection to making a statement." I sent downstairs for a pair of bells and brought them into the room. The way in which Keen illustrated it it could not be done. The bells were in perfect working order.

4757. Did he not tell you that he had taken his own bells home—that he had tried them, and that he had succeeded in doing it with them? Most decidedly not. If he had told me that I would have made him bring the bells to me, and I would have seen for myself. He never showed it to me on his own bells.

4758.

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4758. But did he not say that he had tried with his own bells and that he had succeeded? Most decidedly not; he mentioned nothing to me whatever about his having tried it with his own register. He only came to me once, and I showed on another pair of bells that it could not be done. He never said that he had done it.

4759. When you said that it could not be done he did not say "I know that it can be done"? No. I showed him on one or two bells that it could not.

4760. Are you quite positive that he did not say he had done it? Quite. From this time I continued to try the registers time after time.

4761. Whose was the first register with which you did it? I got four or five; and among them were Fraser's, Reece's, and Morgan's. I think there were another pair; one pair were a broken pair. I immediately brought the register over to Mr. Vernon, and showed him how the frauds could be done when the bells were out of order or had been tampered with. Of course it is quite possible that some of the men may have had the registers innocently. Mr. Vernon told me to watch them more closely; and Wigg and Moran have brought up all the evidence they could collect up to the present time. Mr. Vernon took some evidence in the matter and the registers were handed over to Lambert. If Keen had told me that his register would do it I should have had the man who repairs the registers down to see if it had been tampered with. There was another occasion when Moran got a pair of registers for Graham to try; they were also found to be all right. I had Lambert down to examine them and he said that the frauds could not take place if the registers were in good order.

4762. Not in that way? No.

4763. Of course in order to fake the bells they would have to be opened? They would have to be opened.

4764. *Mr. Brock.*] Did you not get a report from H. A. Skinner? A verbal report, not a written one.

4765. What was it about? As to some man not ringing his fares at Market-street I think.

4766. He collected the whole of an upper deck on a crowded car without ringing one? I looked into the case there and then; I watched the man for some while afterwards and found that he was correct.

4767. Did you try his bells? Immediately Mr. Skinner came to me and they were all right.

4768. Mr. Allison, of Her Majesty's Theatre, was there, and they say that the man collected the whole of the upper deck and did not ring once? If I am not mistaken Reece was the man in that case; I looked into the matter directly I put on Wigg and Moran to watch him and see if he rang all his fares and they found that he did so.

4769. *President.*] I understand that on the occasion to which you refer the excuse made was that the bell was broken? It may have been.

4770. Are there papers? Yes, I will let you have them if you want them.

4771. I suppose that this man would be likely to know Wigg and Moran? Yes, but he might not know what they were after. We had no idea of being defrauded then as we have been lately.

4772. How long would that be ago? It is nearly twelve months ago I should think.

4773. Do you remember getting a confidential report from the Inspector-General of Police in connection with Musgrave? Previous to getting it I had suspected Musgrave and I had recommended that he should be prosecuted. Two or three days afterwards I got a communication from the Inspector-General of Police, saying that Constable Stove could give some valuable information about one of the men, I think it was Musgrave, who defrauded the Department by putting a piece of wire in his bell. I then sent up to the Inspector-General and asked that Stove might be sent to me. He came and in the course of conversation he said he had heard two or three things about this matter which he could not say outside of his Department. I wanted him to divulge the person who had given him the information but he would not do it. I sent back to the Inspector-General of Police saying that Stove's evidence was useless and that he would not give me the information I wanted.

4774. A great deal is made of this even by Stove himself, that this confidential report sent to you to enable you to place your hands on these men was sent to you to-day as it were and before the morning was all over the country. Constable Stove had the whole of his plans upset and he wondered that Musgrave should know what he did? When Musgrave came to me he told me that he knew Stove had a down upon him and that some other constables were in the same position towards him.

4775. Can you give us the date of the report? I can give you the report itself.

4776. Have there been two reports? I can only remember one. I brought the report from the Inspector-General to Mr. Vernon in the first instance. No one saw it from my hands.

4777. What date was that? I can't quite remember. Ferrier was dismissed and Musgrave came and made a sort of confession; he told me how the thing could be done, that is how the bells could be faked, but he did not tell me he was doing it. I said to him, "Your report is all second-hand, Musgrave." I came over and told Mr. Vernon and the Commissioner exactly what Musgrave had said.

4778. This report was never out of your hands unless under lock and key? Well it was not under lock and key.

4779. Who could see it besides yourself? I think it was registered; I know it was registered in the office of the Inspector-General; it came through eight or nine hands in his office, and any of those men might have seen it and noticed what it was.

4780. Is there anyone in your office whom you suspect of giving information? No one.

4781. It has been stated positively that Ferrier and Musgrave have said that they have had the "straight griffin" from the office? I have a sort of idea that they refer to Colls; the only time I have heard of it has been since this inquiry has been on.

4782. Don't you know that Ferrier told Greeley in his bedroom that they could not be caught, because whenever anything was up they got the "griffin" from the office? I believe that Ferrier only said that to lead Greeley on so that he might make some money out of him. He saw that Greeley was a bit frightened to comply with his request, and he would naturally turn round and say, "I can give you the 'straight griffin.'"

4783. But he said also that the thing was "being blown?" That was because he had seen Musgrave come to my office. Ferrier was to be caught on the Saturday night with the bells we sent for him to take away, and Musgrave saw himself surrounded by so many difficulties that he came to me on Friday morning.

4784. Was that the date? I am not certain about it.

4785. *Mr. Thompson.*] Have you any entry of it? No.

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4786. *President.*] What did you do when Musgrave made his statement? I came over and saw Mr. Vernon and the Commissioner.

4787. The same day? Yes.

4788. You know the time of the meeting in Greeley's bedroom? Yes.

4789. Did Musgrave come to you before or after that? After that.

4790. Is it not a fact that the meeting was on the Saturday night? Yes, I believe it was on a Saturday night.

4791. And there was to be a future meeting between Greeley and Ferrier on the Monday or the Tuesday? On one night early in the week.

4792. It was between these two meetings that Musgrave came to you? Yes.

4793. Therefore when was it that Musgrave came to you? It could not have been Saturday, but it might have been on Monday or Tuesday; early in the week probably.

4794. Was Musgrave suspended on the day on which he made his statement to you? No; I think on the day after.

4795. He was not suspended before he was dismissed? He was suspended and dismissed on the same day.

4796. When Musgrave made his confession to you Ferrier was still in the Loco. department? He was not dismissed. Musgrave was not dismissed for some days afterwards.

4797. With regard to this confidential report can you say on reflection when you received it? I think on the morning of the 17th.

4798. What did you do then do you say? I wrote to the Inspector-General asking him to let Stove call upon me on the following day: Musgrave came to me before Stove's report reached me, I believe.

4799. Which morning was that? On the 19th, I think. Musgrave said then that he knew how the Department was being defrauded.

4800. Then how could that have been before you received the report? Musgrave did not know I had the report. I said to him, "You are too late, all you have told me is known."

4801. It could not have been on the 19th when Musgrave came to you? It might have been earlier; it might have been on the 13th.

4802. You are quite sure that you received the report on the 17th? Yes.

4803. What day of the week was that? It was on a Tuesday.

4804. And you believe it was on that day that Musgrave came to you to make his statement? Yes; I think it was. I was wrong in saying that he came to me before I had the report. I do not quite remember the dates. I know that I came straight over to Mr. Vernon with the report and told him about it; I also told the Commissioner. I find that the report was not registered in my office, although it was registered in the Police Department. I did not register it at all. I put it at the bottom of my basket until Stove arrived. Nobody knew I had it.

4805. It seems that you even mentioned it to Musgrave? Nothing about that report. I had received information about Musgrave before. When I spoke to him what I referred to was Keen's telling me how it was being done. Keen had told me this some time before, and that was why I told Musgrave that I knew all about it.

4806. What time elapsed between your receiving the report and Musgrave's interview with you? It was upon the same day.

4807. You received the report in the morning? Yes.

4808. Musgrave came to you in the forenoon? I think in the morning. Mr. Colls came to me and said Musgrave would like to see me. I believe it was on Monday or on Tuesday morning, at 9 o'clock, Musgrave came in and said that certain things were going on. Now I come to think of it I really think that I saw Musgrave first, but I cannot be sure about the times. I remember that Musgrave came the first thing in the morning. My memory is rather bad. I have been seriously ill lately. I want to keep nothing back, although I am a little mixed up in dates.

4809. You did not mention the report to Musgrave? On my oath I mentioned it to no one except to Wigg and Moran, Mr. Vernon, and the Commissioner. I am almost certain that no one saw it and that no one else knew of it. When I received it I put it at the bottom of my basket with some blank minute-papers on the top of it.

4810. If anyone had seen it it would not have been of much consequence? No, because it was all known.

4811. When were you in possession of information leading you to recommend Musgrave's dismissal on the 20th? I think it was on the 19th that I recommended his dismissal. It was after Graham gave information to Mr. Vernon.

4812. In all probability Graham had given information to Mr. Vernon about the same time that the report reached you? Yes.

4813. *Mr. Thompson.*] With regard to the general statements that have been made with regard to information being given from the office to these rascals, there is no one in the office whom you suspect? No; I do not suspect anyone.

4814. You have no suspicion whatever of Colls? I only spoke to Colls once about Musgrave in my life, and he said to me, "Let him put up with the consequences." That is the only conversation I remember. I took particular care to have no conversation with anyone about it. I made up my mind not to speak about the thing at all. If you mention a thing of this kind to one man a dozen others may be put up to it.

4815. You knew of Colls' relationship to Musgrave? Yes.

4816. About what time was it that you spoke to Colls in the manner you have described to us? I think it was on the morning he told me that Musgrave was coming to see me.

4817. Have you any idea that Colls knew of Musgrave's complicity in these frauds for some time? I do not think he knew. I think he would have told me. I myself have cautioned Musgrave several times. I have had him up in my room and cautioned him.

4818. Was this before you took his registers? Yes; it was not on account of his defrauding the Department but on account of the sluggish way in which he collected his fares and the careless way he had of going about his cars.

4819. Therefore if Musgrave had had anything on his mind for a long time he would have ample opportunity to tell you before he actually did do so? Yes; he knew he was watched too. I am certain he did.

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4820. Would you be surprised to hear that these frauds have been going on, as far as Musgrave is concerned, ever since he joined the Department, with the exception of the first fortnight—That would be almost two years ago? Well I could hardly believe that. I have watched nearly all the men.

4821. Without making any discovery in the end? —

4822. *President.*] As far as I can understand, if it had not been for Graham no discovery would have been made up to this hour? That is so. If Graham had not told Keen it might have been going on now.

4823. So that you have no reason for expressing surprise merely because you were watching, because the mere watching, as we have seen, might do no good whatever? It might not.

4824. Apart from these conversations that you have had with Musgrave, do you know the man well; his character outside and so forth? I know very little of him. I mean that I have had no conversation with him and that sort of thing.

4825. Do you remember when he joined the Department; two and a half years ago? Yes.

4826. How soon did you begin to think that he was not one of your best men? I thought so when I had observed his lazy manner.

4827. How soon afterwards was that? Six or seven months afterwards.

4828. He went on pretty well at first? Very well at first. I never liked him as a conductor; he was very careless with the passengers, and he had a flashy, bad way with him; he would never get off to assist people in or out; he was yarning under the stairs continually, and he was always coming late to work, driving it off to the very last minute when he had to go out.

4829. And losing time too I suppose? Yes.

4830. Do you remember how long he has been away ill? He has been away at different times three, four, or five days.

4831. Not longer? I do not think he has.

4832. Have you not inspectors who look after the men and so forth? Harper reports, and Wigg and Moran report.

4833. Who is your inspector who would report upon the conduct and character of the men? O'Brien is supposed to be the inspector.

4834. Does he deal with that kind of thing? He deals with everything.

4835. Does he ever make reports to you about the character of the men, and about suspicious circumstances in connection with them? Sometimes.

4836. Has he ever reported anything in connection with these frauds? In one or two cases he may have said that the conductor had not rang their proper fares.

4837. Has he never made you a report to the effect that certain conductors should be regarded with suspicion? In conversation he has mentioned them to me.

4838. What men has he mentioned? The men we have got off, and several other men at different times.

4839. Has he been able to give you valuable information in regard to the character of the men? I could not say that.

4840. *Mr. Thompson.*] If he cannot do it whose duty would it be to do so, or to whom can you look for the information? I myself can give you the character of any of the men. I have watched nearly every man in the Service. I know them better than they are known by any other man in the Department.

4841. Do you know conductor Ambrose Scott? Yes.

4842. What is your opinion of him? Not of the best.

4843. Have you any reason to think that he is connected with these frauds in any way? It is hard to say. I have watched Ferrier get on to his trams at Liverpool-street and get off at College-street, often riding a short distance in that way. It has seemed to me sometimes, when I have seen him getting off cars in this way, that it looked as if the conductors would have nothing to do with him.

4844. *President.*] He seems to have a good straightforward manner? Yes; but at times I have seen him when I have thought that he was not ringing for his fares.

4845. Did you challenge him? No, because I was not certain.

4846. It is a difficult matter to be positive about it, is it not? Yes, unless you are right in the compartment.

4847. And even then it is difficult, under the plan which some of them adopt, of collecting the whole of the fares at once? Yes; and sometimes one of the passengers will collect the whole of the fares before the conductor arrives.

4848. And then he has to ring them off all at once? Yes; and of course, on a full car on a twopenny section, he would have to give twenty rings.

4849. Do you know anything more definite with reference to these frauds than has already transpired—you know what came out at the Departmental inquiry—have you any information more definite than that? I can give you nothing further except this, that I do not believe Greeley is a straight man. I believe that he had the tickets that were found in his pocket for a dishonest purpose. He came to me, and, in the course of conversation, he said, "I believe Dolan is the man who is selling Siddons tickets." I watched Siddons three or four different nights, and he was the only man (that is, Greeley) whom I saw going into Siddons' shop.

4850. Dolan is the man who had Greeley's coat? No; Tunks is the man.

4851. Did you ever authorize Greeley to act as a sort of detective in addition to Wigg and Moran? Never.

4852. Did he not tell you and others that he was sounding this man Siddons to try and see if he could not catch him? No.

4853. You are aware, I suppose, that he does not make any secret of his dealings with Siddons? I do not know that he had any, excepting those which I knew myself.

4854. Of course it is stated and it is Greeley's own statement that, believing that Siddons was purchasing a lot of tickets from conductors, he, with a view of testing him, made overtures to him; are you sure that you gave him no authority to do so? I am sure, and I would not believe Greeley on his oath.

4855. You gave him no authority? No, none at all.

4856. It is possible that Moran may have asked him to do what he did? I do not think he would have asked him without first asking me.

4857. Did you hear of a transaction that Greeley had with a Chinaman, Ah Lum? Yes, but only lately.

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4858. How did you hear and what did you hear? I heard that a Chinaman made some overtures to Greeley to purchase some tickets off him; then again, I heard that this Chinaman said that he bought 30s. worth off him for 10s. One day at the Central Police Court we got what we could out of this Chinaman, and we got it brought here.

4859. Was it not arranged that Greeley should try this Chinaman, and see if he could get anything out of him? I should not give any such instructions unless I gave them in writing.

4860. *Mr. Brock.*] Greeley was not the man to whom you were likely to give such instructions? No; I would not trust him. I believe he told me a lie about Dolan.

4861. *Mr. Thompson.*] You do trust Dolan? I believe he is an honest, straightforward man.

4862. *President.* There is one thing that seemed to us to be very irregular; we have looked at the book in which they enter the receipts, and it was evident from that book that conductor Musgrave was allowed to hold his bag from the Wednesday until the Saturday; that is to say, he made a trip on the Wednesday, and did not return any account of it until the Saturday. When we questioned the clerk he said there was no way of checking this irregularity; that there was no list of the men that were out on a certain day? There is an absentee book kept in the foreman's office. This book has been kept for a considerable time. I go down every morning and look at it myself, and see what men are away. If any particular man is away, who ought not to be away, I send immediately to know why he is away, and call upon him for an explanation for his absence. In the case of Musgrave I think he got hurt and he stayed away a couple of days; it may have been three or four days. It may be four or five months ago. That is the only time I can remember Musgrave has been away under such circumstances.

4863. *Mr. Thompson.*] Could you give us from any document the exact time that he was away; that is, when it was alleged that he had got hurt? I think I can give you the exact date.

4864. *President.*] That would be all very well as far as your own observations would go; you would know what conductors were improperly staying away; but that would not meet the case I am referring to? I think it would, because I give Mr. Primrose the information, and if I am away Mr. Tyrer does it.

4865. Blackstone showed us figures proving beyond doubt that Musgrave made a trip on a Wednesday for which he did not account until the Saturday; we asked Blackstone why he did not call attention to that suspicious circumstance? I think I remember the occasion. I believe Musgrave was taken ill going home.

4866. The matter stands thus, that going home on Wednesday he took tickets which he did not return until the Saturday, or that he took tickets on the Wednesday and returned nothing at all? Going out on the Saturday morning and making a return for the Saturday, he may possibly have taken one run out on the Wednesday and not have come back again. There might be only ten or twelve tickets in his bag.

4867. He should have returned them on the Thursday morning? Yes.

4868. Suppose that at the very time when he was shown to be on duty car-cleaning on a Thursday morning, he was really conducting, and that he did not return his tickets until the Saturday. Suppose he were car cleaning between the Wednesday and the Saturday, would he not return his bag? But he may have had the foreman's bag—he had a spare bag—and Musgrave may have been called from car-cleaning.

4869. It occurred to us that while this practice of allowing conductors to take home their bags was continued, men acting fraudulently would have a splendid chance—a much better chance than if they had to return their bag immediately. It appeared to us that if they could take their registers home they would be able to do away with perhaps a great deal if not the whole of the takings? If we could trust to the registers the man might keep his bag a month.

4870. But once you know that the registers can be manipulated with a pin, the case is altered, and under these circumstances a man has a far better opportunity of making a good haul if he keeps his register more than a day? But he would not be on the cars.

4871. *Mr. Thompson.*] On some occasions the man might go out as an extra, his time would be up and he could get off the car without coming in at all and returning his bag? If he did it he would do it illegally and wrongly. I do not believe Musgrave would have done such a thing, he might have done it, but he was a fly boy, and he might possibly have been up to it.

4872. *President.*] Does it not occur to you as it has occurred to the Commission that the present practice is a very dangerous one, and that it may possibly have led indirectly to these frauds—I refer to the practice of allowing conductors to take their bags away on the night shift? Yes; but a man has to start out from the terminus in the morning; suppose for instance he has to come in from Leichhardt, he has to be there the first thing in the morning.

4873. I am aware that you have given this matter consideration, but does it not occur to you in the light of what has happened, that it would be better to pay a considerable number of extra men to take the bags and registers away at night than to allow the men to take them home? Well the day men are relieved at 2 o'clock, so that they would start in the morning with their bags empty.

4874. But what about the men who were on the other shift, and who take home their bags and registers with them? The bags are emptied about 11 o'clock, so that it would be only a question of the last trip.

4875. The emptying of the bags is not the only point, you surely must readily admit that a conductor, while upon the tram has little opportunity of opening his register and examining the contents of it, but when he gets quietly at home at night it seems a great temptation to him to open the funny thing and see what it is made of. Does it not occur to you that this may have been the way in which the frauds have commenced—the conductors having these things in their leisure, and unprincipled friends coming in and looking at them? It is hard to make all men honest; an honest man would not do that. Look at the difficulty in which you would put the Department if a man on the Leichhardt trams had to come into Sydney the last thing at night to bring in his bag; you know what your life would be the next morning; there would be half a dozen Members of Parliament here the next morning, pointing out the hardship of the thing. You know very well the difficulties under which we have to work.

4876. But in the light of what has happened does it not occur to you that it would be better, in future, to incur considerable expense in the way of having men stationed at the different termini at night, in order to receive the bags and registers and bring them into town? Well then, those men would have to bring the bags in, and the office would have to be kept open very late indeed before all the returns were received.

4877. *Mr. Thompson.*] Have you not to send out a motor to the various termini every morning? Yes.

4878

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4878. Then why cannot the bags and bells be sent out to the men by the engine-driver on the following morning? That could be done, but then they would have to meet the men on different portions of the lines.

4879. *President.*] It appears to me that the difficulty lies not so much in sending the bells and registers out in the morning as in getting them in at night? It would be 2 o'clock in the morning before some of the conductors would be done. I should have to send out to each terminus to get the bags in.

4880. But the driver has to bring the motor in? Only to the engine-shed, and if anything went wrong with the bag the conductor would blame the driver.

4881. *Mr. Brock.*] How many bags and bells are left out at night? About five or six, for the early morning trains.

4882. What do you think of the present system of bell registers,—are you satisfied with it? We have had several systems if it could be done. I think it would be well that the ticket should be perforated directly it is collected. The public want some sort of receipt; the present system gives receipt to the public, whereas the tearing up of the tickets gave them no receipt. Very often, instead of the men tearing them up, they used simply to tear them down the perforations on the top of the cars at night; they could easily pretend to tear them. At other times they could bend them back, and tear, perhaps, three instead of six.

4883. You think then that the tearing system is just as bad as the present system? I think it left it more open for the conductors to be dishonest than any check we have had. The first check we had was good if it could be worked on these cars—I refer to the bell punch. Every ticket punched was recorded inside the bell, and the punch could not be interfered with.

4884. You know the Melbourne system; could that be worked here? Not on these cars; they are too much overcrowded; it would take the conductors too long to get through.

4885. Does it take long? It is very slow. One has to do so many things before the ticket is finally taken and punched. Often the conductor will have to sell tickets to the passenger. First he has to receive the ticket, then he has to punch it, and then he has to put it in his pocket. Here we have only one process, and the conductor can work with one hand leaving the other hand free, that is to say, he can collect tickets and go along the car at the same time.

4886. You do not think it could be worked with the upper deck? I do not think so—not with the present staff.

4887. *President.*] Of course you know that the sale of tickets would be only in the hands of the conductor? Yes.

4888. He could sell tickets by dozens? Yes. My report is in reference to that. I believe in the system if it could be worked here.

4889. Why was the bell punch system done away with here? It is too slow. I think with reference to the sale of tickets that it ought to be kept in the Department. In the first place the percentage would be saved. That is one thing in favour of the Melbourne system. The congestion of the traffic between Bridge-street and Liverpool-street makes it very difficult to deal with, the fact being that there are 1,200 cars a day going in and out.

4890. Do you remember the day Hendy was dismissed? Yes.

4891. That was the day that Musgrave had had his bag and bells for three days—that is to say, from the previous Wednesday to the Saturday morning? I will look it up.

4892. *Mr. Thompson.*] Have you ever suspected Connors as being dishonest? Well, I have seen Ferrier get up on the tram with him and meet him lately. Previous to that I had a good opinion of Connors as a conductor. I am not speaking of his private life. Let me say here that Paulsen is one of those I have also suspected.

4893. Why did you suspect Greeley when you knew, as I suppose you did, that he really was being of some service to Moran and Wigg? I believe that Greeley was only of service in trying to crawl out of the blot he had made with reference to the tickets being found in his pocket. If that had not come out Greeley would never have given his assistance.

4894. Do not you know that it is said that Greeley produced the tickets from the off side pocket, and that the man with him would not have known unless Greeley had taken the tickets out and had shown them to him? The information I got was that the man was pulling out his handkerchief and pulled them out by accident.

4895. Do you know Frost? Yes.

4896. Have you any reason to suspect him? I think he is saying this to clear Greeley. I firmly believe that Greeley put these tickets in his pockets for a dishonest purpose.

4897. If Frost wanted to protect Greeley what need was there for him to say a word about it? That is best known to themselves. Perhaps someone else had seen them.

4898. Why do you suspect Greeley? I believe he took the tickets for a dishonest purpose. When I cautioned him he turned round and said to me privately that Doolan was the man who was selling tickets to Siddons. I said, "It is strange that you should come and put your mate away without my asking you." As I have said, I watched Siddons three or four nights, and Greeley was the only man who visited the place. I had Siddons' license cancelled. I knew that if there was nothing in it Siddons was the first man who would put up his back and say, "Why did you cancel my license?" But he has never asked me that question from that day to this. Siddons did not know me at the time, and I don't suppose he knows me now. I went into his shop one night and asked for tram-tickets. He said he had none, and he added, "I must try and get a license. My life is pestered out of me."

4899. *President.*] I suppose he meant by persons applying for tickets? Yes. I knew that if he had been going straight he would have made inquiries as to why his license was cancelled, but he has asked no question about it up to this day.

4900. You say that you suspect Connors merely because you have seen Ferrier getting on to his tram? Yes.

4901. Many times? Yes; five or six times.

4902. Do you suspect Graham? I do not.

4903. With regard to Morgan's case, when the bells came in were they found to be tampered with? No. They were rigged with a pin. He may have got the bells in that state or they may have just gone bad when he got them.

4904. Were they not actually proved to have been tampered with? No. Although they would ring without registering.

4905.

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4905. If they would ring without registering surely that was evidence that they had been tampered with? No. They might have been worn away, and they might be ringing without registering, while Morgan knew nothing about it. It would not do to condemn a man simply because he was found with bells which rang without registering.

4906. Has your mechanic, Mr. Lambert, come to the conclusion that the bells may wear so much that the application of a pin in the slot will have the same effect from mere wear as if the bells had been improperly dealt with? Lambert can point out those that have been tampered with, and those that have gone wrong by wear.

4907. Is it not a fact that Lambert pointed out with regard to Morgan's bells that they had actually been filed? He stated that one of the bells, I could not say from memory which it was, had been filed. I could not say whether he mentioned Morgan's or Fraser's bells, or whose bells he mentioned. I remember that Morgan's bell would ring without registering, but then Morgan himself may not have known of it.

4908. *Mr. Thompson.*] When Musgrave came to you what exactly did he tell you;—start from the beginning and tell us, because we want to compare what he told you with what he told us? He called on me and said that he wanted to tell me how the Department was being defrauded by the insertion of a pin in the registers so that they would ring without registering. I asked him if he could show me how, and I believe he said that if I would give him a pair of registers to take home he would show me. I said to him, "Well, Musgrave, the information you have given me I already have from somebody else. It is of no use to me now; you are late." I then came over and told Mr. Vernon and the Commissioner.

4909. *President.*] Is that all he said to you? He did not want to be very communicative.

4910. Did he not say who were doing it? He did not appear to know who were doing it. He had only heard that it had been done.

4911. Did he say how he happened to hear it? He did not tell me anything. He would not tell me.

4912. Why did he want to take home the registers to find out how it was done; did he say whom he was going to in order to find it out? Not that I can remember.

4913. He was going to do it himself? He did not say that anyone was going to do it for him.

4914. Did you hear that he brought his register to the office one night with a piece of wire in it, and that it was there all night? I did hear that he told Graham that.

4915. And that when he was asked what line he was on he was in such a funk that he could not speak? I can hardly believe that it happened.

4916. You don't believe that he left his bells in the office with the wire in? No.

4917. You think it is merely a piece of blow on the part of Musgrave? Yes; because the day after he told me he told Graham that he had bluffed me and had told me a long rigmarole.

4918. Would Musgrave be asked in the morning what line he was on? No; he would be asked on the previous night when he gave his bag in.

4919. *Mr. Brock.*] You have not much doubt about Fraser being guilty I suppose? Not the slightest.

4920. *President.*] What makes you suspicious of Fraser? Seeing him meet Ferrier and Cook so often. I also go by the man ever since he came here. By the whole of his surroundings, by his actions, and by his mode of living.

4921. You do not know anything about Cook? I know him to be a thorough scoundrel in any swindling business which may be going on.

4922. Do you know anything against him in connection with these tramway frauds? My idea is that he would not be meeting these men night after night for nothing. Why should he be so constantly meeting Ferrier and getting on to Fraser's trams.

4923. Have you anything tangible against him? No, only these things that I have seen. I know him to be a bad character, and an infernal liar. The police have been trying to get something tangible against him for years, and they cannot catch him. He is too fly.

4924. After all you only suspect Fraser. You really know nothing about him. You do not know that he has been defrauding the Department? I can't say positively that he has done so. I did not see it myself. I only know from Graham's evidence.

4925. *Mr. Thompson.*] As a matter of fact you have not been able to detect to the proof any swindling? It would be impossible for me to do that. I have done the best I could in every instance.

4926. *President.*] We have a certain something tangible against Musgrave, and a certain something tangible against Ferrier, but it seems to me that we have nothing tangible against Fraser. It only amounts to suspicion? Well, he has been about with these two men, and a pocket you remember was found in his coat. I know that he goes about betting, and that he has plenty of money.

4927. This is all indirect? I should not like to make any statement I was not certain about.

4928. *Mr. Brock.*] He said he married money? Well, I don't know; he was very hard up when he came here.

4929. Was he married then? Yes, he was.

4930. *Mr. Thompson.*] What had he been before? I could not say. He came from Burrowa way.

4931. Do you know how he got on to the trams? He was recommended to me by Mr. Finnigan. I may here say that I have seen him miss ringing his fare several times.

4932. But not to such an extent as to permit of you saying anything definite? To such an extent that I was able to tell his friend that I thought he was a damned thief.

4933. Who did you tell? I told Mr. Finnigan, who told Fraser, I believe, that I thought him a damned rogue, although there was only my word against his. Finnigan has already told another person that I asked him to caution him.

4934. If Fraser swears that Finnigan never cautioned him, he has sworn falsely? I believe he has. I believe Finnigan has told Morau that he cautioned him. With regard to Connors, I desire to say that he always did his work well, and although certain representations were made to me by his wife, I could not take any action so long as he did his work well.

4935. Was he not drunk on his car? I suspended him, but I think I gave him another chance.

4936. *President.*] What do you know about Keen? Any information which Keen has given me I have found to be true in every respect. He gave me information about the men gambling at the "Evening Star Hotel."

4937. Do they know that he gave you the information? No; he also gave me information about Graham knowing this affair.

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4938. How does Graham get on with his mates now? I have heard no complaints. I do not think there is any feeling in that way in the Department. I think the men are generally pleased with the idea that everything is coming out which can be brought.

4939. Do you know these Greek scoundrels—Pietro Gaspardo, for instance—at the corner of Liverpool and Elizabeth-streets? One Saturday, when I was going home, I saw Ferrier hanging about there. I got out of the tram and I said to myself, "There is something on. I will watch and see what it is." I asked Ferrier to come and have a plate of oysters. I took him into the place and gave him the oysters and paid for them. He said he had an appointment, and he went away. I think he said something about waiting for Musgrave. I walked outside, and just outside the Greek's door there is a place where they put in the shutters. I went in there, pretending to Ferrier that I went in there to pump ship. When I came out, and come along again, there was a regular commotion in the shop apparently between one of the Greeks and some one else. I could not see who it was. Ferrier cleared out and met Musgrave coming along in a tram.

4940. You do not think that Ferrier returned to the place after pretending to leave it? No; I left him at the door. He seemed to be going down Elizabeth-street. I had an idea that there was some commotion in the shop on account of my sitting down at the table there with Ferrier, but I knew my own business, and they could think what they liked.

4941. Did you suspect these people of buying the tickets? I suspected these men of buying the service tickets, because it was reported that they were bought at that shop.

4942. Who would give them to the conductors? Some of the Randwick people. Wigg and Moran also use them. O'Brien uses them. In fact there are a dozen people who use them.

4943. And you are under the impression that this row in the shop was caused through your presence—that you were recognized? Yes.

4944. Constantine was one of the people who kept this place, was he not? Yes.

4945. Have you met this man Gaspardo, who was going to give us so much evidence? Yes.

4946. Has he told you anything? He has told me nothing.

4947. You have given us the whole list of the conductors you suspect? Yes, I think so. There is Paulsen, who has been away for some time. Then there is Ferrier, Fraser, Connors, Musgrave, Greeley, and I might add a man named Ravensworth.

4948. You don't like Ravensworth? No.

4949. What reason have you to suspect him? From his surroundings. From what I have seen of him, and from his bringing in some tickets rolled up in a packet at one time. From the general surroundings of the man I do not believe he is honest.

4950. What do you think of MacMahon. Do you think he has ever sold tickets? I do not believe in MacMahon. He makes a lot of fire, but I think he makes it for his own purpose. It is funny how some of these men get rich so soon.

4951. He was on the Waverley and Woollahra line? Yes, and he is there still.

4952. *Mr. Thompson.*] Are there not several of the men who have got marvellously well off in a short time? Yes, several.

4953. Can you name any of those who you know yourself to have got into apparently affluent circumstances on the wage of 7s. or 8s. a day? I have heard that MacMahon, Godbee, and Tippin are well off. Lots of them have land and buildings.

4954. Still you do not suspect the men you are naming now? No; but I think that MacMahon is a vindictive sort of man.

4955. Why do you think that? Well he likes to have his own way, and to be the boss of the shop.

4956. Is there not a saying among the men of "What have you made to-day?" or something to that effect? In years gone by there was, but I stopped it.

4957. How did it originate? It originated through a man named Chalmers, who was on as a conductor. I put a couple of detectives on the tram. It was going to Botany, and the fares were a shilling, and all the fares were to be collected before they got to Waterloo. I sent Mr. Primrose to Waterloo to take the bells and bag, and I put two men on to count the number of his fares. He had from fifty to sixty fares, and he gave us 30s. I then dismissed him, and recommended that he should be prosecuted. We were advised however that the fares must be seen to have been given to him before we could prosecute him. After I dismissed him he came down to the yard, and he used to say, "Well boys, what did you make on this trip?" and so it came to be a sort of by-word among the men.

4958. Did you ever make use of this by-word yourself. Did you ever say it to several conductors who were standing in the lobby of your office? I might have said, "Don't you be coming Chalmers' game. Don't miss the fares, and stop that saying 'What are you making to day.'"

4959. How long is it since Chalmers was dismissed? Perhaps five or six years ago. This has since been a bye-word among all the men.

4960. You yourself never used it? I do not make that free with the men. Of course in some instances I have to make free with them, but it is for the purpose of getting information for the Department. Sometimes they will stop me in the street to tell me certain things, and I cannot always turn round and say, "Come up into my office and tell me."

4961. *Mr. Brock.*] Have you any idea of Musgrave's financial position. Has he any property? I do not think he has. I do not know anything about his private affairs.

4962. It was said that he was going to buy a public-house? There was some talk about it. I do not know if there was any truth in the rumour.

4963. *President.*] Do you know the circumstances under which Colls got into trouble about Nicholson's cheque? It has been a rule since I have been there that no cheques are to be cashed unless I initial them; no cheques whatever, whether signed by Mr. Vernon or the Commissioner, are cashed without my initials. In one instance Colls cashed a cheque for Nicholson, and I believe it was there a day or so waiting. I heard of it, and I said that it must be paid up at once, and that was done. I do not think there were any papers about it. I gave Colls a reprimand, and said that if he did anything like that again against my orders I would bring the matter before the Commissioner. I have written instructions to check the cash every week. I gave them to Mr. Tyrer.

4964. I suppose that when he was checking the cash he found this cheque? Yes. When it was cashed Nicholson was a contractor for clothes, and the money was supposed to be paid into the Bank, but it did not

not get there in time. I myself never handle the cash or tickets. I gave Tyrer written instructions to examine the tickets and cash once a week. I was absent when the cheque was cashed. This is the explanation that Colls gave me: He said that I was absent and that Mr. Tyrer was absent. He said that Nicholson had a voucher, and took it over to him, showing him that money was due to him.

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4965. It would not be in Colls' power to benefit Nicholson in any shape or form? No, not at all. Colls, as far as I know, has never done a similar thing since.

Alfred Thomas Colls called in, sworn, and examined:—

4966. *President.*] You are a clerk in the tramway office? Yes.

A. T. Colls.

4967. How long have you been there? About six years last April.

4968. We have sent for you because during the evidence we have received some very suspicious circumstances have arisen in connection with yourself as connecting you undoubtedly in some way with Musgrave and Ferrier? Indeed.

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4969. It has been sworn very clearly in evidence that there has been some connection between you and Musgrave on several occasions in reference to this matter. It has moreover been brought out very strongly that information has been given from the office, which has as far as we can judge on more than one occasion defeated the ends of justice. Now we advise you Mr. Colls to let us know everything that you know respecting this matter, everything you can tell us respecting your connection with Musgrave and Ferrier? I shall be happy to tell you what I know about it. In the first place as to giving information out of the office I never gave a soul information for the simple reason that I did not know that there was any information to go to them, and had I received any information I should certainly not have put Musgrave up to it.

4970. I think you are beginning rather early. I should like you to begin with your first knowledge of Musgrave and so forth? I may say that my wife is his step-sister. When he first made application to go on to the trams I tried to get him on. At the first time he could not get on, but I knew he had a mother a sister and a brother to keep. His father died at my place. I tried hard to get him on and I could not do so for the simple reason that there was no vacancy. Two or three years afterwards he sent in an application again and I used what influence I had to get him a billet.

4971. Was he successful then? Yes; the last time I think it was mainly through Mr. John Harris.

4972. And to what position was he appointed? He was assistant conductor at first.

4973. Had you known him well previously? Yes; I took a great interest in the boy. When he came down to Sydney I put him to a school at Paddington for twelve months. I paid for it myself, and then I got him into a shop at Paddington.

4974. Was he in that shop at the time of his going on to the tramways. No; he left.

4975. Do you know why? I could not tell you.

4976. What do you know of his character before he entered the Tramway Department? Before he came there I would have trusted him anywhere, and so would his friends. I and my wife took a great interest in the boy on that account. After he left this place I think he went out to a man named McKenzie, a grocer at Leichhardt; he was living with him. Mr. McKenzie told me that he was one of the best lads he ever had in the place. I know he used to work there up to 11 and even 1 o'clock on Saturday nights.

4977. You just told us that up to the time he joined the tramways you and his other friends would have trusted him to any extent? To any extent.

4978. When did you first alter your opinion? The first thing I could speak of positively was the Sunday night he came to my place.

4979. How long ago? I think only about a month or six weeks ago. It was when he started to tell me about the bells. He has not been living with me for a long while back. He has been with me only about a fortnight during the last eighteen months and then he was sick.

4980. This was the first occasion you had cause to suspect Musgrave or to change your opinion of him? Of course I have known that he has been out at night billiard-playing and so forth. I have heard from him that he gambled a bit. I could never speak about it because I never saw him playing billiards in my life. He was always on the afternoon shift, and when he came home at night I was always in bed. I was away again in the morning before he was up. He did not come into the yard until 2 o'clock. He was with me for about a fortnight when he was sick. My wife sent for the doctor. When he got well he went out to his sister's. His mother was up at Young looking after some business.

4981. Have you really got down to this Sunday night, Mr. Colls? I do not think there is anything more that I could speak about positively. I know he used to go out at night, but there is nothing else that I can think of to tell you.

4982. And you are sure that he never took you into his confidence? Never in his life. He knew that if he did I would have gone straight to the office and that I would not have shielded him more than I would any other man.

4983. Well, come to the Sunday night then? He came to my place after tea. The conversation turned round to the trams not paying. I saw at the time that he was a bit fidgety. I do not know exactly what it was he said. I think he said that he could tell a way in which he could stop a lot of it. I said, "Will you tell me?" He said, "Yes, I will tell you." So he told me how the bells could be altered. About a couple of Saturday nights before that I was going home in one of the trams, and it seemed to me that one of the conductors did not ring for all the tickets. I mentioned this matter to Musgrave, and he said to me "He will ring for them, because he would ring and you would not know anything about the tickets, for the simple reason that the bells could be worked." I said to him, "Do you mean that sometimes when the bell rings it does not register?" He said, "Yes, it will ring and not register." I said, "The best thing you can do is to come down to Mr. Roberts with me at once." This was on Sunday night at half-past 7. On thinking the matter over it occurred to me that, it being Sunday night and church-time, Mr. Roberts probably would not be at the office; so the first thing on Monday morning, directly I came to the office, I walked straight up to Mr. Roberts' room, and asked him if he would send for Musgrave as he had something to tell him. I think Musgrave came in on the Tuesday afternoon. Mr. Roberts, I know, sent for him on the Monday, but I think he was off. I think that is all I can say about the matter. I did not hear any conversation between them. I know that Musgrave went to Mr. Roberts, and I think that it was on the Tuesday. I not only mentioned the matter to Mr. Roberts the first thing on the
Monday

- A. T. Colls. Monday morning, but I tried Musgrave a dozen times afterwards to see if he would give me any more information about it. He said, "If I went to goal to-morrow I could not give any more information." I said, "Can't you give me some idea of any of the conductors who are doing it?" and he said, "No."
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4984. Had he his bells with him on that Sunday night? Yes.
4985. Did he show you how they were worked? No.
4986. Did he not put a piece of wire in? No.
4987. Surely on this Sunday night he told you a great deal more; did he not tell you the details of the thing, how he had learnt it and so forth? No; I never asked him the question.
4988. Did he not say that he had known it for a very long time? He did not tell me.
4989. Did he not say that a certain man had been pestering him for the last twelve months? No; there was very little conversation at all. He had to get back to his tram by half-past 8. As soon as he told me he walked out; and I said, "I will tell Mr. Roberts the first thing in the morning."
4990. Did he not speak of a certain man haunting him for twelve months? I never heard a word about that. The conversation was only about 10 minutes. My wife was sitting in the dining-room, and he called me out into the verandah, just before he went away, and told me there.
4991. When was Musgrave last staying with you? About the Centennial time. He was there a fortnight when he was sick.
4992. Are you sure of the time? It was about that time.
4993. Is that the last time? He has called there to see his sister.
4994. Did he say nothing to you about this matter at that time? No, because he was very bad. He was in bed.
4995. What, during the Centennial week? It was somewhere about February, I think. The first intimation I got about it was on this Sunday night. If he knew before that he kept it to himself.
4996. Was he on sick leave when he was with you? I think so; I could not say.
4997. *Mr. Thompson.*] What was the matter with him? I think he had a strain. It was a strain or a rupture. I know he had something the matter with his testicles.
4998. Did he not get some dirty disease from a girl? Not at this time, I think.
4999. But at some other time? I know that he has had it often. When the doctor came I helped him to bandage up one of his testicles. It was very much swollen, but whether it was from what you speak of or not I do not know.
5000. He was in the Service at the time? Yes.
5001. *President.*] You said just now that he did not tell anyone about the bells? None of our people. He did not say a word to me. I do not know whether he told anyone else.
5002. Is it not strange that he should tell others and not you? If he had said one word about it to me I should have reported it long ago.
5003. It is unquestionable—there is not the shadow of a doubt about it—that information got out of your office. For instance, on one occasion the Inspector-General sent a private communication to your office, which would in all probability have led to the detection of this fraud. Within twelve hours of that private communication being sent to your office it was all over the town? Well it never came from me.
5004. Have you any suggestion to make as to the quarter from which the information came? About the letter?
5005. Yes? No.
5006. It is not a suspicion, it is an absolute certainty, that this private information was spread all over the town in twelve hours, to the great disgust of the police in charge of the case, who threw up their hands at once, and said, "If this kind of thing is to take place it is of no use our trying to help in the detection of the frauds; we shall be thwarted"? It never came from me.
5007. Have you any idea where it came from? Not the least. If I had I would tell you.
5008. *Mr. Brock.*] Did you see this document? No.
5009. You have never seen it? No.
5010. Who would be likely to see it besides Mr. Roberts? I do not know of anybody else.
5011. Are you often in Mr. Roberts' office? Upstairs?
5012. Yes? Not often.
5013. Does any one go to his office when he is out? Yes, they go in and out.
5014. *President.*] Who? Possibly the clerks. I have sometimes gone up to his room to enquire for him.
5015. Does he not lock the door and take the keys with him? No.
5016. You have told us of your limited acquaintance with Musgrave, and the statement has surprised us, because we thought the acquaintance was a very familiar one? No, it is not.
5017. We shall be glad to hear of a man named Ferrier? I have known him as a conductor on the cars.
5018. Nothing more? Nothing more; only that I think that he and Musgrave used to knock about together at times.
5019. How often have Ferrier and Musgrave met at your house? Once.
5020. With Musgrave? Yes. I was not at home; I only know of it from Musgrave.
5021. You know that Ferrier was dismissed? Yes.
5022. On the 14th of July? Yes.
5023. We want to know what took place when he went with you to your house after that? Ferrier went to my house, do you say?
5024. Yes? He never went to my house—never.
5025. Will you carry your memory back to an occasion on which you rode on a tram with Ferrier after his dismissal? I recollect the day well.
5026. It was in the direction of your house? Yes.
5027. You got up on to the tram together, and you got down together? No, we did not.
5028. Without wishing to say anything offensive to you it does seem to us very strange that an officer holding the important position in the Department which you hold, should allow yourself to be, for one moment, in the company of a man who had been dismissed for improper conduct in connection with these frauds? That is likely to occur any day. I will explain the reason I was on the tram, and how it occurred:

- occurred: I got on to a Waverley tram at King-street, and I met inside Mr. Thomas Tout. We both got out at Shalvey's, at Bathurst-street. We were talking there about 5 minutes. It was nearly 1 o'clock, and Mr. Tout asked me to go and have dinner with him. I said I could not go because my wife would be waiting for me, knowing that I generally came home in the 2 minutes past 1 to Crown-street. While I was waiting Ferrier came up. I do not know where he came from. He told me that he had been dismissed. I said that I knew that. The Crown-street tram came up, and I got on to it. Ferrier followed me upstairs, and stood alongside of me. I fancy he got off at Mark Foy's, but I never saw anything more of him after that. When he was standing alongside of me the conductor came up and demanded his ticket. He nodded his head, as much as to say, "Pass me." I heard Quin, the conductor, demand his ticket. The tram on the top was packed. Although we were standing close together I do not think we said two words. I knew perfectly well the position the man was in. I went straight home, and the conductor in charge of the tram can bear out that part of my statement.
5029. You are absolutely certain that on one occasion he did not go to your house? I have never seen him there with my own eyes in my life.
5030. *Mr. Thompson.* You are sure that he did not pass the corner of Crown-street? I could not say whether he did or not; I took no notice of him.
5031. *President.*] Although he was standing alongside of you? I think he got out and went down Brisbane-street, at the corner of Mark Foy's.
5032. Do you remember the occasion on which Ferrier had a meeting with Greeley, in Greeley's bedroom? Only from what I saw in the papers.
5033. Just try to recollect yourself? I do not recollect anything about it. The first thing I knew about it I saw in the papers.
5034. We know that Musgrave's confidence to you on that Sunday night was immediately after Ferrier was with Greeley in his bedroom? Yes; I found that out since.
5035. And immediately after Ferrier knew that he had been detected by the officers of the Department; in other words, immediately after he knew that the game was up; and on the next night Musgrave went to you and made a sort of semi-confession? The chances were that he had heard something and thought it was a good idea to come to me.
5036. The chances are strongly that he had? I do not doubt it for a moment. But as to Greeley and Ferrier meeting, I knew nothing about it.
5037. You were not aware of in any way conveying to Musgrave the risk he was running by still keeping silent on the matter? No, I am not. The first information I got was on that night I have told you about. I tried dozens of times afterwards to get Musgrave to let it out and to tell me all that he knew about it, and I persuaded him to go to Mr. Roberts.
5038. You are quite certain that you are being absolutely candid with us? I am, indeed.
5039. All I can say is, that if you are candid, you are very unlucky to have had your name mixed up with the thing in the way in which it has been? Yes; it has been very unfortunate for me. With regard to what happened on the day I met Ferrier: if you have any doubt about it I can get Mr. Tout to come here as a witness.
5040. But Mr. Tout had no connection with your ride with Ferrier? No; but I was going home to dinner, and Ferrier happened to get on to the same tram.
5041. What we should like to have proof of is that you and Ferrier did not get off the tram together? Quin, the conductor, can prove that.
5042. *Mr. Brock.*] Was there any one else you knew on the tram? Conductor Stack was standing up there; I think he got off at Crown-street.
5043. How is it that you did not see Ferrier after you had passed Mark Foy's? I never took any notice of him.
5044. Were you not standing talking together? We were not talking.
5045. But you were both on the top of the tram together? Yes; I was standing in a corner, and he was standing alongside of me.
5046. Was the car crowded? Yes.
5047. He was not there as your companion? No.
5048. And you did not notice where he went off any more than you noticed where any other passenger went off? No.
5049. *President.*] You remember Stack seeing you with Ferrier;—do you remember Stack making some statement at a meeting of the men in connection with the matter, and do you remember on the next morning taking Stack to task about it? Not the next morning.
5050. But soon after? I saw him on the Sunday morning, and asked him if the statement in the papers was correct. He stated that it was not, and that he did not intend it as it appeared in the papers.
5051. What was said in the papers? It was said that Musgrave had a brother-in-law in the office. This is said what Stack is said to have mentioned; and I asked him what it had to do with this arrangement at all. From the way in which Stack used the words it seemed to convey an imputation that I was mixed up in the affair. That was the way it went into the papers.
5052. And you asked him what it had to do with the frauds? I asked him if they were the words he had used. He said he did not mean it in the way it was put in the papers, and that if I wanted a report to that effect he would give it out.
5053. Did he not say to you, "I told nothing but the truth and I won't go back from it"? I do not recollect his saying a word about it. We were in the office, and it was on Sunday morning.
5054. From what you say it would appear that he offered to go back from what he had said? He said that he did not intend it in that way.
5055. What do you mean when you say "in that way"? He merely stated a fact. It is true that he is my brother-in-law, but as it was in the papers, it conveyed the idea that I was mixed up in the matter, or that Musgrave did not get the sack before he did on account of his being my brother-in-law. The inference being that I had used some influence in his favor.
5056. Was not Musgrave dismissed at the time of the meeting of the men? I do not know whether he was or not. He may have been; I did not take much notice. He was kept on for a week or so after the other men were dismissed. From what I can make out the men had the idea that he should have been dismissed or suspended at the same time as the other men.

- A. T. Colls. 5057. Do you know nothing more about Musgrave in connection with these frauds? I do not know a word. If I did it would have been out long ago. In fact I gave all the information I had to the Department. I knew that some second-hand tickets were being sold.
5058. Where? At a shop in Crown-street. I did not buy them; they were bought by a friend of mine named Osborne. He got four new tickets and two old ones. I asked him to give me the two old ones. He would not take the 2d., but he gave me the tickets. I brought them to the office the next morning.
5059. What was the result of that? I think Mr. Roberts told the men about it.
5060. What shop was that? A little shop at the corner of Foveaux-street. A woman kept it then.
5061. Is it a grocery shop? No; a little fruit-shop.
5062. Had they a license? Yes.
5063. Are you sure that the two tickets had been used? I was almost positive or I would not have asked for them; I gave them to Mr. Roberts.
5064. Could they not have got dirty in the stock? No.
5065. You were certain that they were used tickets? Yes; quite.
5066. Did you send Osborne in for the tickets? No. He was staying at our place, and I happened to see the woman give them to him. I tried the place half-a-dozen times afterwards, and I could not get any more; I tried it at different times of the day.
5067. You got tickets? Yes; but not used ones.
5068. I suppose you were known to be in the Tram Office? I do not think she knew I gave her her license; I do not think she knew me. She may have got the information since I went to live there, but that I can't say.
5069. Talking of licenses;—do you remember Musgrave coming to you to try and get a license for a man named Dominic Lacerda, a barber, at Waverley? I remember something about it. He did not try to get it that I know of. He asked me in what way the man could get it.
5070. What did you say? I told him that the man must send in an application. The man sent in another name, but it was found out afterwards who he was.
5071. Did not Musgrave ask you to try to get that man a license? I do not recollect his asking me; I do not think he did.
5072. Was it not an unusual thing for Musgrave to come to you and ask you how a man could get a license? He had no right to come and ask me about it. I understood that he had been in his shop several times.
5073. Did not Musgrave tell you you would be doing him a good turn at the same time if you helped this man to get a license? I do not see what good turn it could do him.
5074. Will you swear he did not say that to you? I will not swear. I cannot recollect.
5075. Was not your impression that Musgrave was taking an interest in this man getting a license? The chances are that he may have been.
5076. What do you know of this man Dominic yourself? I will tell you: I was talking to a policeman at the corner of a street one Sunday night—at the corner of Newland-street, at the old South Head Road.
5077. What was the man's name;—was it Stove? I can't say. He was a tall sandy-whiskered man. I saw him yesterday in town. We were talking about the robberies there, and he said there are some bad coves about here; that barber is a bad man. I said, "I am glad you told me that he is not a good man, because he was applying for a license."
5078. You said you would take care that he did not get one? Yes.
5079. It is left in your hands to arrange these license matters and to report upon them? Yes, I reported against him.
5080. You said he ought not to have a license? Yes.
5081. Is your report in writing? Yes.
5082. I suppose the records will show it? It is there somewhere. I did not say that I put it on paper that he was a bad man. There was another man with a ticket license alongside of him which prevented him from getting another, but that would not deter me from putting on paper what I thought of the man.
5083. Did you not say to Musgrave, "This man you came to me about trying to get a license for is a good-for-nothing fellow?" I think I did; I think I told him that I thought the man was a rogue.
5084. Did you not tell him to be more careful, seeing that upon his representation you might have given the man a license? Of course I might have got into trouble, because he was a bad man—in fact one of the worst, from what I can make out.
5085. You say that Musgrave gave you no confidence, and that you knew nothing of his complicity with very suspicious characters until the Sunday night when he came to tell you a certain thing? Until he came to tell me.
5086. Did you not know from your position in the office that Musgrave had been a suspected man for a long time? I had an idea that he was suspected.
5087. Don't you know perfectly well that some months ago he had his bells taken from him? I heard it on the next day.
5088. Did you ever warn Musgrave that he was a suspected man? No, I don't think I did.
5089. And that if he did not look out it would end in his dismissal? I did not tell him that. I would not tell him.
5090. With regard to the constable's report, sent in by the Inspector-General of Police in which Musgrave's name was mentioned as having some connection with this very man Dominic;—do you mean to tell us that you did not see him on the day after that report reached the tramway office? I did not.
5091. Now be very careful? I am careful.
5092. Are you sure that you are not making a mistake? I have no recollection of ever seeing him. If I had seen him I would certainly tell you.
5093. That was the case in which the constable heard the next morning that the whole thing was out? Well, it never came through me.
5094. Did you not hear of a report to the effect that Musgrave had been arranging for the sale of tram-tickets to this man Dominic? I never heard a word about it—never.
5095. You are not surprised now when you hear that that was the substance of the report. You can now understand why Musgrave was so anxious that Dominic should get a license? From the look of it, and from what I have been told, I do not wonder at his trying to get the license.

5096. If Dominic had not a license he could not sell any tickets whether obtained honestly or dishonestly? No; he could not sell tickets at all.
5097. And you never saw this police report in which the matter was mentioned? I never saw it.
5098. Did you know about it? I heard of it some time afterwards.
5099. From whom? I heard in the office that some policeman had reported Musgrave.
5100. In the office? Yes, I heard the remark passed there.
5101. Who told you? I could not say. The chances are that I heard it in my room.
5102. Was it Mr. Roberts? No.
5103. Was it Mr. Bowden? No I think it was among the clerks.
5104. It was not Mr. Tyrer? No.
5105. How long ago was it? I could not say. I heard something about it a week or ten days afterwards.
5106. About how many months ago? Only about two months ago I think, is it not?
5107. Why this so-called confession to you on the Sunday night is as nearly two months ago as it can possibly be. You are not noting the progress of time? I do not quite remember.
5108. How long before that time was it that this police report was talked about? I think it was after that.
5109. The police report was after that? I think so.
5110. Why it must have been months before? I do not know anything about that report then. The report you are asking me about is one that was known a couple of days afterwards where my name was mentioned as being a brother-in-law of Musgrave's.
5111. *Mr. Brock.*] Do you know the date of the last report? No.
5112. Do you know what rank the constable who talked to you held? I do not know what rank.
5113. *President.*] We are talking of the report sent in on the 12th July. That report you say you never saw, but you say that you heard it talked about in the office? Towards the latter end of the week.
5114. *Mr. Brock.*] Do ordinary reports generally go to you? I never see a report.
5115. You have nothing to do with the records? No. Only with the cash and tickets.
5116. Who attends to the records? Mr. Bowden. The papers never come down stairs. I am down stairs, and all the papers are sent up stairs. The only papers that come to me are in connection with ticket licenses.
5117. When applications are made for a license you go and make inquiries? Yes.
5118. You visit the places? Yes.
5119. And inquire into the character of the people? Yes. And if there is anyone else selling near.
5120. *President.*] I suppose the fact of the matter is that you have not been sufficiently particular hitherto in inquiring about the character of the people. You have only had in view the fact of there being any one selling tickets near to the place? I generally look to the character of the people.
5121. How do you find it out? The best way I can; I just ask people about what they think of them.
5122. Have you never heard that conductors have been selling tickets? I have heard that they have been selling tickets. At least there was a report about that they had been selling them. Not only that but my wife has bought some.
5123. Where? She told me that she was going to Leichhardt once and that she bought six-pennyworth or a shilling's worth of tickets at the corner of Elizabeth and Liverpool streets.
5124. Had they a license? Yes. When she came home she told me that she thought that two or three of the tickets had been used. I asked her why she did not bring them to me. She said she was almost certain that they were second hand tickets—that they had been used.
5125. These people still have a license have they? I think so.
5126. Have any steps been taken to inquire into the matter further with a view to the stopping of the license? I have not heard anything. I have not been there for the last three months.
5127. When was this purchase made by Mrs. Colls? About twelve months ago.
5128. So long back as that? It must be all that. She said that she was not certain but that she was pretty well sure that they were used tickets.
5129. Did you ever try to buy any of these tickets for yourself at this place? I did but I got good ones. I tried one Saturday night coming from the railway.
5130. Do you know whether you ever brought your suspicions under the notice of the Department? I do not know that I did not bring them under the notice of Mr. Roberts or the detective, or the detectives. I don't remember.
5131. *Mr. Thompson.*] Did you take that course in regard to the shop at the corner of Foveaux-street? Yes; I brought the tickets down to the office the next morning.
5132. *Mr. Brock.*] You said that you were travelling in a tram one night and you said you did not think the conductor rang for all the tickets. Did you take any notice of that? I told Musgrave about it when we were talking as I told you. I said, "I did not think that this conductor when the compartments were full rang for all the tickets."
5133. Did you not notice the conductor? I did not take much notice of him to tell you the truth. The car was crowded and there were several people standing up. I fancy the conductor was Fraser.
5134. *President.*] One would think from your position Mr. Colls that you would take particular notice? The tram was crowded. I was standing up. The conductor got the passengers to collect the tickets, and he stood at the side and rang away. It was on Saturday night at about half-past 10.
5135. Were you confident that the man did not ring? I heard him ring but I do not think he rang the number.
5136. Were you confident that he did not ring sufficiently often? I could not say. I could not be certain.
5137. *Mr. Brock.*] You had not enough to go upon? No, because so many tickets were passed down.
5138. *President.*] You heard these rumours of fraud and you thought that possibly this man might be practising it? I never heard any rumours of frauds before these frauds came out.
5139. *Mr. Brock.*] Do you not know that there were rumours of fraud when Musgrave's bells were taken from him? I heard that frauds were going on. I heard that conductors had been making away with the tickets, and that people were buying tickets which it was known had not come out of the office.
5140. You had heard these rumours, and you thought that the fraud was being done as this man was doing it—that is, by ringing short? Yes; that is the way in which I told Musgrave I thought it was done.

- A. T. Colls. 5141. You suggested this to Musgrave? I told him I did not think this conductor rang often enough. He said that I was wrong, and that if the man wanted to do it he could fix the bells, and then could ring as long as he liked without registering. I said to him, "You do not mean to tell me that they can pull the bells without registering?"
5142. *President.*] Had he his bells with him on that occasion? I fancy he had his bag and bells with him, but I would not be certain.
5143. And he never attempted to show you how the bells could be rung without registering? He did not. My wife was sitting inside, and he could not do it out on the verandah. He said that the bells could be faked in that particular way, although he said that he himself had never done it.
5144. He lived with you for a considerable time, and you have been, to a certain extent, intimate with him. You took an interest in the lad, and so forth. I presume that in your dealings with him you were not severe with him? No.
5145. You knew that he had little failings. You knew that he was not quite regular, and that he had had a disease two or three times? Yes, I knew that he had had that.
5146. You knew that he was frequenting gambling-rooms and so forth. What did you say to the lad: As far as I can understand you looked upon yourself as being to a certain extent responsible? Yes; pretty well, until he got into the tram service and could earn wages.
5147. How did you deal with him when you found out that this kind of thing was going on; that he was diseased and so forth? I never had anything to say to him about that. His sister was the one who talked to him.
5148. *Mr. Thompson.*] Was he diseased when he was in your house? Yes.
5149. Did you allow him to be there in that state? Well the doctor was attending him.
5150. You did not threaten to turn him out? I do not recollect saying a word about that.
5151. *President.*] That leads me to this question: you were very benevolent towards him always? I have always acted well towards him.
5152. And yet you tell us very distinctly that this young man never confided in you in any way with regard to what was going on. For instance, when Mr. Roberts had the bells taken away from him he did not come to you and say, "You have known me since I was a youngster. You have taken a great interest in me. I am suspected of fraud?" He never said a word. He never let me know anything until that Sunday night.
5153. *Mr. Brock.*] Did you never hear of his buying a hansom? No.
5154. Up to the present time you had not heard that? No.
5155. *President.*] Did he confide in you in other matters. Did he tell you about the women he kept, and so forth? He never told me. I knew that he was living with one, and I told him he ought not to do it. He said that he was going to marry the woman.
5156. He did not confide in you at all in these matters? Not at all.
5157. Did he confide in you as to his monetary matters, as to his losses at gambling, and so forth? He never said a word about it. I know that he made some money once over some races at Melbourne. I knew that he was gambling to a certain extent. I heard it from some of the conductors before I heard it from him. That is as to his winnings at Melbourne. I knew that he won forty or fifty pounds, or something like that.
5158. Has he any money now? I do not think so.
5159. You have been already asked if you cautioned Musgrave when you knew that he was suspected—when his bells were taken away from him? I did not. I do not think that if I had known I should have told him. If he was up to the game, why should he not be caught the same as anyone else? I would not shield him any more than I would shield any other man.
5160. What did you think when you heard that his bells had been taken away from him? I thought it was suspected that he had been up to the game.
5161. Did you not suspect him yourself? I did not.
5162. Did you believe him to be honest after all that you knew of him? After all that I heard about him, I could not think that he was very honest. I saw nothing to lead me to change my opinion. It was only what I heard.
5163. Did you never ask Musgrave how he came to have his bells taken away from him? I never asked him.
5164. *Mr. Thompson.*] How long do you suppose there was between the time of his dismissal and the time at which his bells were taken away from him? His bells, I believe, were taken away from him about three or four months ago.
5165. *Mr. Brock.*] Did you ever ask Mr. Roberts why Musgrave's bells were taken away from him? I never asked him.
5166. *President.*] Are you intimate with Mr. Roberts? Well, I know him.
5167. Do you converse with him on subjects of that kind—that is, as to the conduct of conductors, and so forth? No; I have nothing to do with that. I look after the returns, the tickets and cash, and so forth.
5168. Mr. Roberts never consults you in the administration of the tramways? No.
5169. You have no idea as to the way in which these things go out of the office? I have no idea—not the least. I myself have nothing to do with the papers in the office. My room is downstairs and the papers are upstairs.
5170. Do you know that it was a common expression among these rogues to say they could not be caught because they always got the "griffin" from the office? I saw so from the report in the papers. The first I saw of it was in the papers.
5171. You can form no idea, helpful as it would be to yourself, from what quarter these things came out of the office? I have not the least idea.
5172. Everyone is of opinion that the news came from yourself? They are mistaken then.
5173. That is the universal opinion? Well, it is a mistake. I suppose they think that on account of my being related to Musgrave, but I never shielded him. That is a mistake.
5174. You say, in point of fact, that you would be the first to give information? If I saw anything wrong with Musgrave I would be the first to tell of him. In any case where I have found anything wrong with the others I have always done so, and I would do the same to him. In fact I should be the more inclined to do so if he did not know how to behave himself. 5175.

5175. *Mr. Thompson.*] Did it not strike you that there was a double duty on your part to speak to Musgrave, not only as an officer of the Department but as being connected with him by marriage—by a close tie? —
5176. Did you not think it your duty to point out to him that, the way he was going on keeping women, and constantly getting disease, spending money on gambling and at the races, was anything but the conduct which should characterise a young man in his position? He has had plenty of advice from me.
5177. I thought you said that you gave him no advice? Well he was staying out at night. That was all I knew.
5178. You have said that you knew that he was diseased, and that you also knew that he was given to gambling and horse-racing;—how can you say that you did not know what he was about? I did not say that I knew he went with women. What I said was, that I did not know anything I could swear positively about, it was chiefly what I heard.
5179. You must have known that he went with women, and all that kind of thing, because he came home diseased, and was actually nursed in your house? Of course I could tell from that.
5180. I want particularly to draw your attention to the time which you said you believed was February of the present year, when Musgrave was laid up for a fortnight with a swollen testicle;—I wish you to fix your mind as to when that was? About the time?
5181. Yes? I said I could not fix it, but I think I could find out from my wife.
5182. *Mr. Brock.*] Are you sure he was there a fortnight? I do not believe it was so long.
5183. Between a week and a fortnight? Somewhere about that time.
5184. Were his wages going on? I do not think so.
5185. Have you anything to do with the payment of any of the men, or the arrangement as to how much they are to be paid for overtime? No; nothing at all.
5186. You do not know how that is carried on? No. That is a matter for the time-keeper.
5187. Where do the tickets which are brought in by the conductors go to? Into the front room, to Mr. Primrose's room. I have nothing to do with that room. Until about three months ago that front room was under the audit office. We have nothing to do with that room at all. It belonged to the audit of the railways. My room is at the back. When the conductors came in off duty their bags are taken to the window and emptied. The register is read, and the tickets are put into boxes and weighed.
5188. They weigh them? Yes. That is the present check; before, they used to read the register, and throw the tickets into the fire-place to be burnt. Now there is a different system. The bells are read down in the yard by some clerks in the audit office. The cash and tickets are taken at Phillip-street, and the tickets are weighed up there, and then they are burnt.
5189. You know Mrs. Johnson, of course, very well? Yes; she is a sister-in-law of mine.
5190. In what way does Mrs. Johnson provide for herself and for her family? Her husband is dead. He died at sea. He was a surveyor. He left some money beside a life insurance policy for £500. There was a draft upon him coming out for £280. I think under his father's will he was allowed £4 until 1893 or 1894, until one of the youngest children at home came of age; then there is about £16,000 or £17,000 each for them.
5191. How is it under these circumstances that Mrs. Johnson is obliged to keep lodgers? I could not tell about her business, that is, about her keeping lodgers. I seldom see her.
5192. You do not know that she keeps lodgers? No, I do not.
5193. Don't you know that she has a man named Hay living there? I know that he is staying there.
5194. Is he paying for his board? I do not know whether he has any means to pay for it. He is working about the place, digging up the garden, and one thing or another. He came to stay there after they got word about Mr. Johnson's death.
5195. *Mr. Thompson.*] Who is there who would have an opportunity of seeing confidential reports that come into Mr. Roberts? I suppose Mr. Roberts would see them, and that Mr. Tyrer would see them, and that they would then go on to the record clerk.
5196. Would that apply to a confidential report? No, only to general reports.
5197. I was speaking of confidential reports? I could not say about these; I do not know whether they would register them or not; I do not know the rule in regard to papers of that kind, but ordinary papers would go to Mr. Roberts or the chief clerk, and would then be registered.
5198. Then anyone who would care to see the general reports would know their contents? Yes, I suppose so, if they wanted to find out or to see anything.
5199. Where is Reegan employed? He is over at the office.
5200. I suppose that, in the course of his duty, he has to be all over the office? He is generally all over the place.
5201. He is no relation of yours? No; he is in a different family altogether.
5202. *President.*] What does he do in the office? He is a messenger.
5203. *Mr. Thompson.*] Do you know that he is very intimate with Musgrave? I did not know it, if he was.
5204. You really do not know it? I could not say; I never went out at night, so that I should not see them.
5205. You used to live at Waverley; when did you leave there? A little over three or four months ago.
5206. I wish to ask you what you may consider rather an impertinent question. Do you remember a man named Grono? Yes.
5207. Did anything occur to you antecedent to your joining the Tramway Department in which that man was connected? No.
5208. Or since? Not that I know of.
5209. Was it with regard to a cheque—before or since you joined the Department? Regarding a cheque.
5210. What was it? There was a cheque in the cash over there, and it was held over for a few days; it was a cheque of Nicholson's that I cashed, and it was held over for three or four days.
5211. Who is Nicholson? A tailor; a Government contractor.
5212. Who is Grono; what had he to do with it? I think Grono at that time was relieving one of the ticket clerks over at the ticket office.
5213. Well? That is all.
5214. But how was Grono mixed up in the matter? He was the ticket clerk, I believe; I asked him to hold over the cheque for a couple of days.

- A. T. Colls.
5 Sept., 1888.
5215. Was that a cheque which you took in payment of tickets? No; it was a cheque which I cashed out the takings.
5216. You were responsible for it? Yes.
5217. What was the amount? I am blessed if I could say; I think it was about £6 or £7; I do not think it was any more.
5218. Did the man tell you when he gave it to you that it would have to be held over? He asked me if I would hold it over for a couple of days, and the fact is that I had to pay it afterwards myself.
5219. It was dishonoured on presentation? Yes.
5220. Who signed it? Nicholson, the tailor.
5221. Did he not pay you? I got it afterwards, but I paid it myself meanwhile.
5222. He was a Government contractor, you say? I do not know whether he was then, but I know that he does contracts for Government clothes.
5223. He was not contractor for the tram uniforms? I do not believe so.
5224. Did it not strike you that you did rather an improper thing? Yes; it was. I found it out afterwards. It was a very foolish thing on my part, and I was very nearly losing my place over it.
5225. It was not a correct thing to do? I admit that I have had a lot of trouble about it.
5226. Before you came into the Department what business were you employed at? The last thing I was farming up country.
5227. Were you never in the employment of a bank? Yes. The first place I went into was a bank.
5228. How old were you then? I was about seventeen, or younger than that.
5229. How long did you remain in the bank? I was about four and a half years at Yass and Wagga.
5230. Did anything unpleasant take place with regard to your accounts, necessitating your leaving the bank employ? Not at Wagga nor the other place either—nothing in regard to the accounts.
5231. What was it then. Something else occurred? There was a party at the Manager's place one night. I was pretty young, and I came down on to the stairs, where I met one of the servant girls; I put my arm around her, and Mrs. Cottie was looking over the staircase, and saw me. Through that I found out that Mr. Cottie was going to dismiss me, and I resigned.
5232. That was the only matter in regard to your connection with the bank that was at all disagreeable? Yes; there could not be anything else, because I was ledger-keeper there all the time. I had nothing to do with the cash at all.
5233. But where you are now you have everything to do with the cash? Yes; and I have had for the last six years, and with the tickets too.
5234. You sell the tickets in sheets? Yes. We get a supply every week. On an average we take about a thousand pounds' worth a week for our ticket clerks.
5235. And what check is kept upon the quantity that comes in? There is a check in two or three different places. A check is kept by the accountant and the traffic auditor, and then there is the Auditor-General. He comes round three or four times a year, and goes through the accounts.
5236. But who goes through the tickets to show that a pound's worth at a time does not go without being accounted for? They could not very well take them out by the sheet.
5237. Who has the keys of the safe? I have.
5238. How often do you balance your accounts? Nearly every time I get tickets. It does not take me 10 minutes to balance my accounts.
5239. What do you do with your cash? Every morning it is sent to the cashier for Railways.
5240. What did you do with the cheque you have mentioned? I put it in as cash.
5241. Do you mean to say that the cashier took that cheque as cash? It was held over in the cash.
5242. You gave it to the cashier? It did not go to the cashier at all. It went over to the ticket-clerk.
5243. Then your cash must have been wrong. If it was held over and not paid to the cashier you must have sent in an untrue account of what your cash was? I held it over because I knew then that it was no good.
5244. Is it not a fact that to the extent of that amount you made an untrue return to the cashier during the two, three, or four days it was held over? Instead of sending in the cheque it was held over.
5245. You sent in a statement did you not? No.
5246. You did not cook the accounts? No, I did not.
5247. Whose duty is it to send a statement into the cashier with the cash? I send in what they call a remittance-note.
5248. Did your remittance-note not show that you were short by £7 or £8 every day that you held over the cheque? No, it would not show.
5249. Then, as a matter of fact, you sent in an absolutely false remittance-note during the whole time the cheque was held over? Of course the money for the cheque should have gone in, but it was held over. I cannot say that there was a false remittance-note. The remittance-note was correct. Of course if the cheque had not been there the chances are that there would have been £6 more going in.
5250. Do you send in a statement of the tickets you sell every day? Statement of money.
5251. Do you make a statement of the tickets you sell each day representing that cash? No.
5252. Where does the cheque come in then? You are debited with so many tickets? By Mr. Lewis at the stationery office there is a requisition prepared. I make application for £1,000 worth of tickets. That is taken up to Mr. Roberts and signed. Then it is registered. From there it goes to the traffic auditor, who takes a note of it, and puts his initials on, then it comes to Mr. Lewis, the stationery clerk, and it is brought up here for the Secretary's signature; then I am supplied with the tickets.
5253. Who debits it against you;—the traffic auditor? The traffic auditor, Mr. Lewis, and the Auditor-General.
5254. But when do they make a check to find out whether you have accounted for what you have sold? The Auditor-General comes round three or four times during the year.
5255. *President.*] But you send in a return to show how many tickets you have sold surely? Every day there is what they call a statement—there is a daily statement.
5256. Where does that go to? To the traffic auditor with the returns.
5257. You send a statement of your sales to the traffic auditor, and of your cash to the cashier. When does the check take place between these statements to see if they agree? When the cash goes into the cashier there are two dockets with it. He initials one and sends it back to me. I paste it in the book for
my

my own safety down at the office. Then the statement is sent up to the traffic auditor every day from the cashier for railways.

5258. *Mr. Thompson.*] Therefore, on the day on which you accepted Nicholson's cheque and held it over, the traffic auditor must have noticed a discrepancy between your cash and your statement of tickets? He could not notice it.

5259. Why not? When the cheque was left there was £8 taken out.

5260. *President.*] Have you a certain amount of floating cash, a suspense account? No.

5261. Then how could you borrow £8 without showing a discrepancy between your traffic auditor's statement and your cashier's statement? At 1 o'clock, when that cheque was cashed, the boy had £20. I asked him to cash it and hold it over for a couple of days. It was never sent in.

5262. But would it not then appear from your account that £8 worth of tickets had been sold and not accounted for? They were accounted for by the cheque which was held over.

5263. Leaving the statement to the traffic auditor £8 short? No.

5264. But there must have been a discrepancy between the statement of the tickets sold, and the amount paid in? £8 were taken out, representing £8 worth of tickets sold. It did not go into the accounts for days afterwards, when I paid the money in and took the cheque out.

5265. Did not the traffic auditor discover any discrepancy in the statement? He could not find out, because the cheque was held over in the cash.

5266. *Mr. Brock.*] But did not the value of the tickets appear in the statement that day? No. If I had not got the cheque £8 more would have gone through that is all.

5267. *President.*] Suppose you sell £50 worth of tickets to-day? Yes.

5268. But because of a cheque, which you have cashed and are going to hold over, you only send in £42 in cash? Yes.

5269. Does not your statement go to the traffic auditor showing that you have sold £50 worth of tickets? No; for the simple reason that they do not get in all the money.

5270. Then there is a suspense account? Each ticket clerk has a floating account of £50 backwards and forwards.

5271. How often is your floating balance checked? I generally used to go through it once a fortnight.

5272. But you are no check upon yourself? But I am upon them. I am responsible for their money.

5273. Who checks you? Mr. Tyrer.

5274. How often does the traffic auditor do it? About three times a year.

5275. Was this thing not detected? No. It was only a matter of three or four days.

5276. But was it not detected and reported to the Commissioner? I think there was something about it.

5277. But you said something about getting into trouble and nearly losing your place? There are the papers. It was about four years ago.

5278. What happened? I could not say unless I saw the papers.

5279. What papers? There was a row about it.

5280. Who detected it? I could not say who it was.

5281. Was anything done to you? I do not recollect. It must be five years ago.

5282. How did you come to take the cheque from Nicholson;—what did you take it for? I cashed the cheque for him.

5283. And passed it into the Government cash? I held it over.

5284. But where did the money you gave Nicholson come from? That came out of the Government cash of course.

5285. Are you in the habit of cashing cheques for people? Yes; but I am not allowed to cash them now unless I get the Superintendent's signature.

5286. What made you cash Nicholson's cheque on this occasion? I do not know. I had not my instructions then. I could cash any cheques I liked, as long as I thought they were good.

5287. You have had instructions since not to cash cheques? Yes.

5288. You could not have thought that Nicholson's cheque was good, because he asked you to cash it for him as a favour and to hold it over? Well it went out of my hands that day.

5289. You expected that Nicholson would be in funds in two days and that his cheque would then be honoured? That is what I expected.

5290. But that, if it was presented before, it would be dishonoured? Yes.

5291. And you distinctly understood that if it was not paid you would have to pay it? Yes; and I did have to pay it.

5292. When did you pay it? As soon as I got word about it; as soon as it was found out.

5293. Was it not paid into the bank through the office and dishonoured, and was not an inquiry then made? I do not think it went into the bank at all. It was held over in the cash.

5294. How did you find out that the cheque was no good? He told me afterwards that it was of no use, and I said to them it is of no use presenting the cheque, I will pay it.

5295. Did Nicholson come back to you and say so? Yes.

5296. Why had you not sent the cheque up to the cashier? Nicholson told me that it would be no good sending it in.

5297. When was this? Four or five days afterwards.

5298. You held it over without doing anything for four or five days? Yes; then he told me that it was no good, and I had to pay it myself.

5299. Is that the only cheque you have obliged Nicholson by cashing for him? Yes; in that way. I have cashed another cheque for him out of my own money though.

5300. Was that before or after? It is not very long ago.

5301. What was the amount of it? £10.

5302. Is that since he has been a Government contractor? He has been a Government contractor for years.

5303. He had no cash to meet the £10 cheque? No; there was nothing to meet it.

5304. He owes you £10 now then? Yes.

5305. What led you to cash that cheque for him knowing what you did? I happened to have money at the time when he asked me to do it.

5306. How long ago is that? Perhaps three or four months ago.

5307. Do you think you will get the money from him? Yes; I am certain I shall.

5308.

- A. T. Colls. 5308. Have you applied for it? Yes; I saw him yesterday about it.
 5309. *Mr. Thompson.*] Have you and he been very friendly? No.
 5 Sept., 1888. 5310. Why on earth did you do this kind of thing for him a second time after you had got into such a mess the first time? I suppose it was from being too good-natured.
 5311. Have you done the same kind of thing for other people? I have lent other people money.
 5312. *President.*] Have you anything to do with Nicholson's contracts? No.
 5313. In the way of clothing I mean? No.
 5314. Have you had private transactions with him? The Government clothes are not passed at our place; they are passed at Randwick.
 5315. Who passes them? Mr. Dobson I think.
 5316. Who is he? The storekeeper out there.
 5317. *Mr. Thompson.*] Do you deal with Nicholson for your own clothing? I have had clothes from him.
 5317½. But as a matter of general business? No; I do not. He made me a couple of suits and I could not wear them.
 5318. Yet you lent him £10? Yes.
 5319. Did you think that the cheque was valueless when you presented it? He said he was expecting some money from his wife's estate. I did not know for certain that the cheque was valueless, but I never presented it.
 5320. *Mr. Brock.*] What is the relationship between you and Nicholson? There is no relationship.
 5321. I mean in the way of business? Nothing at all. I think I have got two suits of clothes from him since I have been here. That is all.
 5322. But you would not cash valueless cheques for everyone you meet would you? He was a friend.
 5323. I understood you to say that he was not a friend of yours? Well, I am friendly with him.
 5324. Has he done you a good turn? I never asked him to do me a favour.
 5325. *Mr. Thompson.*] Are you in a position to go lending sums of £10 to Nicholson without any prospect of getting the money back? No; I am not in a position to do anything of the kind, but I happened to have £10 at the time and I gave it to him.
 5326. Is it not a fact that you are continually in difficulties about your own money matters—with tradespeople and others? I cannot say that I am. Like other people I am in trouble at times.

THURSDAY, 6 SEPTEMBER, 1888.

Present:—

A. RICHARDSON, ESQ., PRESIDENT.

R. W. THOMPSON, Esq., M.P., | F. A. BROCK, Esq., J.P.

Gustave Adolphus Kopsch called in and further examined:—

G. A.
Kopsch.
6 Sept., 1888

5327. *President.*] Since you were here the other day you have, I understand, made an examination of the bell registers which were then handed you, and you have now a report to make to the Commission upon the condition in which you found them? I examined the four sets thoroughly and carefully, and I found that three of them were in the same condition; that is, that by placing a wire at the bottom of the lever, it would free the ratchet wheel, and ring without moving the register. The fourth set of bells which I received was in good order, and had not been tampered with at all. I contrasted it with the three bells which had been tampered with, and I could see at once that the tension of the spring in the three bells which were out of order had been relaxed. I believe that a spring in continuous use would relax itself in time. The spring is very small, and the ticket side is much more used than the bell side; therefore one of the springs would be liable to slacken from continuous use. There are no marks of any instrument having been used in connection with the springs in any of the bells I examined. I looked at them very closely with a magnifying glass. The bell bore traces of having been opened. Some of the screws had been lost, and the holes had been filled up with sealing-wax. In the three bells which were out of order I found only one screw; the others were missing. The whole of the disorder in connection with the three bells to which I refer lies in the relaxed tension of the spring.
 5328. Was there nothing to show in connection with the spring of these three registers that they had been interfered with in any way? No. By taking a similar pair of bells, opening them, and stretching out the spring so as to relax it, you would produce the same effect as would be produced by continuous wear.
 5329. *Mr. Thompson.*] That is to say, by straining the spring beyond its proper tension? Yes; the least bit will do it. There is a very small margin allowed, because the spring is very short.
 5330. *President.*] But without the introduction of a piece of wire or a pin at the bottom they would register all right? Yes.
 5331. Even though the spring might be weak? The spring might be weak, but they would still act.
 5332. But the insertion of a pin is just sufficient to free the ratchet wheel from the click? Yes.
 5333. Would it not be possible for the wear to become so great that, without the introduction of anything at all at the foot of the bell, it would fail to do its duty? No; it would not. The other springs are heavy enough to overcome as great a resistance as is actually required.
 5334. We have been told that the man who first found this thing out found it necessary to do something to the inside of the register with a screw-driver, or file, or bradawl; what would it be that he would do? I should say that he would carefully bend the spring back with a bradawl or file; almost any tool carefully used would answer the purpose. It could be done even with a match. You do not need any special appliance for it. It is just a matter of bending back the spring so as to weaken it.
 5335. If we were told that the spring would need to be shortened to the extent of a thirty-second of an inch, would that be correct? No; I do not think so.
 5336. *Mr. Thompson.*] Could the effect produced by interference with the spring be produced by putting either instrument between the cogs of the wheel and that part of the machinery which comes against the cogs? No. It could not be done that way.

Alfred

Alfred Solomon called in, sworn, and examined:—

5337. *President.*] What is your occupation? I am a florist.

5338. At what address? Camden-street, Newtown.

5339. We understand you have expressed a desire to come before this Commission in order to give us the benefit of your views in connection with these ticket frauds, and their prevention in the future? I merely wished to make a few suggestions. I have brought a scheme with me, and I will endeavour to explain it to you. It is an arrangement to facilitate the collection of tickets, and the prevention of fraud. I have with me two plans. One plan would necessitate the alteration of the cars to a certain extent. The first plan I will submit to you is also a preventive against passengers riding without paying their fares; it combines these two advantages of preventing fraud and the passengers riding without paying their fares. It is well known that a large number of people do travel without paying when they can—that a large number never pay when they can possibly avoid it. I propose; in the first place, to cancel all licenses, making the sale of tickets entirely under the control of the Department. Then I would have ticket offices established at all waiting-rooms and other convenient places which the Department could ascertain. I would also have free access down the centre of each car, with an entrance at one end and an exit at the other. I propose that the guard should collect the tickets at the exit end.

5340. When the passengers are going out? Yes; he could stand at the exit end, so that the people could deliver up their tickets as they went out.

5341. Supposing they went out at the other end? I will come to that directly. I propose next to have a turn-stile or spring door at the entrance to open inwards only. That would prevent people from going out at that end. I would have a small office or desk inside the car at the entrance end with a small pigeon hole at which passengers could purchase tickets. By this means you would get the entire sale of tickets into your hands.

5342. You would have these offices in each car? Yes.

5343. Who is to sell the tickets? You would have to appoint salesmen.

5344. Then it would be necessary to have a ticket clerk in every car? Certainly.

5345. Then we should have to appoint at least 120 ticket clerks? That would depend upon the number of carriages running on each journey. I do not know how many cars would be in use at the same time. Of course the clerks on returning to the yards would I suppose get into another car ready to go out, but perhaps you may be of opinion that the establishment of ticket offices at all the waiting-rooms would be sufficient, and in that case you could do away with my suggestion that ticket offices should be established in the cars. Then I would post prominent notices in each car prohibiting the sale of tickets under a heavy penalty. This would prevent people from selling tickets to one another. It is by the sale of tickets in this way that the Government are defrauded. If there was no one to purchase tickets there would be no sellers. I would have the upper part of each car arranged the same as the lower part.

5346. You would have upper decks then? Just in the same way as the lower part of the carriage.

5347. You live at Newtown? Yes.

5348. Then you have had some experience of the heavy loading of cars? Yes.

5349. Do you think it is possible to introduce a scheme of this kind limiting the entrance and exit to one door in those heavily-loaded cars? I think so.

5350. Surely you have travelled on the Newtown car when people have been standing not only at each end of the car, on the upper deck, but on the staircase? Yes; I have seen that.

5351. Where would your entrance be for the top of the car? At the top, in the same place as at the lower end.

5352. I will give you a practical illustration of what I mean: You get on to a Newtown car at King-street with the intention of travelling to the Railway Station only. You get on to the top of the car. It is pretty well crowded when you get on to it, but you manage just to push your way into the little entrance gate and stand up by the side of the car. As you know very well there is not much time to spare when you want to get off for the Railway Station, the car does not stop there very long, and there is only one exit for the people who wish to get off there. Even under the present arrangement, with all the means of exit, people who wish to get off at that particular place sometimes have great difficulty in doing so. A person under your scheme wishing to get out would have to push his way along a crowded car. He would have a great battle to squeeze himself down through your exit, and the chances are that before he could get off the car it would be in motion? He would not have to push himself through the exit end, because there would be no turn-stile or spring-door there. That would be at the other end; the exit end would be perfectly free. The conductor would be there to take the tickets as the people go out, and that would act as a preventive of people riding without paying their fares.

5353. Well, let us go downstairs and imagine a loaded car into which a very stout lady has introduced herself, wishing to get down at the Railway Station. She forces her way down to the entrance end, and you can just imagine the difficulty there would be in the crowd of people who would be wanting to get out there. Don't you think there would be great complaints of passengers being carried on beyond their destination? There might be a few complaints, but I am sure they would not balance the frauds.

5354. *Mr. Thompson.*] Just imagine your system in existence when there is a rush of people, as there often is, to get on to a car. At the present time there are five entrances, and there is a double means of getting to the upper deck. It stands to reason that with your system it would take just five times as long to get the people on to a car as it takes at the present time? It would take a little extra time, I admit that.

5355. But would not people necessarily be left behind over and over again? That might be, but would all these things counterbalance the loss of money from which the Government suffer at the present time.

5356. *President.*] Suppose you are in King-street, or in some other place where a great many people are waiting to get up. You have often seen twenty people rush forward to get into a car at one of these places. There are five doors on each side, and even now the trams are delayed by the rush. These twenty people would all rush to the one spot where they would find this spring-door. Can't you imagine that they would be jammed, and that a block would ensue? Well, if you think that would be an insuperable difficulty, you might have the seats in the carriage lengthways, and allow the guard to collect the tickets as he does now. That would permit of the people coming in at either end.

5357. *Mr. Brock.*] You would put the seats in the lower car just the same as they are upstairs? No; I would have them so as to have a passage down the centre.

5358. You would propose to leave both sides open perhaps, and then to have the seats downstairs, just the same as they are on the upper deck? That might be done.

5359. *President.*] Well what more have you to suggest? Well I would dispense with the bells. There need be no bells used according to my plan. 5360:

- A. Solomon. 5360. But how would that be if you abandoned your entrance wicket? You could abolish the bells because you would have the sole control of the sale of tickets.
- 6 Sept., 1888. 5361. To whom would the passengers give their tickets? To the conductor. There could be no harm in that because there would be no people to whom he could sell them if you had the sole control of the sale of tickets.
5362. But he could sell them to the clerks? If you cannot trust your clerks of course that would put an end to the matter.
5363. *Mr. Thompson.*] You must know that, as a rule, when you get a great body of men aggregated, some of them will be dishonest? Well, of course, conduct of that kind would amount to absolute robbery.
5364. But it is absolute robbery against which we have to contend under the present system where the conductors take the tickets and sell them? Yes, of course it is; but I did not imagine that clerks would lend themselves to anything of that kind.
5365. What would you pay the clerks? Well, that is a matter for yourselves. Of course it is no use to start with the idea that almost every one in the Department is dishonest.
5366. Not necessarily so; but still we must guard against it. Your system, it appears to me, would break down if you had one dishonest conductor in collusion with one dishonest clerk? Well that might be possible.
5367. *Mr. Brock.*] Whenever a youth goes into a bank or the Government service, some one has to find a fidelity guarantee for him? For all that I think the present system is more open to fraud. Under this system which I am proposing your only rogues would be in the Department; but at the present time you have two classes of people to deal with. You have the conductors and the clerks in the Department and unprincipled people outside. Besides it might be possible to have the tickets dated so that they could be used only on one day, in the same way as railway-tickets.
5368. Of course if you were to go to the expense of having a clerk in each car there would be nothing to prevent that;—a man might get his ticket stamped with the date and hold it till the conductor took it away, after which it would be so much waste paper? Yes; I think that would be much preferable to the present system.
5369. Might not the tickets be used a second time on the same day? That would not be possible if a bell-punch were used.
5370. But we must take into account the enormous expense and the time occupied in the process? The expense is preferable to the fraud.
5371. The expense would be continuous though? But it would be far more satisfactory to the Department to know that it was doing a genuine business instead of being robbed.
5372. But it is of no good a man running a business which is returning £10,000 and costing £11,000 to work? No, I admit that; but I do not think there would be that disproportion.
5373. *Mr. Thompson.*] Do you think that the frauds are of such magnitude that the extra expense would more than compensate the Government? Well, I don't know to what the frauds amount.
5374. *President.*] You recommend an expenditure right away of £12,000 a year. You save about £4,000 perhaps by getting rid of the licenses. This would be an extra expense of £8,000 a-year; then there would be a great expense in connection with the alteration of the cars. To bring your system into operation we should have to condemn all the cars now in use, or to call them in for alteration. In either case that would represent a very large sum indeed—at the very lowest, another £15,000? I am aware that the scheme would lead to a certain amount of expense; but surely the present cars could be altered and utilized at a comparatively small cost. The great thing in connection with my scheme is getting the whole of the sale of tickets into the hands of the Department. If you did away with the licenses there would be no one to whom tickets could be sold. The alteration in the cars is a matter of small importance compared with that advantage.
5375. I suppose what you mean to say is that if you did away with the present system of selling tickets it would not be at all necessary to alter the cars perhaps? Possibly not. You could leave the carriages almost as they are. You might think that the sale of tickets in the waiting-rooms would be sufficient, and then the tickets could be collected in the same way as at the present time.
5376. Then there is another aspect of the case: You might have too few places for the sale of tickets, and people would go to the omnibuses? Yes, but the 'buses are very much slower.
5377. As a matter of fact they take exactly the same time? I am not aware of that. I may also say that by the method I have suggested you would not require bells.
5378. Would not the bells be necessary, to have some check upon the collection of tickets? If you had the sale of tickets in your own hands what would be the use of manipulating the bells or dishonestly obtaining the tickets?
5379. You seem to lose sight of the fact that there might be collusion between a clerk and a conductor? Of course there would be that danger; but there would be a certain amount of fear on the part of both parties.
5380. They do not seem to have had much fear in the past? No; but I think they would if the sale of tickets were limited in the way I have described.
5381. *Mr. Brock.*] What would you do then;—would you allow the conductors to collect the tickets, and to leave them intact? Of course I would. What would be the use of the conductors keeping them when they could not sell them?
5382. But suppose they were in collusion with the ticket-clerks, they might work it between them, and the tickets might be sold in just the same way as they are sold now? Of course, as I said, that is a danger.
5383. But that is about the only danger at the present time, is it not? Well you have a certain control over the ticket-clerks, whereas you have no control at the present time over the people who sell tickets outside.
5384. We can cancel their licenses? The great thing, to my mind, is to have the sale of tickets in your own hands. If you have a lot of pettifogging people engaged in small trades, in tobacconist-shops and fruit-shops, people who have not £10 worth of stock in their places, it stands to reason that they must do something to defraud you. My wife was telling me that the other night she went into a place near the railway station, and saw two men come in and sell a lot of tickets.
5385. When was this? Some little time ago. I think the shop was kept by an Italian.
5386. Where is the shop? Near Hordern's, at the Haymarket, near Belmore Park.
5387. On which side of the Park? It is a private house. I have been there for tickets sometimes myself. It is a few doors before you come to Hordern's. It is exactly almost opposite the tram-yard in Pitt-street. I think it happened about ten days ago.
5388. Surely it would not have happened so recently as that, with all this noise about the frauds going on? She told me that it was so. I could easily find out when it occurred.

A. Solomon.
6 Sept., 1888

5389. What description of men were selling the tickets? I will find out, and let you know.

5390. *Mr. Thompson.*] Have you been made acquainted by the newspaper reports, and by hearing people talk about it, with the method in which the bells have been dealt with to permit of the frauds? No.

5391. You have no idea of the mechanism of these ticket-recorders? No, I have not. I was going to mention another plan to you.

5392. Have you any idea of the mechanism of these bell-punchers or ticket-recorders? No; I have not. I was going to name another plan to you. I do not know whether you would care to have a lad or young man, anyone you might think best, to go from car to car selling tickets.

5393. *President.*] Carrying them in a bag as the conductors do? Yes.

5394. You would want one lad for every train? Yes.

5395. If a train consisted of several cars one travelling ticket-seller would do? Yes. I think a lad might be better trusted than a man. You would have to have some indication on the lad's uniform that he was a ticket salesman so that the passengers might readily identify him.

5396. Would you make the passengers entirely dependent upon this young lad for the purchase of their tickets? No. I would have the sale at the waiting-rooms as well.

5397. If you were to make the passengers dependent upon this lad and people were to get into a crowded car the lad might not be able to get to the people who were wanting tickets? You might just as well say that a conductor could not collect tickets in a crowded tram.

5398. But then the lad has to give change. All this takes time? Yes; I admit that it would take a little time.

5399. *Mr. Thompson.*] You would have to get respectable boys, boys you could trust? Yes.

5400. What salaries do you suppose you would have to pay them? I suppose a lad of that age would be living with his parents, therefore his salary would not be very heavy. Say £1 a week.

5400½. If the cars were very crowded might you not have the collector wishing to collect tickets from the passengers whom the boy had been unable to reach? I suppose that the majority would get their tickets in the waiting rooms. The lads could not make away with any tickets because they would have to account for them at night. Every night, for instance, they would have to give so many tickets or so much cash.

5401. *Mr. Brock.*] What about the different sections? The guards would collect tickets in just the same way. There would be no alterations in the cars.

5402. You would not have a uniform charge? No; I would have twopenny and one penny sections just as you have now.

5403. *Mr. Thompson.*] Have you thought at all about season tickets? Yes? Yes; and also of the issue of weekly tickets to working classes, travelling at 5 to 6 in the morning by the first trams when it is very difficult for them to get tickets. They cannot get tickets unless they obtain them the night before.

5404. *President.*] Have you really looked into the matter? Yes; I have thought it over.

5405. How would it be possible with such vast crowds as use the tramways to prevent the transfer of season tickets from one person to another thereby defrauding the Government. Of course they could do that as they do it at the present time on the railway, but they are continually detected.

5406. But the season tickets on the railway are sold by the station-master of each station; he has a list of the tickets he sells and if a passenger does not renew his ticket the station-master at once makes inquiries of the ticket collector as to what such and such a person is doing. These persons who do not renew their tickets and endeavour to defraud the Government in that way are carefully watched and almost invariably get into trouble. How on the tramways would you be able to exercise a check of that kind? How could the conductors carry in their heads the hundreds of people who would travel on monthly tickets on the Newtown and Waverley lines? I can quite understand that there is a difficulty.

5407. The matter has been seriously thought over by the Department, and that hitherto has been an insuperable objection. Unless you get quite an army of officers you would not be able to overcome this difficulty. You would have to have station-masters at Waverley, Newtown, and other places with books and everything else? Yes, that is true. But suppose you issue weekly tickets to the working classes, available from 6 until 8 o'clock.

5408. Then I am afraid the same objection would apply, because the conductors would be unable to recognise the workman? Well, of course if you think that difficulty is insuperable, then of course there is an end of the matter. I was going to make a suggestion as to passengers travelling on race-days. Those are days on which the Government are defrauded of more money than at any other time. Suppose there is a four days meeting. That occurs three or four times a year. The guards by manipulating the shillings make a very great deal of money. There are race-days, and other special days, when you might issue an entirely different class of tickets which would entirely prevent fraud.

5409. But at the present time we have special 3s. 6d. tickets for race-days? Yes, I am aware of that, but I see no reason why you should not have a special shilling ticket for the race-course.

5410. Where would you have those tickets purchasable? At two places only, at King-street and at Bridge-street. All those who go out to the races could go out of their way without much loss of time, so far as to go to one of those places.

5411. Are there not many four-horse omnibuses going out to the races? Yes.

5412. If we confine passengers to these two places for the purchase of tickets, do we not run the risk of losing a great many passengers? Yes, but by the time the tram gets to the top of Oxford-street very few passengers get in. The cars are mostly loaded long before they get there. Besides there might be a ticket-office at Liverpool-street. It might be necessary to have a place there for the convenience of people who come in by the railway.

5413. Why not have a ticket-office at the railway station? I see no objection to that. I had no particular object in only suggesting two places.

5414. *Mr. Thompson.*] What is your idea as to carrying out the *minutiae* of the matter. In what form would you have your tickets, for instance, so that they would not be dealt with on the first as on the second day? I am only making suggestions. Of course I leave any alteration you may think fit to make in the details to yourselves. I would issue return tickets only to the racecourse.

5415-6. Why would you only issue return tickets? I was going to suggest that the tram runs right through, and not pick up any passengers after they leave King-street.

- A. Solomon. 5417. What about the railway passengers waiting at Liverpool-street? They would have to get in at King-street. I think that most of them would go to that place, the reason being that if they waited at Liverpool-street they might not succeed in getting a seat.
- 6 Sept., 1888. 5418. *Mr. Brock.*] You talk of having return tickets to the racecourse. In what position would a conductor be at the close of a day when those who had not return tickets rushed the trams? I would suggest that the tickets be collected at the platform in just the same way as they are collected at Rosehill.
5419. But that is a train, and not a tram? The same principle would apply. The trams would deposit the passengers at the platform.
5420. *President.*] I suppose you would have a sort of wicket then? Yes.
5421. Is not the crowd at the racecourse generally very rough? No, they conduct themselves well.
5422. Supposing a big crowd arrived there anxious to see the first race, and the whole crowd had to pass through the wicket gate, do you think they would stand that? They stand it at Rosehill, where there is sometimes an immense crush. A man there once told me that it took him 10 minutes to get on to the course, but he got there in plenty of time and he did not rush. I do not see why you could not have two wicket-gates. A man would stand at each gate collecting one half of the tickets as the crowd arrived, and the other half as they went back.
5423. Don't you think that on a race-day a great many people would feel inclined to jump over the low fence between your two wickets, not because they were anxious to cheat but because they wished to save time? I don't see what difference that makes, because they have their return tickets, and if they had not return tickets they would have to purchase them on their return to town. There is another advantage in my system, and it is this, that there would be no cash collected at all as at the present time.
5424. It seems to me that return tickets are by no means necessary to your scheme, if you are going to collect your tickets at Randwick, and pass your passengers through a wicket-gate. What can be the object of it—it is only a waste of time; you make no reduction; why not have a single ticket? Well, if you had single tickets you would have to have some one at Randwick to sell for the return journey, and the passengers might just as well take a return ticket. If they did so they could not return very well by the omnibuses; they would not be very likely to throw the other half of their ticket away.
5425. But there might be a large number of people who wished to go out to the course in the tram without intending to come home in it, and there might also be a large number of persons going out by some other means who might wish to come home in the tram? The only way in which you could right those cases would be the issue of single tickets. I think that if you sold single tickets on the platform at Randwick you might, perhaps, catch a great many more.
5426. *Mr. Thompson.*] But then you must remember that there would be a number of places in town for the purchase of tickets as against one at Randwick, and if you had only single tickets, look at the rush you would have at the close of the day to that one office; everyone anxious to come away at the same moment? Well of course there would be a difficulty if you had only one office.
5427. *President.*] You might issue single tickets, but people need not take only one; they could take as many as they want and so provide themselves for the return journey? As long as the tickets are dated it is all right; it does not matter how they are used.
5428. I am afraid that you would have a large number of people (say ten or twenty on each car) going back without tickets and chancing it? On the return journey the passengers would have to present their tickets at the wicket-gate before they were allowed on to the platform.
5429. Then you would send back a large number to travel by some other conveyance? Well under the present circumstances the whole of the busses fill.
5430. But the passengers have not to get a ticket before they start? No one will ride in a bus if he can get a tram. I think it is most desirable that you should take the control of the cash out of the hands of the conductors. That is the principal thing. Some plan should be introduced by which the conductors should have no cash in their hands at all.
5431. Do you think the people would stand your wicket-gate arrangement, because it seems to me that on the return journey that would be the only means of preventing a large number of persons from travelling without ticket? I think people like the system at Rosehill, and I see no reason why it should not answer at Randwick.
5432. Is it not a fact that the crowd at Randwick is often largely composed of persons who are entire strangers to the place? Not at Randwick. It is not like Melbourne. At Randwick you will see large numbers of persons who have been following the turf for twenty years or more.
5433. But surely there will be a large number of people from the adjoining colonies? Well, of course there would be some.
5434. Such people as those might go out by the omnibus and might wish to come back by the tram? Most of the people who go out by omnibuses at the present time are strangers to the City.
5435. But then your system would shut them off the tram platform at Randwick when they want to come back? Could you not issue tickets at the Randwick platform for the return journey?
5436. Once that became generally known you would have a great rush and a great deal of inconvenience? You have exactly the same rush now.
5437. But the people do not have to get tickets? No. As I said at first, the issue of return tickets from Sydney would prevent that.
5438. *Mr. Brock.*] Suppose we issued a single ticket for 1s. 6d. and a return ticket for 2s. 6d., could we do that? No, we could not do that, because the busses run for 1s. You could easily prevent the use of the tickets on a second day by having a different colour for each day.
5439. *Mr. Thompson.*] Is there anything more of moment that you can suggest to us? No, I do not think there is anything more. I think I have mentioned all I have thought of. I have given you the outline and I leave it to you to fill in the details. Above all, I would impress upon the Commission the desirableness of cancelling the licenses.

James Marwood Elton called in, sworn, and examined:—

5439½. *President.*] What is your position in the Tramway Department? I am employed at Queen-street as a fuel-man.

5440. We have been given to understand that you can give us some information bearing upon these ticket frauds about which we are inquiring? Yes. My wife bought some tickets in a tobacconist's shop.

5441. When? About twelve months ago. It was in a tobacconist's shop opposite the Sacred Heart, near Darlington. They were all single tickets, and when she brought them home she told me that she had seen a tramway conductor with a bundle of loose tickets on the counter; so she looked at the conductor, and looked at the tram-tickets. The man behind the counter seemed to notice that she knew the conductor, and he swept the tickets down behind the counter with his hands. This was what she told me when she came home. I said that the best thing I could do was to give information straight away; so I saw Mr. Wigg, one of the detectives, and Mr. James. I told them exactly where the tobacconist's shop was. I asked my wife whether she would be able to recognise the conductor if she saw him again, and she said that she would. I asked her what sort of man he was, and I got from her as good a description as I could. I asked her if she saw the man whether she could point him out. She said she had not seen him lately. I went with her once or twice to see whether she could point him out. I could see from her description of the man that it must be Musgrave or Lane.

5442. What Lane? Lane, the conductor.

5443. Is he in the Service now? He was then, I think, but I do not know what he is now doing. I think he is car-cleaning.

5444. Isn't it a fact that he fell off the car and injured his head, and that he is now back car-cleaning? Yes.

5445. If your wife saw Musgrave and Lane together could she recognize which one of them it was? Well I fancy she could.

5446. Is the man in the shop now—the man who had it at that time—and who was receiving these tickets from the conductor? That I do not know.

5447. What was his name? To tell you the truth I never ascertained his name. I did not think it was my duty to do so. I left it in the hands of those who I thought were the right parties to ascertain such matters.

5448. And you did that at once? Yes, directly I heard about it.

5449. I suppose if this man were still in business your wife would be able to identify him? Yes, I believe she could.

5450. Did you hear afterwards that suspicion had attached to Lane? No, I heard of no suspicion attaching to Lane. I suspected Musgrave.

5451. Have you since heard that in consequence of your report suspicion was attached to Lane? No, I have not heard that.

5452. You said just now that, in your own mind, your suspicion was directed against Musgrave rather than against Lane? Yes, by the description.

5453. Do you now remember the description which your wife gave you? She told me that the man was not very tall—a medium height. She said that he was a young chap, rather given to frolicking, and that he had dark eyes and brownish hair.

5454. Was anything said about a light overcoat he wore? Nothing in the way of apparel was mentioned, except that she said he generally used to wear a soft felt hat.

5455. Instead of his uniform hat? Yes, and that he used to draw it right down over his eyes sometimes.

5456. Do you know that as a fact Musgrave used to do that? Oh yes.

5457. When he was on duty? When he was on duty. I used to take particular notice of anything like that.

5458. You constantly saw him then when you were on duty? Of course I did.

5459. I suppose you know Musgrave perfectly well? Yes, perfectly. Of course I do not admire his mode of behaviour.

5460. What do you not admire about him? He is rather loose in his habits as far as gambling and betting go.

5461. How do you know that; by hearsay only? By what I have seen.

5462. What is that? What he says himself. What he owns himself as far as betting goes.

5463. Does he sometimes talk with you at your coaling station? Occasionally.

5464. I suppose he would be there waiting for his tram, sometimes half-an-hour? He used to be assistant-conductor; he had no regular tram.

5465. He would come there to pick up his tram? Yes.

5466. I suppose when he had a quarter or half an hour at his disposal he would chat with you? Yes.

5467. It is from that that you judged that his habits were such as you could not admire? Yes.

5468. What do you suppose your wife meant by the expression frolicksome? I suppose that he was given to winking at the ladies or something of that kind.

5469. As to his gambling, what do you know about that? Only from what he used to say about that.

5470. He is a man who blows a great deal? Yes, I think he says a great deal more than he does.

5471. *Mr. Brock.*] Did he ever say anything to you about faking bells? No.

5472. Did he ever show you a piece of wire which he used to put into his bells? No. I never heard of it until I saw it in the papers.

5473. He did not take you into his confidence in that way at all? No.

5474. He never told you that he was making a lot in addition to his pay? I think he must have thought that I was rather too cute, and he did not care to tell me too much.

5475. *President.*] Did you ever have any conversation with Musgrave after you had given this information? No. He always kept aloof from me. I think he must have suspected me to a certain extent. He never came near me and never spoke to me and that is why I think he must have suspected that I knew something.

5476. That led you all the more strongly to believe that it was Musgrave who had sold the tickets? It made me think that it must have been him.

5477. You did not hear that the Department was on the wrong scent in following up Lane? No.

5478. If you had you would have put them right? I would most decidedly.

J. M. Elton.
6 Sept., 1888.

- J. M. Elton. 5179. *Mr. Brock.*] How long was it after your wife bought these tickets that she told you? She told me as it were in the afternoon and I informed about it on the next day.
- 6 Sept., 1888. 5180. Suppose she bought the tickets in the morning, did your wife tell you on the same day? Yes.
5181. And the next day you gave information? Yes.
5182. *President.*] Was this about the time that a great alteration was made in the time-tables? It was before the alteration.
5183. Therefore it was before the 1st October, 1887? Yes.
5184. Musgrave would have been on then? Yes.
5185. It was before he was paid off? Yes.
5186. He was paid off early in October, was he not? Yes.
5187. And you are certain that this transaction was prior to that? Yes.
5188. Might it have been two or three months prior to the new time-table? I could not say.
5189. You knew when Musgrave was paid off? Yes.
5190. And you are quite sure that this took place before the 1st October? Quite certain.
5191. You remember the time of the reduction of the hands? Yes.
5192. Did not some men in the Locomotive Department have to leave at that time? It was towards the end of October when they went.
5193. But the conductors were paid off on the 3rd or 4th of October, when the new time-table came in? Yes.
5194. Now you are quite sure that this little occurrence was before the new time-table? To the best of my belief it was.
5195. If it was not, Musgrave at the time would not have been a conductor? Yes, I see that. I ought to have told you that this man who had the tram-tickets for sale was in his private clothes.
5196. How did your wife know that he was a conductor? She had seen him on the tram. She knew him perfectly well.
5197. Did she not know him by name? No; she did not know his name.
5198. But she knew that he was one of the conductors whom she often saw? Yes.
5199. *Mr. Thompson.*] If I understand you rightly, it was your wife staring at the man as if she knew him that made the shopkeeper sweep away the tickets? Yes; that is so.

William Lambert called in, sworn, and examined:—

- W. Lambert. 5500. *President.*] You are the repairer of registers in the Tramway Department, are you not? Yes.
- 6 Sept., 1888. 5501. How long have you been in the Service? Between seven and eight years.
5502. You have not been all that time register repairer I suppose? No.
5503. Because, I suppose, you would have to drop out when the system was altered, for instance? In the first place I had to drop out for six months when the system was altered; that was when there were no registers.
5504. Will you give us your experience with regard to registers. Your knowledge of their mechanism, and so forth? I had no experience of registers prior to taking two pair of them to repair.
5505. How did you get those two pair to repair? Mr. Roberts gave them to me.
5506. What position were you in then? I was revenue inspector in the Department.
5507. Where had you been to gain a mechanical knowledge? My mechanical knowledge with regard to this particular thing was gained from a brother-in-law, who is a watchmaker. Besides this I have a general mechanical knowledge. I am a miller by trade, and to be a good miller you must understand mechanical work generally, in wood, iron, brass, and so on.
5508. *Mr. Thompson.*] In calling yourself a miller, do you mean that you are a dresser of stones or a milling engineer? Well, if you take a flour-mill in a country district you have to be able to do anything; to dress stones and to fix the shafts and bearings, and to be able to do different kinds of wood work; it is principally bevel work. It is much more difficult than ordinary carpentering. The tempering of mill-bells and dressing-stones has to be done by a blacksmith. I do it myself, as I do things in general. I have done some turning, and I have a natural mechanical knowledge.
5509. Natural, do you say? I consider it a natural knowledge on account of the different things that I have been able to do. Prior to my gaining any knowledge from my brother-in-law as to watch-making I repaired a mainspring of a Geneva watch.
5510. *President.*] Mr. Roberts, I suppose, hearing of your mechanical turn gave you a couple of registers to repair? Yes.
5511. Was no repairer then employed? Mr. Felton, clock and watch examiner at the railways, used to do the work I think.
5512. How long is it since you were given these two registers to repair? It is about four years ago.
5513. And you repaired them satisfactorily? Yes.
5514. From that date you were appointed to the position of repairer? No; I had the whole of them on trial for six months. I had them for three months in the first place; but I had not time to get the whole of them in a satisfactory state of repair, and I asked for three months longer. I could not say that they were exactly satisfactory previously, but by the six months I had them in good repair.
5515. Then you were permanently appointed repairer and inspector of registers? Yes.
5516. How long had you this particular kind of register under your control? Four years, with the exception of the interval of six months.
5517. What has been your opinion of the present registers from the first time you had anything to do with them? My opinion has been that they are as far as my experience goes, as good a check as you could have for the Sydney tram traffic.
5518. I mean what is your opinion of the registers from your point of view as to their construction and so forth. Not as to their successful use, but to their liability of getting out of order. Their likelihood of their remaining in good order and so on? My opinion is that when properly repaired they will remain in good order as long as could be reasonably expected.
5519. But you don't start repairing a register. You make a register in the first instance and we want your opinion of the new registers, not after they have been repaired but treating them as new registers. Are they well and strongly made for instance, are they liable to get out of order? They are strongly made. They are sufficiently strong for the purpose for which they are employed. 5519½.

- 5519½. How long would a register go without requiring repair under ordinary and fair usage? I should say they would average about three months. W. Lambert.
5520. What would happen by that time? Sometimes a spring might break.
5521. Would that be by ordinary and fair usage? Yes, a spring might break; in fact two or three springs might break. Then again the catch of the hammer might wear, particularly in the first place, when the register came from the maker.
5522. Why? Because there is not as much grip as I put in them; consequently they do not ring so loudly, causing them to get out of order sooner than they do when I repair them.
5523. Are they defective in that respect—in the matter of the grip? I do not consider them so.
5524. Does not that very thing render them more liable to be shifted as they have been lately? The grip I speak of is in reference to the hammer that causes the ring.
5525. You do not mean the grip of the cogs? No, there is no grip to them.
5526. There is a grip when they catch? They are supposed to work perfectly free. I was not referring to the cogs at all; I was referring to the grips on the hammer.
5527. Has it come to your knowledge that these registers have been tampered with? I have heard it generally spoken about in the Department.
5528. Has it not come to your knowledge as a repairer of these instruments that they have been tampered with? Not in the course of repairing them.
5529. You have never seen any sign of tampering on the inside of these registers? No; I have never seen any sign. Let me qualify that by saying that I have seen no marks; no marks showing that they have been tampered with.
5530. I asked you if you saw any evidence on the inside that they had been meddled with, and of course a mark would be the strongest evidence that you would have, but might you not see other evidence? I have seen the appearance or what I should have considered the appearance of something having been done to the ratchet.
5531. When did you first notice it? I have noticed it since this matter has been spoken about.
5532. Since everybody knew of it? Yes.
5533. Since your attention has been directed to it? Yes.
5534. Up to that time when the registers came in for repair there was in your opinion nothing noticeable about them. Is that what we are to understand. Are we to understand that there was nothing which you noticed? There was nothing particularly noticeable.
5535. And nothing which you did notice at any rate? Well there is this, that the ratchet would be off the ratchet wheel.
5536. To me that would indicate nothing; to you what would it indicate? It would simply show me either that it had been worn, or that the spring of the ratchet had been pressed back, or that the ratchet had got stiff.
5537. Did this happen often? Not very often.
5538. What occurred to you when you saw it? That it might be from ordinary wear, or that the ratchet might have stuck from some cause connected with the oil, or the time it had been out.
5539. It never occurred to you that it was the result of improper manipulation? No.
5540. When it was pointed out to you that there had been improper manipulation you were able to see that it might have been the result of that? Unless one suspected something of the kind one would have to look very closely into the instruments before one detected it. It is possible that what one person might consider improper work would be ascribed by another person to the natural consequences of wear and tear.
5541. Therefore until this matter was publicly brought under your notice you had no reason to suspect that these instruments had been tampered with? No, I had not. There was only one thing that occurred to me, and it was this, that I thought they were wearing very quickly. I noticed this with one particular register. I did not detect anything wrong with it, but I thought it had worn very quickly.
5542. Do you know whose it was? I never had the names of the men.
5543. You did not think much of the matter, or you would have brought it under notice? It would have been useless unless there was a proper system.
5544. How do you mean? I mean a system of letting me have the men's names regularly.
5545. These you never have? No.
5546. You do not know whose register you are repairing? No.
5547. Still if you saw that a man obviously ill-treated his register you would mention the matter. Let us suppose that you did not know anything about these frauds, and that a register came into you for repairs in such a condition as to cause you to say to yourself "This breakage is not the result of fair wear and tear; the man has been drunk; he has fallen down and crushed his register?" I think I have reported two cases of wilful breakage. I believe they both apply to one man.
5548. Who was the man? Lane, I believe. They came very close together, and I gave in the number stating that, in my opinion, there must have been wilful breakage.
5549. How were they injured? One of the pulls had been pulled down, but not quite to the centre; consequently it would remain down when caught upon the ratchet; then it had a knock upon something, in one case stripping the screw threads, and so injuring the register.
5550. In the light of what you now know would you conclude that the register had been tampered with for fraudulent purposes? No, not in the cases where I reported it had been wilfully damaged.
5551. Do you think they were merely cases of rough usage? Probably. Perhaps the man wanted to get away.
5552. How do you mean? To get off his trips.
5553. But would he be put off duty? At that time, I believe, there was a scarcity of registers. After I had reported the matter I heard that this man had been saying so himself. He had been reduced to car cleaning because I had reported him for ill-treating the registers.
5554. You know now what has been done with certain other registers? Yes.
5555. You know the means which have been adopted to defraud? Yes.
5556. Starting with this knowledge, is it in your power to at once detect any recurrence of it, or is it still so difficult to detect the manipulation that even now you would be in the dark? It could be detected if my suggestion were carried out in this way: I would have the registers tested once a week, and if any register

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- W. Lambert. register was found defective, and returned to me, I could then tell in all probability if it had been tampered with. If there had been any filing of the ratchet, I should be able to detect it at once.
- Sept., 1888. 5557. Is it not possible to manipulate the bell without any filing? Yes; by pressing back the spring.
5558. Suppose, then, in one of the bells returned to you in this way there had been no filing, and that the spring had only been pushed back? My idea is, that every man's name should be given to me with the registers. I should make a note of what repairs I had made. If a man's register came in this week with a ratchet not acting on the ratchet-wheel, and weak, I should make a note of it. The register would be tested the following week, and if it was then found to be defective in the same way, I should conclude that the man who had been using it was not as he should be, because in such a short time his register would not get out of order. The spring could not get weakened in that short space of time, and there would not be sufficient wear to account for the injury.
5559. With examination once a week you would know that a spring had no right to weaken in such a short time as that? What I would suggest, that the next register given to the same man should be thoroughly examined in the presence of a third person, and proved to be in proper order.
5560. I do not ask the question so much with a view to improvement in the future as to clearly get from you the difficulties which exist in detecting the thing in any shape or form. It seems to me, according to your evidence, that it would be almost impossible, if the spring bending had been adopted, to find out whether it had been done by the conductor or whether it would be the result of the strain of the register? Yes, that is so. It would be difficult to say whether the conductor had bent the spring.
5561. Then it would be almost impossible to say that the registers had been manipulated? Yes.
5562. After these frauds came out you made a general examination of the registers;—did you? Yes.
5563. How many pairs were submitted to you in all? Four pairs.
5564. Were they not all called in? No; only as they were found defective, and others were given out as soon as I had them in a fit condition.
5565. How many did you find defective? Well, I found a number defective, but as far as this particular defect is concerned, I think there were only three pairs, besides the four pairs Mr. Roberts had; that would be seven pairs in all.
5566. Even if you were told to whom these seven pairs of registers had belonged, you would not like to say, as a matter of fact, that the seven conductors who had used them had manipulated them? No, I should not.
5567. In fact there is no degree of certainty in your mind that such was the case. Of course some of them may have been filed;—how many of them appeared to be filed, as far as you could detect? Five had the points of the ratchet off and two had not. Two, I should say, out of the seven were not manipulated, or, at all events, not necessarily so.
5568. Not necessarily so? Not actually, I should say.
5569. But you would be inclined to think that the other five were manipulated? The other five, I should think, were.
5570. *Mr. Brock.*] Could not the other two have had their springs bent back? No, I do not think so.
5571. But they would ring without registering? Yes; but in one case it could not be so because there was a feather on the ratchet, showing that it had worn down from the point where it had overlapped the ratchet ring.
5572. You say you do not know the names of the conductors who had used these bells? No; when I get registers to repair I do not know who has been using them.
5573. They are all numbered? Yes.
5574. Do you take the numbers of them? Yes.
5575. *President.*] Have you the numbers now, and the dates on which you received them? I can give you something like the dates on which I received them.
5576. I cannot see where the necessity comes in for your knowing the names of the conductors if you have the numbers of the registers and the dates on which you receive them. The Department could tell the name of the conductor who had been using the bells, and by that means we might know, for instance, to whom the two registers you just mentioned belonged? As far as these particular registers are concerned they might.
5577. Then if you make an entry in your book of the number of each register, and you say that such and such a register had such and such the matter with it, the Superintendent of Tramways would be able to tell who had been using it? Yes; but the Department would not keep an index or record in the same way as I should do. Suppose that a month ago a register came in which I thought had been tampered with; if the Department took any action, well and good, but the spring may have become weak. I should have the names of the men in front of me, with an entry on such and such a date a certain man had a particular defect in his register. The Department would not have had this before them in the same sense in which I would have it. They would have no record of the register given out before, that is to say with regard to its particular defect.
5578. A register is handed to you for repair; you go back to the office and say, "Register No. so and so has been tampered with," the Department look up the books and say, "Very well, we will retain this bell and give him a new one, and see what he will do with that"; is not that sufficient;—you could not deal with the man yourself? No.
5579. I see no objection to your seeing the names, but I see no necessity for it? My experience of things is this, that when there are too many people doing a thing it is not so well done as when one person is doing it. When you get two or three people doing one man's work it is not, as a rule, so well done. When I started my record I ruled a book for this particular purpose, but it was never carried out. I wished to get the men's names to see how they were treating their registers, and so forth.
5580. But if you keep your numbers correctly entered up in your book the balance of the information can be obtained from the office, and a comparison can be instituted between the two records? Hunting up these things involves a great deal of trouble. If I had one complete record in front of me a great deal of time would be saved.
5581. Supposing a certain number of registers are given to you to repair, you put down the date and the number of register; that is not any trouble? No, it would not be any trouble to me, but in the office they would have to refer to their book, and then to mine, and so on.
5582. How often do you get the registers in for repair, taking the average of each register. How many do you get every week? I get about thirty a week.
5583. Thirty pairs? Yes.

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5584. You enter them under a number, do you? Yes.
5585. How do you keep the book—one entry after another, straight away? Yes.
5586. Would it not be a better system to open a ledger account, giving a separate folio for every number; or, better still under your system, for the man's name, so that if you wanted to see to repairs which had been given to No. 30, you would have only just to turn up your volume at a certain page to see everything which had been done to that register, and the dates on which the repairs were made; for instance, you would see at a glance that No. 30 had been repaired four times within the last three months? I have them in the way you speak of. I have a heading for each pair of registers, so that you could tell at a glance the repairs to each register.
5587. What you require is a history, not only of each number, but of each man? That is my idea.
5588. A history of each man's operations upon his register, so to speak? Yes, if anything suspicious occurred with any man's pair of registers I would put it down. Of course he might not have done anything; possibly the register might be only weak. I might enter a memorandum to the effect that the spring was off the register; if those bells came in the following day with the same defect I would become suspicious.
5589. But it would be quite open to you to follow the number just as you would follow the name, and if you would see anything suspicious about No. 45, and noticed that it had been returned with the same defect after a short interval, you could report 45 in just the same way as you could report Smith, Brown, or Jones? Yes, I have the numbers of the bells.
- 5590-1. And is not the number of the register associated in the books with a particular conductor? The same pair coming in with the same defect may have been used by different men; if I had the man's name to start, I should know the register each man had; it would not be easy for me; it would involve more work, but it would be less trouble for the Department.
5592. *Mr. Thompson.*] And if there was any improper manipulation with the bells it would be more easily found out? Yes.
5593. How many bells are there altogether? There are 154 pairs.
5594. You have thirty a week sent in for repairs? Yes.
5595. Still you think that when repaired they are efficient in every way, although one-fifth of them are always in dock? I do not say that that is always so.
5596. But you have an average of thirty a week? The inside of the bell is not always wrong. In some cases the strap may be broken, or the case may be broken by a knock, or one of the hands may be off, or something of that kind.
5597. *Mr. Brock.*] How can the glass get broken? By the conductors knocking it.
5598. Surely that does not often happen? The glass does get broken.
5599. If it happened often should you not think it was done on purpose, seeing that the register rests upon the man's chest, and the glass has a metal cover? You would be surprised to see the way in which some men treat things. They drop the registers sometimes when they are putting them on or taking them off.
5600. What is the average of broken glasses? I could not say.
5601. Could they alter the indicators if the glasses were broken? No, they could not alter them.
5602. *President.*] I want you to turn your attention to some months ago, when the question was first suggested to you as to whether this thing could be done with the registers, that is, by inserting a pin at the foot, after the preparation in the inside, so that they may ring without registering. Do you remember the question being submitted to you by Mr. Roberts, Mr. Tyrer, or Mr. Primrose, four or five months ago? No, I do not remember it.
5603. It was on an occasion when a man named Keen reported to Mr. Roberts and Mr. Tyrer that this certain thing could be done. The matter was suggested to you, and you gave a certain report. Can you remember what it was? I do not remember anything about a pin being put in the register being submitted.
5604. That is not the question I put to you at all. You were asked as to the practicability of stopping the registering while the ringing continued, by inserting a pin or piece of wire in the slot, after operating in some way on the inside? I was going to refer to that. I have had no registers given to me to examine with a pin inserted. I had not been asked that question prior to my getting the four pair of registers.
5605. How long ago is that? About two months ago.
5606. Do you remember that a man named Keen had reported this thing? No. I am not quite sure, but I think it was about that time that Mr. Roberts called me into his office and showed me a pair of registers, and asked me if they were in working order. He made no further remark. I examined them, and I said that they were in order. As to the circumstances, I do not know whether it was the case I allude to or some other case. That is the only case I remember in which I had anything to do with the registers.
5607. *Mr. Brock.*] Did you take to pieces the registers which were given you? Yes.
5608. And after doing that you said that they were in perfect working order? Yes.
5609. You are quite sure that you were not called to report upon this matter five or six months ago? No, I made no report upon it. The thing happened in Mr. Roberts' room; he simply asked me to examine the registers, and see if they were in proper working order.
5610. Did Tyrer have any conversation with you on the subject? I do not remember speaking to him on the subject at all.
5611. *President.*] You are quite sure that you did not report that this thing was impracticable, and that it could not be done with a pin? I am quite sure that I did not.
5612. You are absolutely certain that you did not report that? Yes.
5613. Who is the watchmaker on the Botany Road to whom you took a pair of bells? I never took a pair of bells to a watchmaker on the Botany Road.
5614. You are quite sure of that? Quite.
5615. *Mr. Thompson.*] Where is your brother-in-law? In New Zealand.
5616. Did you not say that you got some instruction from your brother-in-law about watchmaking? Yes; that was some years ago.
5617. Was he living in Sydney when you were first appointed? He has not been here to my knowledge for the last fifteen years.

- W. Lambert. 5618. *President.*] You are quite clear that you never stated that it was impossible to rig the bells so that they might be rung without registering? No; because I stated that it could be done.
- 6 Sept., 1888. 5619. When did you first discover that? I have known that it could be done ever since I have done the work.
5620. And that is for four years? Yes. The first of my saying anything about it was, as far as I can recollect, three years ago, and the reason was that I understood that a person had applied for the job of register-repairing. He had a pair of bells to try the same as I had. His pair of registers came back for examination, and with them came a box containing certain parts of the register, which were supposed to have been altered. In the box were the ratchets. I then said, "If you allow this they will be able to do what they like with the bells," and I showed that by doing this it was possible to do the very same thing which is now done with the pin.
5621. To whom did you say this, and to whom did you show it? I said it to Mr. Tyrer, and I think to Mr. Primrose and Mr. Knox. That was in the ticket office. Mr. Roberts was also there.
5622. You are quite sure that you showed them how it was done? Yes.
5623. And did Mr. Roberts see this three years ago? Yes.
5624. Who was Mr. Knox? He was a clerk in the office.
5625. In the front room? Yes. He is in the audit office now.
5626. Was Mr. Colls there? No; I think not. I do not remember it.
5627. Do you know him? Yes.
5628. Then you would have known if he was there? It is a long time since. I do not think anyone else was there.
5629. *Mr. Thompson.*] Who was the man to whom this other pair of bells were given to deal with? I do not know.
5630. Have you any means by which you can fix the date at which they were handed to him? I believe he had them for about six months. I know that I received them back about the end of November. That was after he had repaired them. They were then issued to a conductor to try. The ratchets having been removed I thought that the conductors could do what they liked with the bells.
5631. Will they work without the ratchet then? Just as well. The ratchet is simply there to make the dial complete its revolution, and to prevent it from coming back before it has completed it.
5632. If you once meddle with the ratchet everything is out of gear? The machine will work. If the ratchet is not there the revolution may not be completed.
5633. How did it occur to you to put a piece of wire in? I did not use a piece of wire.
5634. I thought you said just now that you had found out three or four years ago that it could be done with a piece of wire? Well I did discover that it would not do to do without the ratchet, but I myself used no wire.
5635. You yourself did not use a piece of wire at that time? No; I did it with my fingers. I showed them exactly the same result as is now obtained by the use of a piece of wire.
5636. Are you sure that it is so long as three years ago since you showed these gentlemen? Yes; it was at the end of November, 1885.
5637. You discovered, I think you said, that five out of the seven bells which you recently examined had had the ratchet filed? That was my opinion, but some might say they had not been filed.
5638. *President.*] Don't you know a watchmaker in the Botany Road? I have since been thinking that I have some recollection of the circumstance to which you allude. There was a watchmaker down there some years ago; I do not know anything further of him than that I took some work to him. He said that he would like to see one of the registers complete—that is, with the extra work on. I took one down. The circumstance had escaped my memory just now when you mentioned it. I showed him the register and brought it away again.
5639. You did not leave it with him? No; nor was it taken to pieces.
5640. You don't know the man's name? It is a small shop near Raglan-street; I paid about three visits to the place; I had three watches repaired by the same man.
5641. Yet you do not know his name? No.
5642. Are you quite sure that from what this man saw of the bells he did not ascertain the secret of their working? He did not take them to pieces. In fact he did not take them out of my sight; they simply laid upon the counter.
5643. Did you not explain the principle to him? No.
5644. Why was he anxious to see them? He said he wondered how they worked; that was all.
5645. I have no doubt he did; Did he continue to wonder or did he find out? He did not find out from me any more than that. I merely showed him the register and took it away from him.
5646. Surely when he expressed wonder as to how they worked you gave him some explanation or what was the use of taking the register there at all? I made no explanation of the registers; I simply showed them to him.
5647. You opened it then? No.
5648. Then how could you show him? It was about the time that the new registers came in. The old ones went gradually out of use and as others were required the new ones were used. In the course of a conversation about these registers this man said, that he would like to see one of the new ones to see how it worked on the face; that must be about four years ago.
5649. You do not know this man? I cannot say that I do.
5650. *Mr. Brock.*] Yet you paid three visits to him and he repaired three watches for you? Yes.
5651. Did it not occur to you that he had some sinister object in getting to see the bells? No.
5652. I am rather inclined to think that he had? You must understand that he did not open them. At the time he asked me the question the registers were as they are now, and he wanted to see one which worked on the face.
5653. What interest could he have had in that unless for some ulterior object? I never dreamt for a moment that he had any object. He could get no information further than seeing the face.
5654. Did he ask you to leave the bells there? He did not ask me and I did not do so.
5655. *Mr. Thompson.*] I suppose there is a sort of freemasonry between you mechanics which would make you accede pretty readily to what he asked? I saw nothing wrong; it was only showing him the same as could be seen on the cars.

5655. The first time you ever had any work of this kind to do for the Department was when the two bells were handed to you? That was the first time. I had done a lot of clocks and watches and such things. W. Lambert.
5657. What were you brought up to be. What was your business as a youngster? I was apprenticed at a mill. 6 Sept., 1888.
5658. What branch was it that you were brought up to; was it a journeyman? Not as a journeyman but I have worked as a journeyman since.
5659. You have to be apprenticed before you can be a journeyman; is not that so? Yes.
5660. When you were out of your apprenticeship what was your journeyman work; was it stone-dressing or what particular part of the work of the mill were you in charge of? I had different parts; the whole of it in turn.
5661. While you were apprenticed? Yes; while I was apprenticed I went through the whole business of a mill.
5662. When you became a journeyman how long did you continue in that business? About two years, at home.
5663. How long here? Five years in New Zealand.
5664. Having done five years in New Zealand you joined the detective police? No, it was prior to that. I left the police to go to New Zealand.
5665. How long were you in New Zealand? Five years.
5666. Having completed that time in New Zealand, what did you do? I came back to Sydney and went on to the trams as a conductor.
5667. You have been a conductor then? I have.
5668. How did it come about that Mr. Roberts knew that you could deal with these bells? I asked to be allowed to try them because they were so badly done at the time. There were constant complaints.
5669. How long ago would that be? Just about four years ago.
5670. Mr. Roberts then handed you the bells and you made the discovery? Yes.
5671. You had been carrying the bells yourself some time previously as a conductor? Yes; but not at that time, because some time previous to my taking my present position I was appointed revenue inspector.
5672. What is a revenue inspector with regard to the Tramway Department? At that time they were called revenue inspectors, now they are called special conductors.
5673. Were you on with Murray? Yes; I and Murray were the first.
5674. Can you assure us on your oath that you never meddled with one of the bells until Mr. Roberts handed you the two bells to repair? I can.
5675. You never opened one? No; nor did I see one opened.
5676. Are many of the conductors who were in the Service then in the Service now; who are they? Warbey, Peters, Steel, Dolan, McMahon.
5677. Was Greeley in the Service then? No, I do not think so; and I am not quite sure about McMahon.
5678. Was Jessop in the Service then? No.
5679. You say you became aware of the possibility of this thing three or four years ago when you gave information to the Department; afterwards the whole matter became exposed through revelations made by some one in the Department. Did you not from the time you first discovered that the thing could be worked in this way press upon Mr. Roberts' attention the fact that an alteration ought to be made? No; I only pointed out that the bells were defective, showing that if they were used in a certain manner a certain thing could be done. I did not point this out with reference to the register generally, and it was not by way of advice to him as to what he should do.
5680. You merely pointed out that it could be done? Yes; if those registers were used. I was not pointing out that the thing could be done or was likely to be done by the conductors generally.
5681. Mr. Brock.] Did you not go and consult a watchmaker when you first got this idea about the internal arrangements of the bells? I never spoke to anyone about the internal working of the registers.
5682. Is the machinery on the same principle as that of a watch or clock? On the same principle as a clock with this exception, that instead of being worked by a spring it is worked by hand.
5683. It is not automatic? No.
5684. You cannot think of the name of the man living on the Botany Road? I cannot.
5685. But you knew his name at one time I suppose? I cannot say that I did.
5686. Is he there still? I do not know; I have not been there for some time. I know nothing of the man any more than that I took several jobs to him.
5687. Did he do them well? I could not say, but I believe so. They were not for myself.
5688. Did you ever recommend anyone to take work to him? No.
5689. Mr. Thompson.] You have told us that over and over again you repaired clocks and watches before you started repairing these bells. Why did you take these three jobs to a watchmaker. Why did you not do them yourself? I was too busy.
5690. Mr. Brock.] You can repair a watch then? Yes.
5691. President.] What was it that you knew about the registers three years ago. Let me understand it more clearly, that if the spring was weak this manipulation could be done? No. The ratchets were removed by the party who took the bells. They were returned with other parts which were said to have been altered. The man remarked, "I think the ratchets are too weak to stand the strain that is upon them."
5692. Who said that? This watchmaker; I don't know who he was who asked for the job.
5693. Was it Felton? No, he had been repairing them previously.
5694. Why do you suppose this man removed the ratchets? I do not know. They were in the box with other parts. He said he had removed and replaced them with something stronger, which I said that he had not done.
5695. Were the bells supposed to be in proper working order without the ratchets? I think I showed that they were not.
5696. Did this man suppose that they were? I suppose so. He delivered them as being correct for work.
5697. What did he put in place of the ratchets. Were they ringing and registering? Yes. When Mr. Roberts took them he said "they are all right," and so they were apparently. I asked him to let me see them and I said, "You see they are not right, because if you have the pull down it will go only part of the way back."

W. Lambert. 5698. You said that under certain circumstances these bells could be fraudulently worked in their then condition? Yes.

6 Sept., 1888. 5699. Did it not make you doubly careful afterwards when they came in for inspection to see that they were not in a condition in which they could be worked? I have always been particular to do that.

5700. Have you not had the least suspicion all along that anything improper was being done to the registers? I have not had any suspicion.

5701. Did not this fact that came to your knowledge cause you to be suspicious. When you saw that under certain circumstances these bells could be rung without registering did it not make you always on the *qui vive* when the registers came in to see if they were in bad order or in a condition in which they could do one service without doing the other? I did see to that.

5702. But I understand from you that so far from being suspicious, you recognized the fact that when they had worn a bit they would become in a condition in which they could be manipulated? Yes.

5703. But when you found that the bells were in that condition, you could not be certain that it was the wear, could you? No, because in some cases, when they had been out some time, they would get stuck up through the oil getting clogged.

5704. But were your suspicions never awakened by the consideration that as you had found out yourself some one else might find out and put to practical use? Anyone else who knew it of course could do so.

5705. You told Mr. Roberts that if the bells were issued in a certain shape the conductors could do what they liked with them? Yes.

5706. Were you not suspicious that the conductors would find out what they could do if the registers were in weak order, and that they would put their knowledge to some use? No; the conductors are not supposed to know anything of that kind. That is why I concluded that the Department would question certain evidence given at the meeting by conductors. They are not supposed to look at the registers and read them, because it could be no advantage to them in any way. Some conductors said that the registers got out of order, and that no one knew anything about it—that they would ring without registering, and that no one would know. He said that no one would have known about it if he had not taken them in and pointed it out. What I wish to draw attention to is this: That if the registers did ring without indicating, the conductor is not supposed to know anything about it, because he is not supposed to read the registers; and in the second place he is not supposed to be able to check it, because of the counting of the tickets.

5707. Still you see how thoroughly it can be done? As I have already said, I knew that it could be done from the first time I took the registers in my hand.

5708. I cannot understand your action. I can understand that good mechanician though you may be, you might be deceived; but I cannot understand that being in full possession three years ago of the knowledge that under certain conditions these registers could be manipulated, you should not have been wide-awake to what was going on when you saw these registers in that condition, and that your suspicions should not have been aroused. There is no doubt that registers improperly manipulated for certain purposes have passed through your hands, and if you have thought anything about the matter at all you must have put it down to simple wear and tear? Yes; that is so.

5709. But how is it that with certain knowledge in your possession you did not say, "I do not believe that all this is the result of wear and tear; I believe that there is some roguery going on?" You must know that when the registers have been out some time they get so worn that you cannot say whether they have been manipulated or not.

5710. I understand that. And if you had said that you did not know that under certain circumstances this thing could be done I should not have been surprised at your being deceived, but knowing as you did that this manipulation could be done, I think it is strange that the registers should have passed through your hands in this condition so frequently without it striking you that there must be something more than wear and tear going on? Unless you looked at it with a glass you could not detect it, and having no suspicion that anything of the kind was going on I did not look specially for any marks of manipulation. Then it was useless for me to do so, because I had not the men's names.

5711. It may have been better that you should have had that information, but that is no reason that you should not point out a wrong? I saw nothing which actually required to be pointed out. I believe that it has been done only lately. There was only one case in which I thought unfair means had been used, and on looking at the register closely I could not say positively whether it was so or not.

5712. How could you expect that these three gentlemen who are not experts, to whom you mentioned the matter two or three years ago, would keep the matter in mind, while you, an expert, had apparently entirely lost sight of it? I had not lost sight of it, because I have on several occasions told Oakes and others in the Department who have the checking of the conductors that it would be necessary to examine the registers before anything was done, in the case of any of the men being incorrect in their tickets, because I knew that this sort of thing was liable to be done. If the ratchet had been in the register the remark I made would not have been called for.

5713. *Mr. Thompson.*] You must remember that you were an apparently unskilled man as far as the Department knew, and did it not occur to you that there might be a number of men employed in the same way, who would have the same means of knowing that you had had, and who perhaps would not be quite so honest as you were. Did it never strike you that this kind of thing was being carried on? I never dreamt that anything of the kind was being carried on. I thought there would be a difficulty in getting rid of the tickets. I still believe that prior to the registers being done away with for six months there was nothing of this kind going on.

5714. Suppose we have the admission of one man in the Department that he knew of it from a fortnight after he joined the Service more than two years ago, and that he has been working at it ever since? Well I would not contradict it.

5714½. Now would it create surprise in your mind? Not now that it has been done at all. The only way to reach them is in my opinion as I have described.

5715. *President.*] Upon one point I do not quite follow you. You say you do not think that action should be taken against a conductor for a wrong return until it has been seen whether his register is in order or not, but it would still ring and register even if it were out of order unless something further were done. Is not that so? Well, the ratchet itself might get fixed up or clogged.

5716. And then the ringing would go on without the registering? Sometimes it would register and sometimes it would not.

5717. I should gather from your answers that this register is a very unreliable check? Not while it is W. Lambert's in order.
5718. How long would elapse, do you suppose, from the time a pair of bells would be placed in the hands of a conductor in perfect order until they would be handed in by him as being out of order? Perhaps a month, and perhaps five months. 6 Sept., 1888.
5719. We understand that Moran had his bells twelve months, and we understood from what you said a little time ago that they would want repairing on an average every three weeks? I cannot say what the average is.
5720. *Mr. Brock.*] How are you paid for making the repairs. Are you paid for the time or for so many pairs? So much per pair per annum.
5721. Then if one pair came back a dozen times you would not be paid for it the second time? No; the better I do them the less trouble I have. There are 156 pairs of bells, and I get 30s. per pair per annum.
5722. You get paid for all in use, whether they come in or not? Yes.
5723. At the outset of your evidence I understood you to say that five out of seven registers which you examined had been tampered with, and that two were out of order from wear and tear; but not long ago you said that it was impossible to tell whether the registers were out of order by foul means or fair means? I would not like to say positively that the five pair to which I referred had been tampered with.
5724. You say now then, that you could not possibly detect whether they had been tampered with or not? I could not say definitely that they had been. Perhaps if you were to ask some people they would tell you that they had not been tampered with at all. Another thing I was going to say was this: that from the time the bells are issued to the conductors originally they are not tried by any other person; therefore if they ring without registering no one knows anything about it.
5725. With regard to the pair of bells which came back without the ratchets; they were sent out, I presume, at the request of a man who wanted to try his hand at it. Did a written report come back from him with regard to the bells? I could not say whether it was from him, but a report came with them suggesting that if they were found satisfactory he should receive the appointment.
5726. That is if the work he had done to them was satisfactory? Yes.
5727. In the course of your investigation and of your examination of the bells, have you detected any other method by means of which the Department could be defrauded besides those of which you have already told us? No, I have not.
5728. That is beside filing the ratchet or meddling with the spring? No.
5729. *Mr. Thompson.*] Is it not a fact that it can be done in another way? I do not think so.
5730. Is there not a method called muffing by which it can be done? Well they could block up the holes and stop the sound of the bell, but it would be against their own interest because attention would at once be called to the fact.
5731. The man to whom you have referred in sending in his report, besides asking for the work if his repairs were satisfactory, also said that there were certain things in the machinery insufficiently strong to carry on the work, did he not? Yes; but he had not substituted anything stronger. I think he had rather damaged the registers by what he had done.
5732. Were you ever told who the man was, what his name was, where he lived, and so forth? No.
5733. Were any of the bells afterwards submitted to him that you know of? Not that I am aware of.
5734. What he did to the bells you consider in connection with the ratchets made his work not only of no use but rather damaging? Well he did not put anything in place of them. He had merely taken them out.
5735. Suppose a man has taken 500 tickets during the day, could he not ring his register until he exhausted it and then start afresh and ring a less number of times than would represent his number of tickets, showing for instance that he had only say 150? Well he could not do so while he was on duty; but it might be done in another way, and that is the only way in which it is likely to be done. A man going upon the last trip at night has his register read, but he takes with him the fares he has collected on that last trip and does not come in again, and while at home he might, perhaps, exhaust his register, and so account for less tickets than he had taken on that trip.
5736. Where do you do your work? At home.
5737. You have no shop? No.
5738. You have no office in the Department? No.
5739. Are you on intimate terms with any of the conductors? No.
5740. Do they ever stroll into your home shop? No.
5741. Not any one of them? No.
5742. I suppose you have friends who occasionally stroll into your shop? No, I do not allow it.
5743. You exclude everyone from your shop? Yes.
5744. That is a fixed rule of yours? Yes.

Elizabeth Elton called in, sworn, and examined:—

5745. *President.*] You are the wife of James Elton, who is employed in the Tramway Department? Yes. Elizabeth Elton.
5746. Some time ago you went to purchase some tickets, and after so doing you made a certain statement to your husband? Yes. 6 Sept., 1888.
5747. This is about twelve months ago, is it not? Nearly two years ago.
5748. Try and fix the date. You told your husband, I presume, on the same day? I do not know.
5749. Well a very short time afterwards? Yes.
5750. Did he not say that he had informed the Department of what you had told him? Yes.
5751. Is it not clear then that the date of your telling him and the date of his informing the Department must come close together? Yes, I suppose so.
5752. Then if we find that the Department was informed not quite twelve months ago instead of two years ago, which would be right—twelve months or two years? I am sure it is more than twelve months ago since it happened.
5753. *Mr. Thompson.*] More than twelve months does not mean two years? I will tell you how I know: My little boy was a baby at the time, and I was carrying him. He is a little over 5 years old now. If it were only twelve months ago I should not have been carrying him.

5754.

- Elizabeth Elton.
6 Sept., 1888.
5754. You are sure you were carrying him at the time? I am; he had been ill, and I remember it perfectly.
5755. What happened? I went into a shop to buy some tram-tickets. When I took them up I saw that some were dirty, and I gave them back again.
5756. In the shop? Yes; I went straight back to the door and gave the tickets up.
5757. What did you remark? I said that the tickets were so dirty that no conductor would take them.
5758. Did you say that they had been used before? I said that I believed they had. They looked as though they had been put inside a glove on the hand, and as if they had been stained by the glove—the glove or the hand had left a mark.
5759. What did the shopkeeper say? He gave me other tickets. He did not say anything that I can remember.
5760. Was anyone else in the shop at the time? Yes, there was a conductor.
5761. How did you know he was a conductor? I knew that he was; I had seen him on the trams.
5762. Was he in uniform? No; but I knew him again.
5763. Do you know his name? No.
5764. Had you any idea as to who he was? No, I never knew the man at all; I had only seen him in one of the trams.
5765. What did the shopkeeper say when he saw that you knew the conductor? He did not say anything; he snatched the tickets off the counter. I noticed that the conductor was very tall. The matter then went out of my mind.
5766. What else did you see—you have not told us all? I noticed that there were some tickets on the counter. I went to the door with the tickets I had bought, and when I turned round I saw him sweep some tickets off the counter.
5767. You say that there were some tickets on the counter;—you think they were second-hand or dirty tickets? I fancy they must have been. There was a piece of paper over them, I think. He served me from the tickets under the paper—at least I think he did; I am not quite sure.
5768. Were there a great number of dirty tickets? I could not say how many there were.
5769. Was there a good pile? There was a pile of about the size of that inkstand.
5770. Have you any idea what led the man to sweep the tickets off the counter? I could not say.
5771. Did you not tell your husband something? I do not know why he did it.
5772. Did you not say you felt sure that the shopkeeper did so because he saw you recognise the conductor? I did not know him by name. I knew that he was a conductor.
5773. Did you not tell your husband that the action of the shopkeeper evidently followed your recognition of the man who was standing at the counter? I would not like to swear that the man knew that I had recognised the conductor.
5774. Did you not tell your husband that that was your opinion? I may have told him that.
5775. But did you tell him? I may have done so, but I could not say for certain. I know it was what I thought myself.
5776. What did you do when you got your dirty tickets exchanged for clean ones? I went and got into a tram without making any further remarks.
5777. That was the afternoon of the day you mentioned the matter to your husband? I am a very poor judge of time. All I go by is what I was telling you about my baby.
5778. If the thing surprised you so much, surely you would mention it to your husband, would you not? I had pretty nearly forgotten all about it until to-day.
5779. But when this thing occurred was it not likely that you would tell your husband the same evening? I do not know. I may have mentioned it at another time. I had previously bought tickets that had been torn asunder and pasted together again, and I can give you the address where I bought them.
5780. Where was that? At the corner of Queen and Ocean streets. When I got them I was afraid to use them, and I gave them to my husband.
5781. Do you mean the shop next door to where the post office was? Yes.
5782. *President.*] Was that during the time when the system of tearing up the tickets obtained? Yes. I do not think it is more than twelve months ago.
5783. You knew that your husband gave information to the proper authorities about the dirty tickets? He told me he had mentioned it to someone. I did not think anything more about it.
5784. But was it not clear to you that the conductor who was standing in the shop had some connection with the tickets which were on the counter? Yes; but I did not see him give the tickets. I do not think I should know who the man was if I saw him.
5785. Did you know that he was in there selling tickets to the shopkeeper? Well, he was in the shop.
5786. What was he doing? He was standing in the shop, leaning over the counter.
5787. And where were the tickets? They were on the counter, covered over with a piece of paper, as far as I can recollect.
5788. You say that the man was a tall man; are you sure of that? Yes; a tall, thin man.
5789. Do you know a conductor named Musgrave? No; I do not.
5790. Has he not been pointed out to you lately? No; I do not know the conductors.
5791. Did you not tell your husband that you had seen this conductor on the trams occasionally; that he was frolicsome, and given to winking at the girls? I do not know.
5792. What was the age of the man you saw in the shop? He would be a man of 30 or 35 I suppose.
5793. Is he in the Service still? I do not know.
5794. How long is it since you saw him last? I think the last time I saw him was in the shop.
5795. How was he dressed? As far as I can recollect he had on a short coat and a hard hat.
5796. Not a soft felt hat? No.
5797. Had he on a uniform coat? No, I do not think so. I cannot recollect what he had on.
5798. We understood your husband distinctly to say that you said you would have no difficulty in recognising him? I could not recognise him at all.
5799. Are you sure that you are not shrinking from a very unpleasant task? No. I have sworn to tell the truth. I quite understand what I have done.
5800. And you are not shrinking from a very unpleasant duty? No; I am not

5801. You do not feel awkwardly situated on being called upon to recognise this man? No. I am telling you what I believe to be the truth. I should not know the man again.
5802. I could understand your saying that you could not be positive? Well I could not swear to him.
5803. But you described him accurately to your husband? I may have remembered him then, but I could not do so now.
5804. *Mr. Brock.*] It is quite possible that if you saw him you might recollect him? I might, perhaps.
5805. Could he not have been younger than 30? He may have. I am not a very good judge of ages.
5806. Did you not tell your husband that he was quite a young fellow? Well I should not consider 30 old.
5807. Do you know a conductor named Lane? No. The man I saw in the shop strongly resembled him—so they say. Lane, I believe was a fair man, and so was this man in the shop.

Elizabeth
Eltón.

6 Sept., 1888.

FRIDAY, 7 SEPTEMBER, 1888.

Present:—

A. RICHARDSON, Esq., PRESIDENT.

R. W. THOMPSON, Esq., M.P.,

F. A. BROCK, Esq., J.P.

John Bell called in, sworn, and examined:—

5808. *President.*] We have sent for you because we understand that you have elaborated a system of cash collection which in your opinion would be successful in doing away with the frauds which have recently occurred. We will ask you to explain this to us, and in so doing to be as brief and concise as possible in justice to the merits of your own invention; would there be any difficulty in putting it upon paper in a descriptive form? None subject to the model being shown. Of course I cannot give any diagrams or explicit details.

J. Bell.

7 Sept., 1888.

5809. Will you give us a brief and concise statement of your scheme? Yes. About ten years ago my attention was first directed to the matter of tramway fares, by the offer of a small bonus for the best system of collection and registration, made by a tramway proprietor in Dunedin, N.Z. As I was connected with the passenger department of the railways at the time I was specially requested to think the matter over, and accordingly I devoted considerable care to the question. After turning over many and various ticket systems, I was forced to the conclusion that tickets were a most objectionable and unsatisfactory medium of payment. Almost every style of tickets left very much room for fraud, by forgery in the first place, then by resale after collection, and also entailed such a cumbrous routine of printing, stockkeeping, and record of issue to vendors, besides being hampered and discounted by commission to intermediate agents between the department and the public. Then again, tickets must be either mutilated at time of inspection by conductor, so as to be invalid in future, or they must be collected, and such collection registered and checked again. Seeing that, under any ticket system, provision must always be made for those ignorant and improvident persons, who will travel occasionally, unprepared with tickets, thinking cash good enough to pay for their journey, I was impelled to conclude that, provided the due collection and registration of cash fares could be guaranteed, tickets were an unnecessary obstruction between the authorities and the traveller. Innumerable schemes presented themselves to my mind, only to be beaten by my inability to provide for a constant supply of change, combined with a limited space, such as a conductor could conveniently carry about with him. On leaving the railway service I gave no more thought to the matter, save in a perfunctory manner, when occasionally aroused by seeing the different styles of fare collection as I travelled the various Colonies. Within four hours however after my arrival in Sydney I was struck by the erratic collection of fares in a tram to Moore Park Cricket Ground, and I have ever since given more or less attention to the subject. From constant observation of non-register or incorrect record by the conductors of the Sydney trams I was more than ever convinced of the insecurity afforded by a ticket system, which left such large opportunities for resale with impunity; as I noticed it was mostly when tickets were paid in unbroken quantities of four, six, or more, on long runs, that the register was incorrect. When, added to the above, I found that cash was at one time refused altogether, and at another charged a premium of 50 or 100 per cent. on ordinary fare, with the multiplied opportunities for dishonesty by the use of an additional register, (as the same one could not be used for cash and tickets), I was stimulated to greater effort to combat the difficulty. Thoroughly satisfied as to the drawbacks to the ticket system, and impressed with the need for a cash medium of travel, I was convinced that no system which left the registration of collections in the power of the collector would ever be satisfactory, and as all our lines are run on practically a penny fare basis, I worked on that and have now, I think, perfected my cash register, which I have submitted to you. By my system the conductor's bag is divided into two compartments, one of which, under special lock and key, contains the cash register with the receptacle sticking out of the top of the bag, while the other part has simply a flap cover with a strap. Communication is provided between the compartments, within the bag, by a space below the centre partition, and the open part of the bag is slightly deeper than that containing the machine. I purpose that every person must pay and deposit his or her own fare, so that the conductor does not handle it. On satisfying himself that the fare is correct, the conductor releases the coin, which passes through the machine into the bag, being automatically registered *en route*. Seeing that the coin has been registered, it is now available and can be used by the conductor for giving change, as he has access to it by the flap part of the bag, thus at once lightening his load and accommodating the traveller, who can always be supplied with change for silver coin. Of course it is at once apparent that this system would be awkward in application to our present styles of cross-seated cars, but this I would suggest could be easily met, by a slight sacrifice of sitting room in cutting a passage equal in width to say one person's sitting room, through the several seats of the car, thereby affording collecting facility for the conductor and distributing passage for the passenger, after the tram was in motion. Again it will be probably objected that the public will take umbrage at, and resent a system, which provides a penny as a *sine qua non* on a tram-car. This difficulty is more imaginary than real, as the public is essentially teachable, and docile, as proved by their submission to the arbitrary rule which at present prevails, compelling them to buy tickets or pay heavily for their neglect. Moreover, the need to carry pence is reduced to a minimum

by

J. Bell.
7 Sept., 1888.

by the fact that the conductor will always have a supply of change available and circulating in his bag. I would instance also all the trams in the principal towns of the old country, almost all of which run penny sections, and where no grumbling is ever heard about the vulgar coin. In fact, substitute any term of fare for the word penny and the objections vanish at once. I have heard suggestions of tokens being used and sold as tickets, but all the objections to ticket systems again apply, while I cannot see any need for coining a medium when we already have one, in the ordinary currency. Some objections may be raised, on the score of weight for the conductor to carry, but when you consider, that pence weigh 3 to 1 oz., or four shillings to the pound weight, one pound value of coppers only weighs 5 lb., and by the process of constantly giving change, the weight would not accumulate very rapidly, and I do not think the conductor would be overburdened. Every machine could be adjusted by the authorised officer at the head office, the normal state being zero, and they would all be interchangeable, so as to fit any bag. Each conductor, on setting out on every journey from principal terminus, would be supplied with a given quantity of change in silver and copper, the amount being duly debited on his machine, and on his return his cash would be taken from him and counted, the machine again being set at zero. Once more the difficulty of seeing fares at night suggests itself, but as nearly all our trams are fairly well lighted up at night, only the top deck need be considered, and here, if the tinkling of the automatic bell be deemed insufficient, the conductor could use a small hand lamp to shine through the glass front of the coin box. As I notice, however, that all the newly-built cars are of one deck only, and are much in favor, I think this difficulty will not prove inseparable. It would be necessary to see that the amount of change furnished to each conductor at the beginning of each journey was sufficient to provide for the contingency of an organised effort being made to obstruct, by a large demand for change on the first few sections of the journey, before time was given to make any collections. In conclusion, gentlemen, while I do not claim as yet, perfection either in design or execution, I think I have attained to such a degree of improvement on all previous modes of collection, as fully warrants me in submitting my scheme to you, and praying for your careful and favourable consideration.

5810. How soon do you think you could have your invention so complete that it would be possible to make a trial of it? I have an idea that I can still decidedly improve it. I might be able to let you have one in four or five days perhaps. This machine cost me £4, but in the event of their being made in large numbers they ought not to cost more than 7s. 6d. The bag attached to the register cost me 32s., but I think you ought to get it made for about 16s.

5811. Do you think that the cost of equipping each conductor with a bag and cash register complete would exceed 40s.? No, I do not think so. You will observe that the machine is intended purely for the collection of pence.

5812. *Mr. Thompson.*] Have you considered the probability of a conductor being robbed when upon the tram? Well, he does not empty his receptacle upon the tram, and nothing but coppers would go into it. He can put the silver for which he gives change in his pocket or in some other receptacle.

5813. Suppose there has been a very busy day and the conductor has taken a lot of coppers which it would be well worth the while of some rogues to take from him; under ordinary circumstances it is not worth while robbing a man of his tickets, but coppers are not identifiable in any way, and if a man had £5 or £6 worth of coppers you can easily understand there would be a great temptation to take them from him? I think it would be only in the case of the last run when there would be any risk whatever. There would be so many of the ordinary travelling public about at any other time that it would not be worth the risk, but the money could be taken out so frequently that the conductor would never be carrying more than the proceeds of one round trip.

5814. *Mr. Brock.*] Have you any idea of the weight of pence? About three to the ounce, I think they go. A pound's worth of coppers would weigh 5 lb. What occurred to me as an objection to the present system was the necessity for dual registers—one for cash, and one for tickets. By introducing the current medium, and having one register, you do away with this awkward system of dual register, thereby minimising labour and ensuring greater accuracy. Moreover in any system of tickets you must either provide a cash register for cash or else exclude cash altogether by an arbitrary rule.

5815. *President.*] I wish now to go into a few objections to your system from our point of view. I presume that having given so much consideration and thought to this admirable invention of yours you have carefully considered it in connection with the present system of tramways. It seems to me that the collection of fares in the way devised by you on the top of the tram would be simple enough; but I want to know how you propose to collect the fares on the lower deck when it is crowded, seeing that you propose that the passengers should place their own fares in the register and that the lower portions of the cars are divided into cross sections? By introducing into the lower portion of the cars the formation of the upper portion. This would leave the conductor perfectly free in the collection of his tickets, and would afford to the public ten times the facilities for re-entry and distribution that they possess at the present time. Let me give you an illustration: Under the present system we have a gentleman and two ladies wishing to get into a crowded car. He has to run along from one door to another in great confusion, ultimately putting one lady in at one door another in at another, and getting in himself where he can, the ladies having no tickets, and he having to tell the conductor that he will pay for the two ladies. By retaining the present side doors, you have the same facilities for exit and entrance that you have at the present time, and in the suggested instance where a gentleman has two ladies with him, they can get on to the car and adjust themselves after the car has started? I would have the doors as at present with this difference, that there might possibly be, as I dare say will be objected, a certain sacrifice of room, but that sacrifice of room I would so minimise that the advantages will be hugely in favour of the Department and of the travelling public. You would have almost a full broadside access to your car, something after the fashion of the North Shore dummies, and you would at the same time have provision for shelter. Instead of having a passage at each end of the seat as you have now, on the upper deck I would have one passage in the centre, which I think would answer every purpose. It would allow people to circulate, and would allow the conductor to pass from one side to the other in the collection of the tickets. The conductor would remain within the car doing the whole of his collection with perfect safety.

5816. What do you suppose would be the cost of altering the cars? Very trifling, I think, if the present sitting accommodation were adapted.

5817. Do you think it would cost £50 a car? No, I think the present seats will do the whole business.

5818. Do you think the conductor would have ample time to get through the whole of his work on a crowded occasion? I think he would have ample time to collect his fares on any particular section.

5819.

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5819. Do you not think there would be great objection on the part of the public to the carrying about of so many pence? I cannot see any real objection.
5820. You do not think there is any danger of the public rising in a body and protesting against the use of this currency? They would only require to carry 2d. or 4d. at the outside. Passengers at the present time have to carry a receptacle for tickets. Why should they not carry a few pence?
5821. Do you think there would be a sufficient quantity of coppers in Sydney to answer the purpose? That I do not know.
5822. *Mr. Thompson.*] Would it not do to introduce copper tokens instead of pence? I do not think so.
5823. *President.*] Have you considered the matter in the light of the collection of fares at night? Yes.
5824. You think it would be perfectly safe at night? Yes.
5825. On the upper decks, for instance? Yes.
5826. How could the conductor see whether a man put his penny in or not? By having a bell attached to the machine.
5827. That is something extra then, it is not on the instrument now? No, but it could be easily added.
5828. And in the matter of change what would you do? Well I would supply each conductor with 2s. or 5s. in coppers at starting, and these I think would be sufficient until a certain number of fares had been collected.
5829. Don't you think the necessity for putting into the register so large a number of coppers in the case of a long journey such as Coogee, Bondi, or Randwick, would irritate many passengers, and would add to the prejudice which would probably exist against the new system? Well it might be so for a time, but I think that difficulties of that kind would soon be overcome. There are always some people who complain when a system of this kind is changed.
5830. Will you show us next week the improvements which you intend to make in your register, and at the same time give us any further information in your power to meet some of the difficulties which we have suggested? Yes.

George Andrews Bramston called in, sworn, and examined:—

5831. *President.*] I understand that you have some scheme which you wish to bring under our notice, which will facilitate the collection of tram-fares? Yes.
5832. Will you be good enough to detail to us in your own words what you propose to do? I will do so as briefly as possible. The tram-tickets will be in the form of a roll. They will be printed upon 2-inch lengths, and they will be of the same width as those at present in use, one side will be blank and the other will be numbered from 1 to 1,000, or from 1 to 500, as the case may be. Each roll will be of a different colour, so that the different rolls may be changed from one line to another every week, or if necessary more frequently; I propose that the guard only shall issue the tickets taking cash, for which the ticket will be in reality a sort of printed receipt. The ticket will be stamped while passing through the tell-tale, so that it will be available only for the section upon which it is issued. When the following section is started, the tell-tale will be altered by pressing a spring, which will produce a different number, so that none of the previously issued tickets will be of any use then or at any other time. When the tell-tale is received by the guard, the number of the first ticket will be entered in a book, and when he returns the cash it will have to tally with the number of tickets which have been taken off the roll; for instance, if the first ticket is 200, and when he returns the tell-tale, the number is 600, the conductor will have to account for 400 fares. The amount will be entered in a book kept by the guard, and will be signed or initialled by the person appointed to receive the cash, the book to be audited periodically, but not to pass through the hands of the officers who have received the money. The tell-tale will be so constructed that it will print on the blank side of the ticket the day of the month and the year, also the number of the section then being travelled upon.
5833. You have not a model of your tell-tale? Not a proper model—no; I have a working model which I constructed for my own guidance, that is all, but I can give you a rough drawing. This will give you merely the outline of the tell-tale.
5834. What is done with the ticket which is given when the cash is presented? The passenger keeps it until the end of the section. He can afterwards destroy it or continue to keep it.
5835. *Mr. Thompson.*] But he would naturally keep it until the close of the section, or he might be asked to pay again? Yes.
5836. *President.*] How would you manage with your system under such circumstances as these: Suppose a conductor made a trip to Leichhardt, and that he then worked in the yard until dinner-time, making a trip in the afternoon to some other place? He would not have the tell-tale when he was working in the yard. He would have given it up after the Leichhardt trip, and when he is going out again in the afternoon he would have to say what line he was going on, and he would get a tell-tale for that particular line.
5837. But suppose a man started out to Waterloo and returned as far as the railway station, and was there detached to bring a railway tram into Bridge-street;—how would you manage that? He would still continue with the same tell-tale.
5838. You would allow him to keep the Waterloo tell-tale? Yes; and if he sells tickets from that tell-tale it will register against him all the same.
5839. But would not that upset your plan with regard to your colour? The colours would be frequently changed, and the public will not know what colour is fixed for a particular line.
5840. You have a double check in the printing of the date and the colour of the tickets? Yes.
5841. Reducing the chances of fraud to a minimum? Yes.
5842. Is there any bell? No; and if the passenger cannot show his ticket he must pay again.
5843. But would you not have a bell when he pays in the first instance? I see no necessity for it.
5844. *Mr. Thompson.*] Would you not confuse your takings upon the different lines, if a man was suddenly changed from one line to another, using the same colour on two or three different lines in the same day? I do not think so. The number of tickets issued on the different lines could be ascertained. Moreover, there would be the book initialled by the person appointed to receive the cash, a margin kept by left for memoranda, and an entry could be made something in this way: "Started on Forest Lodge section with ticket 200, finished up with ticket 500. Started on Leichhardt section with ticket 501, finished up with ticket 600." It would be easy to credit to each line the issue of tickets due to it, and

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the tell-tale will still register the aggregate number of tickets. With reference to the section number, if a conductor were to go off the Forest Lodge on to the Leichhardt line it would be necessary for him at the time to change his section number to the number corresponding with that on the section to which he was going. He can do this by simply touching a spring in the tell-tale.

5845. *Mr. Brock.*] He could change the number of the sections without drawing out any tickets? Yes.

5846. Supposing a conductor issues tickets, and then picks them up and pretends to reissue them from the tell-tale? Of course the public will have to see that they do get their tickets from the tell-tale.

5847. But the conductor may appear to be issuing tickets from the tell-tale without doing so at all? He could not do that, because the tickets he would have picked would not correspond in their number with the number of the section.

5848. Is this system in force anywhere? Nowhere. I never travelled on tramways anywhere in my life, except in New South Wales, therefore there is no piracy on my part. I do not think many tickets will be picked up. The conductors would not have an opportunity to do so, and even if they did pick up any they could be used a second time upon the same section only, and upon the same journey only. Even then you assume that the public would not notice that he had not taken the ticket from the tell-tale?

5849. You propose to have a different number for every section? Yes.

5850. Suppose there are four sections upon a line, the first section will be No. 1 on the outward trip and No. 8 on the homeward trip. I am afraid the public would not understand? It is not necessary that they should know the number.

5851. Then if they did not know the number, how could they tell whether the conductor was selling them an improper ticket; then again, the passengers themselves may pick up tickets of the same colour, and may hold them, sitting in a crowded tram, and leading the conductor to suppose that the number of the tickets which they were holding was the number proper to the section, whereas it might belong to a previous section? The examination of the tickets would, I think, be quicker than the present operation, and the guard would have some knowledge as to the person to whom he had issued tickets. He would know who had got in at the tram at the different sections.

5852. But suppose the tram was very crowded; a lot of men will throw away their tickets, and there will be constant rows between people who have not paid and the conductor, who is anxious to make them pay their fares? Yes; but it will soon come to be understood that the passengers must retain their tickets until they reach the end of the section.

5853. The same ticket may do two men for one section, one man getting down at one point and another man at another? But it is not fair to charge twice for the same section. What does the Department lose even if two men do ride on the same ticket. They can travel only upon one section which has been paid for.

5854. But the Government, as you must see, lose at least 2d. by that transaction? Well that is a matter which must be left to the conductor. If he were to do his duty such a thing could not be done. If two or three people got on to the tram together he ought to see that a ticket was issued to each of them.

5855. *President.*] Suppose the conductor found a man with a ticket under the circumstances suggested by *Mr. Brock*, and a dispute occurred, the conductor charging the man with not having paid his fare. The man says, "There is a ticket." The man might have an action against the conductor, even although he might be a swindler, because the ticket would be a receipt for the money? Yes, I admit that; but I do not think it is very likely to occur.

5856. How do you think your system would work at night-time? Of course there would have to be sufficient light upon the cars. The reason I have suggested that blank tickets should be issued is that I think a great number of the tickets now in circulation, instead of being printed at the Government Printing Office, are forgeries.

5857. As to your machine getting out of order, what do you propose? It is very simple. There is only one small spiral spring. The rest is plain roll and tape.

5858. What would you use for marking the tickets? The tell-tale would be self inking. Of course if you thought it necessary to have a bell attached to the tell-tale that could be done without any alteration of existing mechanism.

5859. *Mr. Thompson.*] You say that there is a spring? Only one.

5860. Does that spring touch a ratchet so as to keep the ratchet on the wheel? The spring will remove the ratchet so that the wheel can revolve.

5861. Is it not within the bounds of possibility that a mechanician could take off the face of the machine and alter the ratchet and spring in such a way as to interfere with the whole of the working of the machine, putting out, at the same time, a false row of tickets. He would know the colours, and there would be no difficulty in his issuing the tickets if the machine could be manipulated? It is impossible that this machine can be interfered with inside in that way, so that what you suggest is impossible.

5862. No man could interfere with the machine in such a way as to palm off upon the public forged tickets? No.

5863. But suppose a man were to take off the face of the disc, and were to take out the proper roll of tickets and substitute a false roll? He could not do that.

5864. Does not your plan suppose that the conductor will be perfectly honest, and would not meddle with the machine? He would have to break up the machine to get out the roll of tickets.

5865. But I presume that when the proper roll of tickets is put in at the office the machine is locked. Surely the conductor could get a key to fit the machine. Or, suppose again that the conductor and the man in the office whose duty it was to put in the roll of tickets were in collusion, they might work it between themselves that a certain number should be taken off the proper roll for their mutual benefit? Of course the man who has the handling of the keys could do what he liked with it.

5866. Of course you understand that it is our duty to raise every difficulty which suggests itself to us? Of course I understand that.

5867. It has been proved to our satisfaction that the present registers can be meddled with in two different ways, so that it will ring without registering, permitting the conductor to take as many tickets as he pleases from passengers without accounting for them, no one being any the wiser except himself? I think the present registers are too complicated, and I can quite understand that what you suggest could take place.

5868. Why? If I had a small screw-driver for a few minutes I could so fix up one of the present registers that it would not register unless I wished it to do so.

5869.

5869. Have you any reason for thinking that the present tramway-tickets are forged? No; it is simply my impression.

5870. *President.*] But you say that it can be done? Yes.

5871. And your opinion is that it has been done? Yes. I see no difficulty in it. I could find a man who would cut a stone to do it.

5872. We are satisfied that the frauds are not perpetrated in that way. There is a regular check upon that. If you had a large number of forged tickets there would be corresponding discrepancy between sales and collections? Yes; I see that. If you arrive at the conclusion that my machine is worth a test I shall be very happy of going to the expense of having one made, and if it should prove satisfactory, and should be adopted, I should expect some remuneration in exchange for the idea.

5873. What do you think would be the cost of producing it? I think the cost of a model would be from £10 to £12; but it would not cost anything like that to produce the machine afterwards. It would be composed entirely of light metal.

5874. Would it be as heavy as the two present registers? I do not think so. It would be about the same weight with the roll in it.

5875. Would £10 or £12 include the cost of putting the bell in? Yes.

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Hugo Dahms called in, sworn, and examined:—

5876. *President.*] We understand that you have some proposition to lay before us with regard to the collection of fares on the tramways;—is that so? I am not aware that I have any very definite proposition to make. All that I have to say I think I have said in a letter which I have already addressed to the Commission. I observed in the papers that the Board were desirous of having as many opinions or suggestions as could be offered, in order to enable them to arrive at a proper conclusion. I have been thinking chiefly as to whether some way could not be adopted of avoiding or preventing frauds for the future. A great many different suggestions have been sent to the newspapers, all of which are to my mind more or less impracticable. It seems to me that the principal cause of the present frauds consists in the fact that the conductors have the handling of the tickets all to themselves. They are in an open bag, and a great temptation is thus presented to the conductor. However perfect a tell-tale may be they will put it out of order, in order that they may yield to the temptation. The only way to stop this would be to construct an apparatus into which the tickets could be put, and from which they could not be abstracted, except by an officer appointed for the purpose, who would have the key. I was thinking that two keys might be used simultaneously, so that one man would not be able to pick the lock. I make this suggestion because I think it quite possible that the Commission may have confined their attention to improvement in the tell-tale, without regard to any other plan for the collection of the tickets.

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5877. *Mr. Thompson.*] No fraudulent manipulation of cash has come under your individual notice? No.

5878. Has it not occurred to you that so long as the present registers remain in use your plan would be a failure, because the guard, if he intended to defraud, would take good care not to put the tickets which he wished to keep into your box; he would put them elsewhere, as he has been in the habit of doing in the past? A lot of things could be done to rectify that. You could make them punch a hole in the tickets, so that when they had been once used they would be of no further use.

5879. And then you would find that a large number of tickets would not be punched at all. A man would ring for 500 tickets, whereas he might have taken 700? Where does he put the tickets?

5880. You do not suppose that he puts them into his bag? I have never seen the conductors putting them anywhere else. The best safe is no safe at all to a professional thief, yet safes deter millions of people from committing robberies. It has always seemed to me that there has been a great temptation from the fact that the conductors have the tickets in their hands.

5881. Have you travelled on the trams frequently? Yes.

5882. You appear to think that it would be too risky for the conductor to put the tickets into his pocket? Yes, I should think so, most decidedly.

5883. Then how do you think they have managed to rob the Government in the way in which they have done—one man bringing in a bag with 500 tickets, and another man bringing in a bag containing a comparatively small number? Well I should think the only way they have been able to do that has been by interfering with their registers.

5884. What is your trade? I am a watchmaker.

Alfred Solomon called in, and further examined:—

5885. *President.*] I understand that you wish to make to us a statement with regard to the irregular purchase of certain tram-tickets? Yes. My wife told me that she was standing outside a shop-window, next to the "Cheshire Cheese Hotel." I believe it is a small fruit-shop. She says that she saw two men go in, and she states absolutely that she saw one of the men sell eleven tram-tickets, receiving in exchange for them, 4d. I do not know by whom the shop is kept. If Mrs. Solomons is served with a subpoena she will probably be willing to attend, and give you the information you require. With regard to the suggestion which I made to the Commission yesterday, I hope they will seriously consider the advisableness of cancelling all the present licenses. I think that if the sale of tickets is not confined to the Department fresh licenses should be issued only to old-established business people, of undoubted character. I would supply each of them with a stamp, which would date every ticket as they disposed of it, and I would prohibit them, under a heavy penalty, from purchasing tickets other than from the Department.

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5886. What good do you think the dating would do? It would prevent tickets being used on another day; they would be useful only for that day.

5887. Then the conductors would have to go through an additional check,—instead of only collecting and ringing their bells they would have to be satisfied that the tickets were rightly dated? Yes, they would have to examine the tickets.

5888. *Mr. Brock.*] And every person, instead of buying a shilling's worth, or 2s. 6d. worth of tickets, as they do now, would have to buy only what they might require for a particular day? Yes, that is so. They would have to buy only such tickets as were necessary for their present requirements. Upon the railways people do not purchase a week's supply of tickets.

TUESDAY, 12 SEPTEMBER, 1888.

Present:—

A. RICHARDSON, Esq., PRESIDENT.

F. A. BROCK, Esq., J.P.

James Roberts recalled and further examined:—

Supt.
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5889. *President.*] We have asked you to attend again because there is a very important discrepancy between your evidence and that given by Mr. Lambert, the register repairer, and also that given by Moran, the special conductor, and it is on a very important point indeed. The statement is that both on the occasion when Keen reported the matter to you that according to Graham the registers could be manipulated, and also on the further occasion when with your consent Moran took a pair of registers to Graham to ask him how the thing could be done, you submitted the registers to Lambert the repairer, and that he informed you that they could not be manipulated with a pin in the manner described? Yes. Keen made his first statement to me on I think about 18th February. Mr. Tyrer brought him into my room somewhere about that date. I am not quite certain as to the day. When Keen first came I was out and he sat in Mr. Tyrer's room. Mr. Tyrer eventually brought him up into my room, and he there made a statement to the effect that he could tell me how the frauds were being carried on. Eventually, however, it seemed that he could not do the thing. Allowing Keen to remain in my room for a few minutes I immediately came over here and saw Mr. Vernon, and after a few words of conversation with I think Moran I sent young Muir out for Lambert, who came to me within I should say two or three hours. Mr. Primrose will be able to tell you about it. He brought up a pair of registers to me for Lambert to try, and Lambert most distinctly told me that no fraud could be perpetrated by a piece of wire or by means of a pin. Mr. Tyrer will remember Lambert coming. He knew perfectly well that he came, and I think both Mr. Primrose and Mr. Tyrer will remember that Lambert said that the thing could not be done. I also told Moran that it could not be done. I did not know anything about the inside of the bells. I am not supposed to know anything about it. I said to Moran, "We must alter our plans. These frauds must be carried on by their not ringing for the proper amount of tickets." I remember saying to Moran at the time, "We are wrong; this is not the way it has been done. If there have been any frauds at all it has been done by their not ringing for a sufficient number of fares." If Lambert had told me that the thing could be done I should have called the registers in immediately and have had them all examined, but he so satisfied me that it could not be done that I abandoned all my plans. I had got Camphin the detective and had brought him down to Mr. Vernon, and we arranged with Mr. Vernon that we were to engage some man, a foreigner, to open a shop. I allowed the matter to remain in Mr. Vernon's hands to decide who should do it. I was so convinced and satisfied in my mind, after my interview with Lambert, that the thing could not be done that I actually went away for a short holiday. If I had been satisfied as to the result of that interview that the bells could be manipulated in the way represented to us I certainly should not have gone away at that time.

5890. You thought when you got this evidence from Lambert, I suppose, that you had been upon an entirely false scent? Yes; as far as committing any fraud with a piece of wire was concerned, because I tried twenty different registers and they were all right.

5891. On what other occasion did you consult Lambert. Did you consult him again? I am not certain. I know that the register Graham had would not work. He found that he could not do it with that pair. I also tried it myself at the time, and found that it could not be done.

5892. I imagine that Lambert having definitely told you once, and as you thought for all, that it could not be done, you did not think that it was of any further use to try the thing any more? No; he never made any report to me about anything going wrong in connection with the other registers, and he had all the other registers to repair for years.

5893. If Lambert has stated and has sworn positively that he has never been asked whether by the insertion of a pin or piece of wire this fraud could be perpetrated until after the whole of the disclosures came out, is he swearing falsely? He is altogether mistaken.

5894. Do you remember some three years ago, after Lambert was appointed to the position of register repairer, that in your presence he stated to Mr. Tyrer (Mr. Primrose being also present, and I think a Mr. Knox) that a register in a certain condition in which it had been returned by a man who was applying for the position of repairer should not be used, because it would be open to conductors to do what they liked with it? Primrose was the first man from whom I heard that. I did not hear it from Lambert. After hearing it from Primrose my impression is that I asked Lambert myself.

5895. What did he say? He said that it would not be safe to allow the conductors to have that particular register, and we never used it.

5896. You understood him then to be referring to some careless act or mistake on the part of the repairer of that particular register? Yes. Some person who sent in an application that he might be allowed to repair the registers.

5897. But you took Lambert's observation to refer to the careless act on the part of this particular man who wished to be employed as repairer? Well of course I did.

5898. And as referring only to that one register? Yes; only to that register.

5899. You did not understand that he referred to the registers as a whole? No; not as a whole. If I had thought that I should have called them in immediately.

5900. If you hear from us that Lambert understood that this particular weakness might apply to the registers as a whole, are you not surprised that he did not make some recommendation on the subject? He should certainly have reported the matter to me. I never heard anything of the kind except in regard to this one pair of registers.

5901. If you had been told by Lambert at that particular time that there was this weakness, and that the registers were liable to be manipulated, would you not yourself have made a special report to the Commissioner, recommending their withdrawal or some modification of them? Most decidedly.

5902. But you are quite positive that Lambert's report on that occasion, which, as I understand, was not made to yourself, had reference only to careless work on the part of a man seeking the office of register repairer? Yes. Lambert has always spoken to me in the highest terms of the safety of the register. He has said that they could not be manipulated, and that he never knew that they could be interfered with

with in this way until the Greeley-Ferrier affair. The only report I have ever received from Lambert as to the manipulation or maltreatment of a pair of registers was with reference to a case which is on record. I refer to Thomas Lane's registers. It is in these terms:—

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"I beg to call your attention to the fact that some of the registers are being wilfully damaged. Nos. 5086 and 2990 were both broken, evidently by having the handles drawn down, but not sufficiently far to allow them to go back; they have been driven back by a blow; thus, in the first case, bending the crank-shaft and stripping the screw thread, and in the second place, breaking out the crank-pin. The first occurred in the end of last month and the second last week. You will kindly ascertain who does so that the same may be discontinued."

On the receipt of this report with reference to Lane's register he was taken off the cars altogether. That is the only report Lambert has ever made to me, and it is dated on the 18th June last.

5903. *Mr. Brock.*] Do you remember the man who applied for employment as repairer of registers—the man to whom you have just been referring? No.

5904. *President.*] Lambert seemed to think it hard that he was not supplied with the names of the conductors? He could have had the names if he had asked for them. He knows almost every conductor on the line. He is himself an old conductor.

5905. What I mean is that he seemed to think it hard that he should not know the names of the conductors in connection with the registers sent in to him for repair? That is a matter for the Traffic Auditor. Lambert could have got the name of any man who had had any particular register by asking for it, because every register is booked to the man who is using it.

5906. I don't know but that what Lambert argues is fair. He says that if he had the names of the men in connection with the numbers of the registers he could keep a little ledger against each man, and that if for instance any particular man brought in his register two or three times for repairs within a short period he would then have his suspicion aroused and would be in a better position to know whether anything wrong had been done in connection with that particular register. It is quite true that he has the numbers of the registers, and he admits that he would only have to go to the office to find out the names of the men who had been using them; but he says, to give you an instance, "Smith may have register 89 to-day, and to-morrow he may have 91." And Lambert argues that if he had the information for which he asks, and saw that No. 91 had been treated in the same rough way as No. 89, his suspicions would be at once directed against a particular man, whereas, under the present system, he has not such an account to refer to? He could keep an account of every register he takes away for repairs, and he should do so; and if a particular register came to him several times in succession wanting repair, all that he would have to do would be to go to Mr. Oakes, who deals with the books, and obtain the information from him.

5907. I am afraid you do not quite follow the point. If a man, for instance, had No. 89 it would be easy for the repairer to notice that this same register came in several times running, and even then his suspicion might be aroused; but there are cases in which the men change registers, when, for instance, a man brings in a register for repair another register is issued to him, and there is not the same sequence in Lambert's books as he reports by number; for instance, supposing No. 91 were the next register issued to the man who had held 89, he would not necessarily connect the two numbers, whereas, if he had the names, he might at once say to himself, "Here is the same man again with his register needing repair"? Yes, it might assist matters in that way; but there is at present no obstacle in the way of Lambert getting every information.

5908. Still you think there would be no harm in letting him have the information for which he asks? Well there might be harm in this way: Of course I do not say that it is the case; but suppose Lambert had one or two favourite conductors; these men might be suffered to perpetrate fraud continually, and the repairing of their registers might not be properly brought under the notice of the authorities.

5909. You do not think it desirable that Lambert should have this information? I do not.

5910. You think it is a good thing that Lambert should know the registers by number only? Of course.

5911. And that he should report anything in connection with a particular number, and that it should be then left to the Traffic Auditor to institute a comparison between the number and the names of the men who had been using it, following up any delinquency which might be apparent? Yes.

5912. *Mr. Brock.*] Did not this man who applied for employment as register repairer send in a written application? Not to me.

5913. Was this when Lambert was appointed? No. Lambert was in full work when the application was received; but this other man professed his willingness to do the work much cheaper and much better. I think he wrote to the Secretary about the matter. I know he did not write to me.

5914. You have no idea of the date of the application? No, I have not.

5915. And you do not know the man's name? No, I do not. I was not consulted in the matter at all.

5916. I suppose you still have the register which this man repaired as a sample? I think Mr. Primrose gave them back to Lambert, in order that they might be altered again. I think we were short of bells. I know that they were not used in the way in which they were returned to us by this man.

5917. I thought you said just now that they had not been used? Not in the state in which they were first returned.

5918. You have no new registers at the present time? No. We had to supply Newcastle, and I think we have no new ones left.

5919. Do you consider Lambert a thoroughly efficient man? I consider him a good man, but it is not for me to say whether he is an able mechanic.

5920. But you appointed him? I recommended him. I had seen some of his work. I think I had seen some watches that he had repaired, and which he had done very well.

5921. You had a good opinion of his mechanical genius? I have a good opinion of him now. I believe him to be a straightforward honest man.

5922. You think that possibly in giving his evidence he has made some mistake or forgotten himself; that is, his evidence as to his not being consulted about the possibility of fraudulently manipulating the registers by the use of a pin or a piece of wire? I think he must have forgotten. I am certain that Mr. Tyrer was there, and that he will know all about it. I told Moran about the matter also. There can be no mistake about it.

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5923. Lambert admits having been called over to your office to examine a pair of registers, and he says that he reported that these registers were in working order, but he says decidedly that he was never asked anything about a piece of wire or a pin—that is to say, that he was never consulted as to whether fraud could be committed in that way or not, but that he was merely asked if a certain pair of registers were in working order, he telling you that they were? I cannot say about the use of a pin, but I am positive about the piece of wire.

5924. Had you the wire there? Yes, I showed him the thing. We tried it, and we found that it could not be done. He said then, "That proves that the register is in good order."

5925. You are sure that it was not after the whole thing came out that you showed him how the thing was done with the piece of wire? No; I am sure it was at the time that Keen made his statement to me. I remember it distinctly, because I thought at that time of opening a shop and catching the perpetrator of the fraud in another way. I know that it was before the 1st March, because it was that date that I went to Melbourne.

5926. You understand the great importance of this matter, because directly you told Moran that it could not be done in that way he naturally concluded that he had been upon a false scent? Yes; I quite understand that. I remember saying to him, "We must turn our minds to something else; we must look out for the men who do not ring sufficiently for their fares." It put me off my guard altogether. I should never have gone to Melbourne had I thought otherwise. I would have arranged something with Camphin.

5927. In point of fact, Moran was not working outside you, but with you? Ever since Keen made his statement Moran watched him. He watched him that morning at my office until he went away. We brought Keen out privately on to my balcony into Mr. Tyrer's room so that he should not be seen by two other conductors who were there. Then Moran came to my room and asked me a question as to what Lambert had said. I told him Lambert had said that the thing could not be done.

5928. But surely Moran must have seen Lambert go into your room? I did not ask him that question.

5929. Was he on the premises? I could not say for certain.

5930. Did Moran come to ask about it immediately Lambert had gone? It was not a second afterwards.

5931. Then Moran must have known that Lambert was with you? Yes, of course. I presume he was at the door waiting.

5932. *Mr. Brock.*] Have you ever compared Musgrave's receipts with the receipts of other assistant conductors on the same lines? I have not to my recollection.

5933. *President.*] Don't you think it was advisable to have done it? It may have been done. I cannot say. I don't properly recollect.

5934. If there is no marked difference between Musgrave's statement of receipts and the statement of receipts handed in by other men upon the same line, it seems to me that it is very hard to suspect him of wrongdoing? I could furnish you with an account of the whole of his takings.

5935. *Mr. Brock.*] He has been assistant conductor on every line at different times; would not that make it easier to detect him than to detect a man who always has the same line? No; I should think it would make it harder. It would always be harder, I should think, to detect an assistant conductor.

5936. But Musgrave has been on the Waverley line for a week at a stretch? Yes.

5937. Could you not compare his return during that week with the return of another assistant conductor on the same line? Yes.

5938. *President.*] Could you get at the returns for January, February, March, and April, and pick out a week in each of those months, giving us a return of Musgrave's receipts during those periods, and comparing them with the corresponding returns of some other assistant conductor on the same line? Yes; I will do so.

5939. And the same with regard to Ferrier and Fraser, making a comparison between their returns and the returns of some other man of the same rank on the same lines? Yes.

5940. You remember in your previous evidence referring to Musgrave's absence with his bag and bell from a certain Wednesday until the following Saturday? Yes. I found that Musgrave's bag and bells were not given in between a certain Thursday morning and the following Saturday. I have compared the contents of the bag when it was handed in with the contents of the bags of other conductors under similar circumstances, and I find that his return compares favourably with theirs.

5941. *Mr. Brock.*] Speaking roughly, what would a conductor on the Waverley line take in a week—say an assistant conductor? I could not say. There would be an enormous number of tickets. He would make about eight runs in one day. A man might take a round trip from Bridge-street and collect the whole of his fares to Queen-street; that is a 2d. section, and possibly he might not account for them. I should think he might make about 30s. on the round trip. I think it would be quite possible for him to do that.

5942. Without your noticing any perceptible difference in his returns? Yes. I should think a man might easily make 8s. or 10s., or on some days even a £1 without showing much, if any, difference. When there is any bustle, and when there is heavy loading, people would not take much notice of the way in which he collected his fares. This fraud, I am sure, is never done in empty trams. They use their pins when the tram is pretty full. I find that, on a day which has already been referred to in the evidence, when Musgrave was on the Randwick Racecourse trip he brought in £4 7s., and that amount compares favourably with the amounts brought in by the other conductors.

5943. *President.*] Still he may have taken a few shillings? Yes; and it is also necessary to bear in mind that the men were about that day, and that he might therefore have been careful. I should like to say here that I do not think that Hannam is a very good man. About a fortnight ago I received some information about him. I heard of his calling a woman off the street at Market-street. He took her to Forest Lodge. He left his car there and went away with her, and came back again. When I challenged him with the affair he admitted calling the woman out of the street and taking her to Forest Lodge. He does not admit having connection with her, and he says she paid her fare. I am pretty well sure, however, that she did not do so.

5944. Do you not think that would have been sufficient ground for dismissal? I did not know what to do in the matter because this inquiry was proceeding at the time.

5945. *Mr. Brock.*] How long did he leave his tram? Only for a few minutes.

5946. Where could he have gone? He could have gone straight down into Allen's bush.

5947. How long do you suppose that would have taken him? Well I should say it would have taken him at least 10 minutes to go down to Allen's bush and back again.

5948. *President.*] Having regard to Colls' relationship with Musgrave, don't you think it strange that he should not know something more of Musgrave than he appears to know? I don't think Musgrave would trust him. My opinion is that if Colls thought there was anything wrong he should come forward and speak to me about it. I don't see why Colls should suffer because Musgrave happens to be his brother-in-law.

5949. But it is known that Musgrave has stayed with him under very peculiar circumstances? Musgrave used to board with him.

5950. But Colls has been very kind to him, and it seems to us rather strange that under these circumstances he should have not made Colls his confidant, especially when it is borne in mind that he confided in Graham? Men working together would be in an entirely different position. Colls has told me a lot of little things, and I do not believe he would hold anything back from me. I may say that Colls was very much opposed to Musgrave being reinstated. He said he did not care about having any relations on the line, and that Musgrave was a regular nuisance to him, because when he was ill he would be constantly asking Colls to see the traffic foreman, and that sort of thing.

5951. That surely is an argument against what you say. If he was such a nuisance to Colls in this way you would expect that he would have gone to Colls and have made him his confidant in a matter of this kind? I don't think he would have trusted Colls. I think that when Musgrave knew he was suspected he got so disheartened that he did not care what became of him. Colls, I ought to mention, perhaps was the first person who told me about Musgrave. I remember asking Colls when he heard of it, and he said, "I only heard of it last night."

William Boyd called in, sworn, and examined:—

5952. *President.*] You are a conductor in the tramway service? Yes; a full conductor.

5253. How long have you been in the Service? Six years and six months.

5954. On what particular line have you been running? On the Waverley line.

5955. Have you been all the time there? I have been over five years on that line.

5956. You remember the different systems that have been in operation in regard to the collection of tickets? Yes.

5957. You remember that the present system was given up for about nine months, and that the system of tearing up tickets was introduced? Yes.

5958. Have you been running to Bondi? Yes, to Waverley, Bondi, and Woollahra.

5959. Were you running to Bondi on one holiday shortly after the Aquarium was opened? Yes, I think so.

5960. You remember the reintroduction of the bell system? Yes.

5961. It would be about the 1st of October last year? Yes; somewhere about that time.

5962. Do you remember the particular time to which I am referring? I could not say. I know I have lost no time since I have been on.

5963. Do you know Inspector Bremner of the Police Force? No.

5964. Did he speak to you on one occasion when you were at Bondi in reference to the collection of your fares? Not that I am aware of. He may have done so.

5965. Is it a fact or is it not that on one holiday at Bondi you collected a large number of tickets and did not tear them up? No. I always tore up whatever I got.

5966. Have you ever collected a number of tickets at Bondi without tearing them up or ringing your bell when the register system was in force? No. I have always used one process or the other when collecting.

5967. Are you prepared to swear that on one occasion you did not collect a large number of tickets without either tearing them or ringing your bell for them? Yes.

5968. How many divisions have you in your bag? Two.

5969. What are they for? One is for cash and the other is for tickets.

5970. Are you quite certain that you always keep the tickets in one of those divisions? Yes.

5971. You never put them in both? One or two may slip into the cash side when the other side is full.

5972. What did you do when you gave up your bag if by any mistake you put the tickets in the wrong division; it would make no difference would it? No. The tickets would still be in the bag.

5973. Who was your assistant at that time? I could not say, we have so many. Sometimes we have them for only a trip, and sometimes for all day. It is a strange thing that if this thing occurred so long ago it was not reported before, because I was never guilty of anything of the kind. I have always tried to do my best for the Department. I have been on over six years, and I have always tried to do my best in ringing for fares.

5974. Has there ever been any report against you that you know of? I think there has been one report. Inspector O'Brien reported me for undercharging two boys. He said I failed to collect the tickets. We were very busy at the time, and I had not time to ask the boys whether they were under or over 12. I was in charge of both cars. I have a copy of the report at home, and my reply to it.

5975. Is that the only thing reported against you during the whole of the time you have been in the Service? There may have been others, but I have not heard of them.

5976. But you would be sure to hear of them, would you not? I never heard of any, but the one you have mentioned this morning, and that which I myself have referred to. If they had this other thing against me it is strange that they did not bring it under my notice immediately.

5977. As far as we can understand, Inspector Bremner's report has been brought forward only in connection with this inquiry? Well all I can say is that it is strange I have not heard of it before.

5978. *Mr. Brock.*] Inspector Bremner is in charge of the Waverley Police Station. Don't you know anything of him? I know him by name, that is all.

5979. *President.*] As you are here, Boyd, we should like to ask you whether you know anything of these ticket frauds? No; not a word. The first I knew of it was from the *Star*.

5980. You have been on the Waverley line for some time? I have been relieving M'Mahon for five years on the 12th of last month. We have been relieving mates all that time.

5981.

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W. Boyd.

12 Sept., 1888

- W. Boyd.
12 Sept., 1888.
5981. Have you had Musgrave frequently running with you? Yes.
5982. Have you had any reason to suspect anything in connection with his conduct? No reason at all. He was always on the first car next to the engine, and I was in the back car, and we were both on different sides.
5983. Did he tell you anything about certain things he was doing in connection with his register? He did not tell me a word.
5984. Do you mean to tell us that you have not had the slightest inkling that anything was going wrong until the matter appeared in the paper? I had no inkling whatever.
5985. You have not shared in any way in this conversation which, we are given to understand, has been taking place pretty generally among the conductors, firemen, and others? No.
5986. I mean as to the trams not paying? Oh yes, I have shared in those conversations.
5987. As to its being no wonder that they did not pay, seeing that certain things were going on; you have not heard that kind of thing spoken of? Never.
5988. Have you ever heard one conductor saying to another, "How much did you make on that run, Bill?" Yes; I have heard that.
5989. When? Repeatedly. I heard it immediately I joined the Service, and I hear it sometimes even now. I thought it was only a lark. I have said it myself sometimes; I admit that.
5990. Didn't that give you some idea that there was something wrong to permit of such a thing being talked about? Well I have heard it said repeatedly, but I thought there was nothing in it.
5991. And you really have no information to give us about the frauds? No.
5992. And you positively deny the charge made against you? Yes. It is not at all likely that I would risk my position for the sake of a few tickets. I have often said that.
5993. *Mr. Brock.*] Were you one of the deputation which waited upon the Minister? No; I took no active part in that whatever.
5994. Are you a married man with a family? Yes, with four children.
5995. Where do you reside? At No. 10, Johnston-terrace, Glenmore Road. I have been there over four years. Anyone will tell you whether I knock about and spend money foolishly.
5996. *President.*] You remember the change in the system of taking fares? Yes.
5997. Are you quite certain that when the change took place you were not for one moment without your register when collecting? I have often torn the tickets in mistake, and have not rung the bell; that was immediately after the change took place. Many of the other conductors did the same thing at the time; but it was done purely by mistake, and it was owing to the change in the system.
5998. That would be shown in your bag, would it not? Yes. Mr. Primrose knows that it was done.
5999. You are quite sure that at no time you have been without your register? I am quite sure of that.
6000. Inspector Bremner says that on the occasion he refers to he asked you about the matter. Don't you remember that? No; I never remember any one asking me about it.
6001. But he would be an inspector, wearing a uniform. Surely if he had spoken to you you would have remembered it? I don't remember anything of the kind.
6002. You have no recollection of any conversation with a police inspector on the subject? Not on any occasion. I know Inspector Lenthall. He used to come in with me, on the Woollahra line, repeatedly; and he could tell you whether there is likely to be anything of this kind against me.

Patrick Greeley recalled and further examined:—

- P. Greeley.
12 Sept., 1888.
6003. *President.*] We have sent for you again because your evidence in certain respects is not been borne out by evidence given by others. In the first place you reported that on one occasion, when Frost wanted to buy tickets, Graham said, "You might as well buy them from me"? I never mentioned anyone's name. I do not think I made any such statement when I was here last; if I did it was an error. I do not remember saying so.
6004. What statement did you make to Moran on that subject? Frost was going to Coogee on one occasion, and he stated that there was a tramway man who had a pocketful of tickets, and he got out to buy some tickets at a shop, when this man who had his pocketful turned round and said, "You might as well have bought them of me."
6005. Who was this man? I do not know.
6006. Frost did not tell you? No.
6007. Was that your statement to Moran? No; I am not sure.
6008. Did Frost say whether this man was a driver or conductor? I could not say, but my opinion is that he said a driver; I am not certain on that point. This was some time ago. It was before there was any exposure in connection with the fraud.
6009. Do you swear that Frost told you what you have just now repeated? I do.
6010. That he was going on one occasion to buy some tickets in a shop, when a man in whose pockets he had seen a lot of tickets said, "You might as well buy them off me"? Yes; I will swear that.
6011. Do you know driver Maher? Yes.
6012. Did you say that after the bedroom scene between you and Ferrier, Maher came to you, and was able to tell you all that took place? I do not know that it was about that time; I think it was some time afterwards—about a fortnight afterwards.
6013. You have not answered my question—it was very plain—as to whether Maher was able to tell you all about this scene? I do not remember saying anything of the sort.
6014. Therefore if Maher has said in his evidence that it was you who first told him all about it, it would be correct? About eight days after the report in the press I did tell him something about it.
6015. But he did not tell you anything? At one time he told me something about an Italian having made £2,800 out of the tickets.
6016. Do you remember what you said about Siddons? Yes.
6017. What made you tell Mr. Roberts, in connection with that matter, that Dolan was the man who was dealing with Siddons? I did not say that. I said that Dolan was the man whom Siddons was inquiring about. He asked where the man lived, and how he was getting on.
6018. Is it not a fact that you frequently went into Siddons' shop in the evening? Never off duty. I think I went in twice to get a shave.

P. Greeley.

12 Sept., 1888.

6019. Do you swear that? I do.

6020. You swear that you never went into Siddons' shop when off duty, and the most you were ever there was about twice? Yes.

6021. You remember when you told Mr. Roberts about Dolan? Yes.

6022. Now be careful about your answer. After that were you ever in Siddons' shop? Never.

6023. You swear that? Yes.

6024. *Mr. Brock.*] How could you go to get shaved when you were on duty? The shop is near the terminus. I think the first time I went there was the day before Christmas eve. I was in late in the evening, and I wanted a shave.

6025. *President.*] You answered my question just now a little quickly. I should like you to take a little time to consider. I will ask you again: Do you remember telling Mr. Roberts that Dolan was the man with whom Siddons was having some dealings? I said that Siddons was inquiring about him.

6026. I ask you again: Will you swear that after that time you were not often in Siddons' shop? Never, that I recollect; in fact I can swear that I have never been in there since.

6027. If it has been sworn to us by a person who was watching you that you were there repeatedly after that time would that be false? It is false. I never remember being in there more than twice in my life. I am sure I have not been in there since the time you mention.

6028. Where did you have these conversations with Siddons about the tickets? The first was when I went in to get a shave, and all the conversations afterwards were on the cars.

6029. And on these occasions he was tempting you to dispose of tickets to him? Yes; he was persistently following me about for about a fortnight trying to get me to sell tickets to him.

6030. Did he tell you that he had had tickets from other conductors? Yes.

6031. Did he name them? No.

6032. Did you ask him to name them? Yes, but he would not tell me the names.

6033. He absolutely refused to name the men? Yes.

6034. Did he give you any information leading you to suspect any conductors as being those who had sold tickets to him? No.

6035. Was it not strange that he did not give you this information? I don't know.

6036. But you say he was persistently trying to get you to take tickets from him. He evidently did not think that you were an honest man, and yet he did not say to you, "Why so-and-so are doing it"? He did not tell me of anyone.

6037. To encourage you to negotiate with him, he did not say, "You need not be afraid; it is all right; such and such a man is doing it"? He never did.

6038. There is no possibility of your making a mistake about your going to Siddons' shop, is there? Not that I am aware of. I do not remember being in there since the time you mention.

6039. But you have gone a great deal further than that in your previous answers; you have sworn that you were not in there since? I do not remember being in there since.

6040. Now you are qualifying your answer? I have been in there only twice altogether. I do not think I have been in there at all since I have reported the matter.

6041. That is qualifying very much what you said before? I might have made a mistake, but to the best of my belief I have not been in there since.

6042. But you could not make a mistake if it were a question of your being in there several times? I have not been in several times.

6043. You are ready to swear that you have not been there several times if at all? Certainly.

6044. Did you ever have anything to say about Saunders, a shunter, in the yard? I reported him once.

6045. For what? Partiality.

6046. Was your report in writing? Yes.

6047. Partiality, in what respect? For not giving me my share in overtime in connection with the Parliamentary trams. I think Saunders' name is mentioned in the report, but I reported the foreman.

6048. In making that report did you attribute unfair dealings to Saunders? Not to him exactly; he has the doing of the thing in the absence of the foreman.

6049. Have you ever attributed to him any unfair dealing in that respect? No; I often used to think, though, that he was more partial to some than to others.

6050. Have you ever said that he took tips for allotting this work? No, I have never said so.

6051. Has anyone ever said that to you? Yes; I heard Maher say so.

6052. In what way did he say it? He was going home in the tram one day when I put this report in. He said he was just after having a row with Saunders, and if Saunders was not very careful he would be "one" with him, and would report him because he knew that he took tips from several drivers for giving them Parliamentary trams.

6053. Did you make use of this information in connection with your further report? No; I did not put that in at all.

6054. How long ago was this report of yours made? It was last November.

6055. When did you first mention what the driver had told you? One of the drivers was standing alongside me, and I drew his attention to it there and then.

6056. When did you report it? I never reported that.

6057. But you reported that Saunders was acting partially? Yes.

6058. Did you not see when the driver told you this that there was a fine chance for you to substantiate your previous report? Yes; but my report was in then.

6059. Did you not also recognise that it was your duty to report such an irregularity? I had reported once or twice before that, but I had never got any satisfaction from my reports.

6060. What were your reports before that? I reported twelve months ago the partiality that was carried on in the Tramway Department in connection with the same thing.

6061. Who was connected with it then? The foreman.

6062. Which foreman? Halliday.

6063. Did anyone else ever tell you that Saunders was taking tips? Not that I recollect.

6064. Have you ever mentioned anything else in connection with it? No, not that I know of.

6065.

- P. Greeley.
12 Sept., 1888.
6065. Who is Branch? He was the driver who was there when Maher was speaking to me about it, and I drew his attention to the matter there and then. I told him at the time that I would put it down in evidence, and that it would strengthen my case.
6066. But you did not do so? No; I did not report any more.
6067. *Mr. Brock.*] You never reported Saunders individually? Well his name is mentioned in my report.
6068. *President.*] Why did you mention his name? He was connected with the working of the thing.

Frederick Oakes called in, sworn, and examined:—

- F. Oakes.
12 Sept., 1888.
6069. *President.*] What is your position in the Department? I issue the registers and check them.
6070. How long have you been in the Department? Eight years. I joined in August, 1880.
6071. How long have you been in your present position? Since the 14th April of this year; but I have been connected with the registers for the last seven years.
6072. Tell us the difference between what you are now doing and what you were doing some years back? There is no difference, only that the offices are separated. I was removed to the railway audit office for a time. Previous to going there we used to rig the registers and receive the cash and tickets in one office. They made fresh arrangements, and now I have the checking of the registers, apart altogether from the receipt of cash and tickets.
6073. To what branch are you responsible? To the traffic audit branch.
6074. Just describe to us briefly what you do. Let us take conductor Smith for example; he is going out to day; describe the process in regard to him for any one day? He has his register in his possession over night. When he brings it in in the morning it is read by one of the clerks or myself, and the figures are entered in the book. The man has a separate account for each day. The register reading yesterday and the reading to-day are subtracted, and the result shows the difference between the two takings.
6075. Do you examine the register at all? Now we do.
6076. Formerly you only read the register, and that was deemed sufficient? Yes.
6077. What do you do now? Now the registers are tested.
6078. Do you put in a piece of wire? We can test them without doing that.
6079. You test them to see whether they can be manipulated? I test them to see if they will ring without registering.
6080. Under certain circumstances? Yes.
6081. Formerly you did not do that? No.
6082. You used then simply to read the register? Yes, and give it back to the conductor. But ever since I have had anything to do with the registers, if we found that a man's account was running much over we have called in the register, and we have frequently found that it would ring without registering. Ever since I have been connected with them that has been the course. We have just mentioned to the conductor that the register was out of order, and it has been given to the repairer to be repaired.
6083. Sometimes you have found that the bell would ring and not register, and that the conductor would have more tickets than he had registered? Yes. Frequently this has been owing to the way the register has been pulled. In these cases the men would not know anything about it. They have brought in a lot of tickets which they had not registered.
6084. You brought these cases under the notice of the repairer? Yes.
6085. And caused the registers to be repaired? Yes.
6086. But your suspicions were not in any way aroused? No.
6087. Is it a fact that Lambert has repeatedly drawn your attention to the circumstance that under certain conditions the registers could be manipulated? No, it is not a fact; at least not to me.
6088. Has he not pointed out to you that it was necessary to be particularly careful on account of this state of things? No, he has never done so.
6089. It would appear from Lambert's evidence that he told you that before you took any action against a man who was incorrect in his returns it would be necessary to have his register carefully examined—that is, before you attributed any wrongdoing to a man? That is so, certainly; but Lambert would not require to tell me that, and I do not remember his ever doing so.
6090. You yourself knew it? Yes.
6091. When did you first have any suspicion that anything was going wrong? Not before it was a matter of public talk.
6092. Had you not ever heard it said that conductors were cheating? Oh, yes; I have known that men have been suspected, but I did not know that it was in connection with manipulating the registers.
6093. You did not know that they were suspected of manipulating their registers? No.
6094. Your impression, I presume, was that they were cheating in the ordinary way? Yes; by not ringing for the full number of fares.
6095. And appropriating tickets to that extent? Yes.
6096. It is only since publicity has been given to the matter that you became aware that they must have opened their registers for the purpose of manipulating them? —
6097. You never had any idea before that any conductor had opened his register? No.
6098. Did it never occur to you from what you evidently knew, that the same knowledge might be possessed by the conductors themselves—that is to say, that they had given in a lot of tickets more than were shown by the register, owing to some defect in the machinery; might they not have obtained that information? Yes; that has struck me often.
6099. And that having gained that information they might use it for their own purposes? Yes; I have thought of that.
6100. Before the frauds came out? Yes, often.
6101. Did you ever bring that phase of the question under notice? No; but I have often said that I did not think the registers were reliable.
6102. You quite understand my question. For instance, a man to day, owing to some hitch in his register, has brought in a lot more tickets than his register shows. He has gained that information. You would mention the matter to him would you not? No; we should not do so, and they are not supposed to open the face of their registers.
6103. Would he not know? No; not until his register was examined.

6104. But he would know that there was something wrong from the fact of his register being taken from him? Not necessarily; the register would ring alright, and he might not know why a fresh pair were issued to him.

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6105. Would he know that it was a fresh pair? Oh, yes; they all know their bells without looking at the number.

6106. Have you any reason to think that this knowledge which you yourself possessed would be pretty generally known—that is, that on occasions, owing to something happening to the register, the conductors would bring in more tickets than were shown by the indicator? No; I do not think so—only in the office.

6107. By how many men would it be known? By all in the office who had to do with the registers at that time.

6108. How many would there be? Four or five.

6109. It would be known to four or five clerks that frequently a surplus number of tickets would be brought in by the conductors, owing to some inaccuracy in the registers? Yes.

6110. Is it not possible that without intending any harm this would be spoken about in such a way that the knowledge might become general? Yes; it is possible.

6111. Without any intention of doing harm? Yes; I quite understand what you mean.

6112. A clerk might say, in talking to another person, "These bells are not as good as they might be, because it often happens that something goes wrong with them, and the account is not right"? Yes, that might be the case.

6113. Supposing this became generally talked about, might it not occur to some conductors, who were not very high-toned in their principles, that there was a chance of making a little capital out of the knowledge? Yes; by manipulating the bells you mean. That would be quite possible.

6114. And even probable? Yes.

6115. But it has not led you to exercise any more caution in your examination of the registers? No, not previous to these disclosures.

6116. Although you yourself had such a bad opinion of the registers? I did not think they were reliable on this account, but I should not like to say because a man was inaccurate in his tickets that he was necessarily cheating.

6117. You felt a great want. You felt that you would have liked to be in a position to say, "Smith, your register shows 325 tickets; I want those 325 tickets—neither more nor less"? Yes; that is just what I should like to be able to say.

6118. Feeling this you thought the registers were not quite as good as they should be? That they were not as good as they should be.

6119. Holding this view did you ever have a talk to Lambert on the subject? Yes, frequently.

6120. You know what Lambert's opinion of the register was? I know that his opinion was that they were perfectly reliable.

6121. Knowing what you did did you not consider it worth your while to combat that view and try and impress upon him that they were the reverse of reliable? Yes.

6122. And did you do so? Yes.

6123. What was the result of your argument. Did you ever move him? No.

6124. He held to his own opinion? Yes.

6125. Although this discrepancy to which you have referred would occasionally happen? He might admit that something might go wrong with them, but he seemed to think that no other check would be better. Of course the registers break in many ways—they stop ringing, and all sorts of things, I have seen registers which would indicate and which would not ring.

6126. You remember the system of tearing tickets? Yes.

6127. What was your opinion of it; did you think it better or worse than the present registers? I thought less of the tearing system than of the present system.

6128. Why? Well if a man were dishonest, or had any idea of being dishonest, he had a better chance of taking the tickets under that system, because he was giving no receipt to the public as he was with the bells. The public naturally listened for the sound of the bells.

6129. And you think very little of the tearing system? In the way that it was carried out. If it had been carried out as it should have been it would have been better.

6130. How do you mean? That the tickets collected from passengers should be torn up in front of them.

6131. That was the intention of the system? But that was not carried out.

6132. How would that answer in the dark? It was not carried out in any way, because a conductor would collect the whole side of a top, and would go to the end before he tore his tickets. There was no check upon him because he might miss tearing half of them.

6133. And there would be the same amount of check from the way the tickets were collected down below? Yes.

6134. And it was common for a conductor to collect a compartment entirely before tearing any tickets? Yes.

6135. You would not condemn the tearing system if it were properly carried out then? Of course the intention was that each ticket should be torn up.

6136. But would it not be difficult to carry that out? It could not possibly be done on some of the trips.

6137. Did Lambert some three years ago have a talk with you about the improper way in which a set of registers had been repaired by a certain man who was seeking the job? Lambert himself did not talk to me about it. I did not happen to be in the room but I heard all the circumstances.

6138. What did you hear? I heard that this man had been given a pair of registers to repair.

6139. What was his name? I do not know. I heard that when the registers were brought back they were given to Lambert, that he might examine them, and he found that this man had made alterations inside of the register which ought not to have been made, and owing to his leaving the ratchet out it would be possible for the registers to be manipulated.

6140. He left out the ratchets? Yes.

6141. He thought he had improved on the ratchet? Yes; he thought he had.

6142. It was ascertained that if that were done the registers would be at the mercy of the conductors? That is what we heard.

6143.

- F. Oakes: 6143. That is some years ago? Yes.
- 12 Sept., 1888. 6144. Lambert laid some stress upon this point. Did it make you at all suspicious of the manipulation of the registers in general. No; not at all. It was not said in that light at all. The only light in which it was mentioned was with regard to the pair which had then been repaired by this man. The effect of it was to show that this man was not capable of repairing registers.
6145. It was not a reflection upon the registers generally? No.
6146. It was in effect this: that this man by clumsy workmanship had rendered a pair of registers inefficient? Yes. That is what we were told. I did not think so at the time.
6147. What did you think? I thought that the registers were splendidly repaired. Of course I could not speak with reference to the work inside; but so far as I could judge, working them as a conductor would work them, they were splendidly repaired.
6148. You found that they rang and registered? Yes. To all outward appearance they had been repaired better than the registers had been repaired previously.
6149. What do you mean by that—were you in a position to judge solely by outside appearance. Could you tell their condition from the way in which they rang? Yes; to a certain extent.
6150. You mean that there was no sluggishness? Yes; and that the sound was clear. They were apparently very accurate.
6151. *Mr. Brock.*] Still they might have been in a condition in which they would ring without registering? Yes.
6152. *President.*] I suppose it was a perfectly legitimate thing on Lambert's part to take this register to pieces again. He was expected to do so? Well the Superintendent gave them to him.
6153. To test the capability of the new man for that work? Yes.
6154. Did this man not send in a sort of tender or offer to repair the registers at a certain rate? Yes. I do not remember what it was.
6155. Was it altogether a right thing for Lambert, under the circumstances, to be made the judge? No, I do not think so.
6156. Was no suggestion made that a third party should report? I do not know that that suggestion was made to Mr. Roberts. I know that the clerks in the office in which I was thought that that should have been done.
6157. Mr. Felton, for instance, had some knowledge of the matter; he might have been asked? Yes.
6158. He repaired the registers at one time? Yes; before Lambert.
6159. How were they repaired under Mr. Felton? Very badly indeed, as badly as they could be done.
6160. Did Mr. Felton do them himself? I do not think he ever did.
6161. Then it does not follow that if a man is a good watchmaker he will be a good repairer of registers? No, it does not. We have had registers returned from Mr. Felton, as repaired, in such a condition that we could not issue them.
6162. You think, perhaps, that he did not understand the work, or that he left it to some inferior person to attend to? I could not say. It would be very difficult to say what person would be competent to report thoroughly upon the condition of these registers, because their machinery is so different to ordinary machinery.
6163. Could these registers be manipulated in any way without putting in the piece of wire. Suppose you got a pair of registers that had been faked, as they call it, would it have been necessary to put in a piece of wire? Certainly not.
6164. How would you do it? I could ring them a hundred times and they would register, and I could ring them another hundred times and they would not register.
6165. Without the use of a piece of wire? Yes.
6166. How would you do it? By not allowing the pull to go right back. I always knew that a register would do that if it were out of order, that is, if the spring were worn or weak.
6167. Would these registers not have been much more perfect if they had been so secured by lock that they could not be opened by anyone but the properly appointed officer? I do not think that one out of every ten persons who had anything to do with the registers could read them. It is a very difficult thing to read them correctly.
6168. But they could see by looking at the register whether it had been manipulated or not? Yes, certainly.
6169. Was it not intended to lock the registers? Yes.
6170. Are they locked? No; there are only some that have locks on.
6171. So that the men who take registers at night can always look at the indicator? Yes.
6172. Can they read them? No, I do not think they can.
6173. Anyone who can read a gas-meter, I suppose, can read them? Not these registers, I think. You have to follow them through before you can read them. Sometimes I could not have read them myself had I not known what the previous reading had been. Of course I should like to say the men could read them; some of them are easier than others, and if a man put his mind to it he could learn how to read them.
6174. Have you ever seen a conductor read his register and make an entry of it in his pocket-book? I have heard of it being done, but I have never seen a conductor do it.
6175. Who told you of it? I could not say; I forget; it is a long time ago.
6176. *Mr. Brock.*] What would be the average discrepancy between a man's return and reading if he were running straight? I should say it would be almost 2 per cent.
6177. Would it come within that as a rule? Yes, as a rule.
6178. Then a man could take two tickets out of every 100 and could say to himself, "That will be all right; it is near enough"? Yes.
6179. *President.*] What is the average number of tickets a man would bring in in a day? I have known them to bring in over 4,000, but that is an exceptional number.
6180. Out of that number a man would be able to take eighty tickets without much, if any notice, being taken of it? Yes.
6181. That is, a man with a perfect reputation could pocket eighty out of that number? Yes.
6182. Does that not go to show that under any circumstances whatever these registers do not give a reliable return? I do not think they do.
6183. It is not a return under which you can fix a man? No; I do not think so. 6184.

6184. No doubt, under a proper system of registration, you would have it in your power to say to a man, "That is the number your register calls for; I want to receive exactly that number from you?" You could not do that with these registers.

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6185. Do you ever get a return exactly right? Yes; especially with the cash. We frequently get the tickets coming out right.

6186. Under the system of examining the registers once a day, how often would the return and the register come out right in regard to tickets? Perhaps twice a month it would be exactly right.

6187. Do you read the registers every trip now? No, the bags are emptied every trip, but the registers are read only once a day. As the bags are emptied the tickets are emptied into the men's boxes.

6188. Would it not be better to read the registers every trip? No; I do not think so.

6189. Would it not be better to have the registers duplicated, so that every trip you could take one register away from a man and give him another? That would not answer. It is possible to make a mistake in reading a man's register; if I read him ten wrong to-day to-morrow it would show him ten short. If the man had that register only once this would not be shown, because another man would have it. The reading is continuous from day to day, and that is a check.

6190. I could understand that if the reading came out right? The cash is generally right.

6191. Is the cash never wrong? There is frequently a penny difference in the cash, but as a rule it is right.

6192. Would it not be better to have a system of cash, by means of a register, which would record to such a nicety that you would be able to say to a man at the end of a day, "Smith, you must give me 45s. 2d.; nothing more nor less?" Yes.

6193. *Mr. Brock.*] You think it would be better to adopt a cash system altogether, and to do away with the tickets, if it would be carried out as accurately as the President suggests.

6194. *President.*] So that if a man were once wrong you could say to him, "You will be let off this time, but if this happens again you will be dismissed?" Yes.

6195. The men don't get punished now? I have heard that the Commissioner punished one man for being systematically short, but I have not heard it officially.

John William Tyrer called in, sworn, and examined:—

6196. *President.*] What is your position in the Tramway Department? I am chief clerk.

6197. How long have you been so employed? Since May, 1880—a little over eight years.

6198. Had you any previous experience in connection with tramways? None.

6199. How were you engaged before? I was in business on my own account in England, but I was in the Tramway Department before May, 1880.

6200. For how long? From February, 1880. Although I was not previously actively engaged on tramways, still I had a knowledge of them in England.

6201. In what way? From daily observation and from taking an interest in them.

6202. You were engaged in business in a city where tramways were a great deal used? Yes; in Birmingham. I was acquainted with tramways in Birmingham, Leicester, and the Black country.

6203. You have charge of the whole clerical administration of the traffic branch of the tramway, I presume? Subject to Mr. Roberts. Of course my rulings are sometimes overruled. I am not left solely to work the thing, supposing it was left to myself.

6204. Apart from that, you are responsible for the general clerical work of the traffic branch? Yes.

6205. The tramways have been worked under different systems as far as the collection of tickets is concerned? Yes.

6206. Are you satisfied with the present system? No.

6207. What have you to advance against it? It is easy for a conductor, if he is dishonest, to manipulate his fare, so as to rob the Government.

6208. We all know that; how long have you known it? I have known that has been possible ever since I have been in the Department, but you have to trust to the honor of men to a certain extent; you must do so.

6209. Why? Because no system of which I know is quite perfect.

6210. What is the defect of the present system? A man can ring short. Suppose that I am a conductor, and you are a passenger; suppose you have your wife and one or two others with you, and that you hand me (say) six tickets; I ring five times, and you say, "conductor, you only rang five." I say, "You are wrong." In such a case as that there is only your word against mine. You cannot prove your case.

6211. But could much be made in that way? Yes, at night, because a conductor could then ring considerably short, especially if the car were loaded.

6212. Why more than at any other time? As a rule the tops of the cars are very crowded, and the conductors take tickets from a number of passengers at a time, and ring very quickly. Besides, the public will not take the trouble to assist the Department to check any wrong which may be going on.

6213. My object in asking you this is to compare the present system with others; are you strongly dissatisfied with it, compared with any other system you know? To go into that question, one would require to go into the whole of the details of working. Our traffic is vastly different to the traffic in England. For instance, the cars here are made with side loading. Our ninety-seat cars have fourteen ways of ingress and egress. Consequently the conductor has not the same command over the car as if it were a single-deck car, similar to those used in London or Birmingham, or the cars used at the North Shore, with the end loading. In such cars as ours the conductor has much greater means of conducting fraud on the part of the public, because the public frequently defraud the Department by not paying their fares.

6214. We do not want to go into those details. We want you to consider the present mode of conducting the traffic. Do you consider the present system a satisfactory one. Answer the question, please, in view of that system? With the means we have at hand I think it is the best we can have in connection with the present cars.

6215. It is not so much a question of what you can do with the cars as of the reliability of the registers. What do you think of them? I think they are only reliable for a time after they are new. They have to be pulled so many times by each conductor that the wearing parts become defective; and when they get defective, as can be shown by the books, they do not always register when they ring.

6216.

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6216. Is it not a fact that with these registers the fares are never collected so as to balance with the number indicated by the machine. When I say never, I mean hardly ever? As a matter of fact the tickets do not balance, but there are many reasons to be adduced for that. For instance, a man working a heavy car may take it for granted that the passengers would give him the correct number of tickets, and he may ring in anticipation. He may not stop to count each lot of tickets he receives, and as a matter of fact he may not receive all his fares. He may take it for granted that the tickets are correct, and I have no doubt that in some cases that is the reason why the men are short.

6217. You mean that he may ring off according to the passengers rather than the number of tickets collected? Yes, he does not count them. A passenger will hand him the fares for a particular compartment. He notices that there are six persons there, and if it is a 2d. section he gives twelve rings, taking it for granted that the number of tickets given to him is correct.

6218. Is that the result of your own observation? It is. I know the difficulties of the system. You may lay down a rule that the conductor shall take the tickets separately from each passenger, but it cannot be carried out.

6219. I imagine he could not do that from the inside? Well he could do it; at least he could have four handed to him for each individual passenger; but then he would have to go round to the other side, because he could not reach from the near side to the passengers on the off side.

6220. And the carrying out of the rule in the way you suggest would depend in a great measure upon the passengers? Yes, I think that the rule is impracticable with the present traffic.

6221. Would you be surprised to hear that my observation is diametrically opposed to yours? No, but what I say is absolutely correct.

6222. My observation is that the conductors collect the tickets in the compartments, and then count them out before ringing them off? So they have at times, especially when they have seen me near.

6223. You think that they do it when they know that they are under observation? Yes, I think that some men may count the tickets before ringing off without being under observation.

6224. But as a rule you think they ring off without counting the tickets? Yes, when they are very much loaded.

6225. Then you think they over-ring? Yes.

6226. And consequently their tickets are short? Yes.

6227. Do you think they do that often? Yes, the accounts will show who is over and who is short. In the majority of cases they are over, particularly recently.

6228. As to the present registers, you admit that a balance between the tickets and the registers is not to be looked for in common fairness? In common fairness.

6229. You at once admit, therefore, that there is a margin? I do.

6230. In your opinion can any system be said to be satisfactory in which a margin has to be allowed? No; but to go into that question you must take into account not only the method of registering and collecting fares, but the particular kind of vehicles in which you have to collect them. The question must be considered as a whole. These cars of ours are particularly awkward for the men who have to manipulate them on account of their large carrying capacity and the number of sections. If a man is working on the Waverley line he has to manipulate all the Waverley passengers three times. Take the trip to the Bondi Aquarium on Sunday afternoon. The loading is specially heavy; each passenger has to pay three separate different times; then the conductor has to manage all the stoppages, see to the safety of his tram, to start it, and to collect his fares from double-deck cars. That means very heavy work; so that I think, in common justice, that if a man is a few tickets short it might be overlooked.

6231. You are getting altogether outside of my question. Do you consider satisfactory any system which admits a margin? No; I think not.

6232. I did not ask you whether you thought the men were doing the best they could, but whether you considered any system, making this margin a necessity, a perfectly satisfactory one? I meant to say "no" to that question, but to qualify my question by giving you the information I was proceeding to give.

6233. When you admit a margin of this kind is it not almost impossible to take a man to task for a discrepancy between his register and his returns? Yes; if it is just over the line.

6234. If you once admit a margin, is it not difficult to say if it shall stop at ten or twenty; if a man is able to say, "No one is able exactly to balance his tickets with his register," must you not at once admit the difficulty of bringing home to a man the charge of acting fraudulently and of punishing him for his supposed fraud? There would be a difficulty in punishing him in some circumstances, but I think some allowance might be made to cover any cases of fraud.

6235. But if you admit—and it seems to me that you have to do so—that you cannot secure a balance, you admit that there may be an irregularity, and where are you to draw the line in regard to that irregularity? That is a question which remains to be decided.

6236. Do you not think it would be better to have the registers read once a trip instead of once a day? I do not think it would be of much service in preventing them from being dishonest.

6237. Would it not give them a less chance? No; I think not.

6238. Suppose a man does eight trips in a day, and he brings in in that day 2,400 tickets; that brings his tickets on each round trip down to something like 300. If his register were checked at the end of each round trip would it not give him less chance of appropriating tickets, whether few or many? I think not, and I will tell you why. If any of these men were stealing tickets they would not take any large number at any one time for fear of missing count; they would take a certain number at each trip, of which they could easily keep count; consequently, if the registers were taken at each round trip it would not further the desired effect as a check, because they would ring short as many tickets as they had taken on each round trip.

6239. That you consider the real weakness of the present system? I do.

6240. You must surely admit that if it were possible to examine the registers at every street corner you would reduce the possibilities of fraud? Yes.

6241. Then why do you think that, by doing it at every round trip as compared with the whole day, you would not also diminish the possibilities? At the end of each outward journey there is a certain amount of dead time—5, 10, or 15 minutes—and the man would have ample time then, when the tram is lying

lying id.c, to abstract any tickets he may wish to take from his bag. Of course he will take means of doing it which will reduce the detection to a minimum. The public would be out of the car, the driver would be busy with his motor, and he would be left alone to manipulate his bag. J. W. Tyrer.

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6242. You think that nothing short of checking the register at every single trip would effect an improvement then? That might effect an improvement on the short runs, but it would not do so on the long runs. Take Botany, for instance. The distance between Waterloo and Botany is $5\frac{1}{4}$ miles, and there are few stopping places, and a man would have more ample opportunity to manipulate his bag than he would have in running between here and the railway. The only lights he would have would be those on the cars.

6243. But you are taking an exceptional line? Well, take the Waverley—4 miles 16 chains.

6244. But there is population and stopping places all along the route? He would have ample opportunity going from Queen-street along the water reserve.

6245. It seems to me that, if you have no actual check against a man under honest circumstances, you have no check at all? We have not.

6246. At the present time, with these registers, as far as I can make out, we have no satisfactory check upon the men who are doing their very best? We have not.

6247. If a system could be devised by which cash fares alone could be taken, and by which we could get rid of the sale and purchase of tickets; a system under which the cash could be so registered that the clerk could say to a conductor at the end of his journey, "You must hand £3 4s. 9d., nothing more nor less";—would not that be much better? Before you adopt such a system you would have to overcome several difficulties which occur to me.

6248. Suppose the clerk is able to say, "You must give me £3 4s. 9d.," and the register was of such a nature that there could be no get away from it, the conductor having to deliver up exactly that amount of money, or not having it, be regarded as a careless man, who would be dismissed on the recurrence of the discrepancy;—would not such a system as that be infinitely preferable to the present system? Yes; because the man would have to make up the money, whether it were missing through carelessness or misadventure, being dismissed, as you say, if the discrepancy occurred frequently.

6249. You think that would be successful? I think it would be satisfactory, but with cash fares only, bearing in mind the present charges for the sections, would it not be rather awkward for the public. In the first place they would be required to carry a number of coppers. I think you would find that they would make considerable objection to that? If you had a uniform fare of three-pence the difficulty of course would be lessened.

6250. Suppose the cash charges were on the penny principle, and suppose that the registers were such that, when the pence were once in, they would become for the time being the property of the conductor, he being able to give the passengers whatever change they might require, always requiring them to deposit the fares in the register themselves; that is, if a person entering upon a 2d. section had only a three-penny bit, he would require to get change and put in 2d.;—do you not think that such a system could be satisfactorily worked? I do not think it could be worked on our cars.

6251. Why not? On account of the number of passengers we have to carry. A conductor could not get through two cars with sufficient quickness if all the passengers had to pay in cash and he had to give change.

6252. Don't you think that, after such a system had been in vogue for a little time, people would get into the habit of carrying half-a-dozen coins instead of a bundle of tickets. If they were travellers to any extent they would have to carry a large number of copper coins. I do not think that such a scheme would find favour with the public, and I do not think the conductors would get through their work with sufficient quickness.

6253. Suppose they had not to give much change? I am taking that into account. Suppose they had not to give change they could not manipulate the fares so quickly as they could manipulate the tickets with their registers.

6254. But we have a number of penny sections? We have.

6255. Would not the majority of the passengers on those sections have their pence ready? Possibly so, if they were travelling only one section; but if they were travellers of any moment they would require to have a good stock of coppers.

6256. I am thinking of the speed with which the work could be done; take a penny section; the work could be done as quickly as it is done now, could it not;—the conductors would have nothing to do? Although they would not receive the fares in their own hands I imagine that they would have to produce a bag or a box.

6257. But that would be on the conductor's person? How would passengers on the far side of the car reach over to put their fares into the bag.

6258. You are afraid of the inside? Yes.

6259. The suggestion is forthcoming that the cars should be altered to the extent of dividing the seats, making them hold four instead of five as it were, and in fact making them like the railway cars; you know the Strathfield cars, that there is a smoker at each end holding fifteen; the back seat would still be allowed to hold five, and the same would apply to the seat at the end of the other portion of the car, so that there would not actually be so much loss of accommodation? It would decrease the carrying capacity by eight passengers.

6260. With an arrangement like that it would be impossible perhaps to have an upper-deck? Yes; and upper-decks are not desirable.

6261. This system would meet your view in this respect? Yes.

6262. When you say that upper-decks are not desirable, what do you mean? A man cannot have the control over a double-deck car that he has over a single-deck car. He has to be running up and down stairs to collect his fares.

6263. Still you recognise there is a great public convenience in the double-deck cars? They are convenient for smokers; they like to be up from the dust, and all that.

6264. Still you would forego all that? I think so.

6265. You are certainly in favour of single-deck cars? Yes; but I may supplement what I said with regard to the alteration which you propose to make in the Strathfield cars by saying that when they were loaded there would be a great difficulty in the conductor getting along through the central passage to which you refer.

6266.

- J. W. Tyrer. 6266. But bear in mind that there would be all the side openings; could not the conductor at a pinch cross from one side of the car to the other? He would sometimes have difficulty in doing that. He would have his bag or box slung round him; he would have to turn his back to someone and that would not always be pleasant. It may to some extent be unpleasant and inconvenient.
6267. Your idea is that the conductor should work down the centres of the cars to get his fares? Of course he could stretch half-way across from the step, but it is desirable that he should be outside as much as possible so as to look after the safe keeping of his car. The loss of the seating is an important item just now, because if the double deck cars are to be reduced, it stands to reason that we must have more rolling stock, or continue to overcrowd the cars very much.
6268. What is the carrying capacity of the cars in Birmingham? Thirty.
6269. I suppose that in no part of the world is the seating capacity of the cars equal to that of the cars in Sydney? I have never seen it, nor have I heard of it. Then again we have to do exceptional work; it is really railway work.
6270. You are well up in the Melbourne system? I know the system.
6271. Have you ever thought of that system as applied to this Colony? The difficulty is this: that we have two grades of fares. It might be easy to give a man two trip slips than two punches, but there is nothing to prevent him from ringing a twopenny from a penny slip. If the fares were only one grade there would be no difficulty.
6272. Still would there not be a difficulty in regard to the sale of tickets and the giving of change? Yes, in our cars it would be very difficult.
6273. There would be more to do under that system than under a penny cash system, such as I have suggested? Yes. I may say that at the inception of the tramways there was a system under which a piece was taken out of the ticket itself.
6274. What do you think of that system? It is very good providing it is applied to every round trip. We used to take 6,000 a day when the tram went to the railway alone.
6275. It was stopped because it was too slow? No, on account of the registers. Those registers only registered up to 1024. Now we have different values; then there was a 2d. section from Hunter-street to the railway.
6276. What is your opinion of the system of tearing the tickets. Not a good one.
6277. Why? A man could tear the tickets down the perforations and they would have just as good a value as ever.
6278. The conductors could do that easily? Yes, or they could take a number of tickets, put their fingers between them, and tear only a portion of them.
6279. At night on top of the cars that would be easy? Very easy.
6280. You do not think it is an improvement on the bell registers? No, because there the passengers have some audible receipt. They can hear the bell ring, although they may get cheated in the proper number of rings. When the tickets were torn they had nothing in the shape of a receipt. The thing has to be done so quickly; it is not as though the conductor could tear the ticket in front of each passenger and show it to him.
6281. Do you think that any of the conductors can read their registers? I have no doubt they can; it is just like reading a gas-meter. The locks to the registers very soon get out of order. There was a lock and a small key to each of them, but they soon got into such a condition that they could be opened with a penknife.
6282. That is a bad feature? It is.
6283. You think that they ought to have been so constructed that they could not be opened in the ordinary way? Yes, they have been repaired times without number, but the mechanism is small. At one time we had padlocks, but they were useless; the men could easily pick them.
6284. You are now of course well aware, as everyone else is, of this system of manipulating the registers by first putting them out of order inside and then putting a pin in them? Yes.
6285. When did you first hear that such a thing was possible? At the beginning of the year; I think in February.
6286. What were the circumstances? Conductor Keen came to me and informed me that Graham had told him that the registers could be manipulated. At that particular moment Mr. Roberts was out, and for the purpose of having greater privacy I took Keen into his room. A few moments afterwards Mr. Roberts came in and I informed him of the object of Keen's visit. I then left Keen with him. The thing appeared at that time to be a failure; as far as Keen's version went it could not be done; they must evidently have improved upon it. Mr. Primrose brought up a piece of wire in order that the thing might be tried, but it did not work.
6287. Who made the trial; how many were present? Mr. Primrose was there I think. I left the matter in Mr. Roberts's hands. Mr. Roberts sent for Lambert, and as far as I remember said it could not be done.
6288. What could not be done? That they could not manipulate the registers with a piece of wire so that they would not register.
6289. Did Lambert see the wire? I could not say.
6290. You were not present when Lambert was shown the register? Not at that particular moment.
6291. Were you ever present when a register was shown to Lambert in connection with a piece of wire and a pin? Yes; more recently.
6292. That was after the frauds became public? Yes; he showed me where they had filed the ratchets.
6293. As a matter of fact you do not know that this question was put to Lambert at all, that is as to the possibility of doing the thing by the insertion of a wire? No I do not think it was when I was present.
6294. Did Keen say that he had done it, or that Graham had told him that it could be done? They were to find out from Graham I think how it was to be done. Keen did not say that he had done it, as far as I can remember.
6295. Was there any idea in your mind or in the mind of anyone else in the office that Keen had done it? Not in mine.
6296. Would you be surprised to hear that Keen positively states that when Graham told him that it could be done, he being curious took his own register home, tried the thing and succeeded in doing it with it before he reported the matter to you? I should not be surprised because naturally he would not tell me that he had succeeded.

6297. Why not? If it were known that he had done it the question would arise as to how long he had done it for his own benefit. J. W. Tyrer.
6298. And another question which arises is, that in order that the thing might be successfully done the register must first be put out of order by someone? It must have been put out of order, or it must have been worn. 12 Sept., 1888.
6299. But as far as you heard Keen made no suggestion that he could do it himself? No.
6300. He merely carried the story from Graham? He came to give information for the benefit of the Department, at least his action had that appearance.
6301. His statement is that he was told by Graham when riding on the top of a car, and that being interested as soon as he got home he made a trial for himself, and having succeeded, at once went to Mr. Roberts or to yourself and told of the matter? I cannot say that he came immediately after.
6302. Then or the next morning? I know that he came in the morning, but he did not tell me that he had tried it himself.
6303. He does say that he did, although he found that Mr. Roberts, Mr. Primrose, and yourself ridiculed the thing, so to speak. Notwithstanding this it never occurred to him to say, "It can be done; I have done it?" He failed to do it that morning.
6304. He tried to do it? Yes. He got pieces of wire of various thicknesses and it was tried, but we failed to do it on that particular register.
6305. Was Mr. Primrose in the room with Mr. Roberts when Lambert was sent for? That I cannot say. Mr. Primrose could tell you about the wire because he brought it.
6306. Did he bring it to you? No; it was when Lambert was there, I understood.
6307. You saw him going into the room with the wire? No; but he told me he took a piece of wire up; and that they had tried it with pins and with the wire.
6308. Had you ever had any inkling before that that anything of this kind was being done? No.
6309. And you were given to understand at this particular time that it was not to be done? No; I was told that it had been done but that they had failed to do it.
6310. Did you not hear, after the interview between Mr. Roberts and Lambert, that it was all moonshine and that the thing could not be done? If my memory serves me right, Mr. Roberts came over to Mr. Vernon, but I do not know the result of his interview.
6311. Did he not say to you afterwards "It is all moonshine, it cannot be done"? He said it could not be done; but I did not know the result of his interview with Mr. Vernon.
6312. Did he not say that Lambert had reported that it could not be done? Yes; but I was not in the room when he said so; that is simple hearsay.
6313. We had under our notice the other day a case in which a conductor was allowed to hold his register for some time without giving in the return. On our asking the clerk why this was done, his reply was that he had no control over the matter, that he did not know what conductors were running, and that, therefore, he did not look for certain conductors to come up; if they came up, well and good, he took the registers; if not, he left them alone. It was shown that a certain man did not bring in his register between a Wednesday and a Saturday. I believe it has been satisfactorily explained that when he went to work again he was put to car-cleaning. Is not a system which permits of such a state of things a bad one? Well that is a weak point.
6314. Could it not be easily remedied? As soon as I knew of it I gave instructions that a daily list of the men absent should be sent up to both Mr. Primrose and the audit, and that all the men, excepting those on that list, should account for their registers. Then came the question as to whether those who were sick should not be compelled to send down their bells and bags to be kept in the office.
6315. Under proper system a clerk at the end of the day would say "Here is Smith or Jones, who has not come in, and he is not on the absentee list"? The man would be reported in writing and action would be taken. As to the bells and bags being in possession of the men, there are certain runs where, from the necessities of the case, it would appear to be inevitable; for instance, the man doing the last trip to Botany has his bag and bells in his possession until he comes in the next morning.
6316. Don't you think any system which allows a conductor to take his register home at night is an entirely wrong one? Yes, if all men are to be treated as dishonest, but it seems to me that you must place a certain amount of trust in them.
6317. But when you are instituting a check of any kind don't you treat every man as being dishonest; if you wholly trusted men you would have no check at all? Yes, that is so.
6318. Does it not seem to you that this manipulation of the registers would never have been heard of if the men had not had this opportunity at home of seeing how their registers were worked, and of satisfying their curiosity by opening them? Naturally, if the registers were not taken home, there would be much less chance of that being done.
6319. What would be necessary in order to remedy this defect? As far as I can see, one of two things. Either the men must come back to Sydney at night, or a trusted officer must go out and take their registers. Of course it would be expensive for them to come back again. The motor of the last trams to the various outside terminal stations leaves the cars and runs in light.
6320. As a rule the chances of fraud on that last trip are very small, providing the registers were taken up to that point? Yes; they are small.
6321. But would not the chances of loss be sufficient to warrant your having a junior clerk at each place, to take the registers after the last trip and bring them to some central place? I am afraid it would cost more to do that than the trips would earn.
6322. What would it cost? Take Botany for instance. Someone would have to be there at 12.10. How could the man get back to Sydney. At Marrickville a man would be required at 11.55. He would have to travel 5 miles odd. From Coogee he would have to travel 6 miles; and twelve changes at 12 o'clock at night three times a week.
6323. I suppose you do not know of any other place where the men are allowed to have their registers at home? I am not aware that it is allowed anywhere else, but here we have such a different system of tramways. The case of other countries is not at all parallel, as far as I can learn.
6324. But in other places they have terminal stations, have they not? Yes. I forgot just now to mention Waverley, a distance of 4 miles. A man would require to be there at 12.3, and afterwards to travel into town.

- J. W. Tyrer. 6325. Would it not pay us to have at our principal termini a station clerk who would take the registers on every trip, night and day? That would be an extra check during the day as well.
- 12 Sept., 1888. 6326. It would be an extra check. It would not give so much opportunity for fraud, but it seems to me that the men could still perpetrate it.
6327. How? On the journey.
6328. If you bring the manipulation down to the journey you reduce it very considerably? You would reduce it, but I think you would find that the conductors would make a certain number of tickets out of each trip. They would ring that number short, and I do not think you would catch them.
6329. Does the conductor of the last Botany tram come back to Bridge-street? No.
6330. Could you not have a station clerk at Queen-street, and make him take up all the bags on the last trip? Then there would be two sections to Waverley and two to Bondi.
6331. How many persons do you think it would be necessary to employ to prevent the taking of the registers home at night? Twelve; in fact more.
6332. Would you want one at Moore Park? No.
6333. Would you require one at Randwick? Yes, and on three nights a week at Coogee; then you would want two for the Waterloo and Botany line. Of course if the checking were carried out all day you would require a double shift.
6334. *Mr. Brock.*] Could not the clerks at the terminal stations be made ticket-vendors? I do not think that would be advisable, for several reasons.
6335. *President.*] But if it were proposed to abolish the present mode of sale, and to increase the number of Government salesmen, you would have to place salesmen at all the termini and at all the waiting-rooms in town. The men appointed for that purpose would perhaps be able to take this night duty with the bells and bags? They could not do the two duties of reading the registers and selling the tickets, because if there was much traffic, while they were engaged in reading the registers people would be applying for tickets. I do not think they could discharge the dual duty.
6336. I do not mean that they should read the registers all day? Of course it could be done the last thing at night.
6337. Don't you think there would be time to read the registers at the termini. Remember that the trams stop a quarter of an hour at some places? There might be time at an outside termini.
6338. Don't you think that either the American or the Melbourne system, or the cash system, such as that which we have suggested to you, if it could be satisfactorily worked, would be an improvement on the present system? If it could be worked. I have given you my idea as to some of the difficulties which I am afraid would crop up. Of course, with the qualifications I have named, those systems would be better; but there is the difficulty of our sections being of two denominations. That would apply to both of the systems you have named. Before the cash system was withdrawn we were sometimes sadly pushed to get change in coppers even for the men. The withdrawal of the cash system meant a loss of about £10,000 a year. In 1884, the penny sections were a penny cash or a ticket; there was no fine upon a penny section.
6339. Now you put on such a heavy fine on the 1d. sections that the people carry tickets? Yes.
6340. If they had only to pay 1d. on a 1d. section and 3d. on a 2d. section, a number of those who invariably carry tickets would pay cash? Yes, that is so.
6341. At present a man not provided with tickets would have to pay 7d. out to Leichhardt; but under the previous system he could get out to Leichhardt for 5d. cash, and he did not trouble much about the tickets? Exactly.
6342. Now they carry tickets more generally? Yes. You have also to consider the fine attached to the sale of tickets.
6343. *Mr. Brock.*] You are not allowed to buy tickets from anyone now? No; whenever I see it I invariably warn people.
6344. *President.*] You admit that it is a bad thing that the men should be allowed to retain their registers and their takings for any time. Is it not a fact that on the North Shore line the men are sometimes the whole week without giving in their returns? Yes. I do not know whether a man has been for a week there, but I know he has had them for some days. Two men are sent over there at the proper time to collect the tickets, and to read the registers; but the Superintendent tells men to go away, and does not make provision for their registers to be taken. We are not responsible for that. We provide for the reading of the registers and the collection of the fares at the proper schedule time. In the case to which you are referring the man is relieved earlier; he is a spare man.
6345. What would it have been necessary for you to do to secure the collection of his bag? The Superintendent should instruct him to be there at the scheduled time.
6346. But what would you have to do under the circumstances? We should have to be advised of the time the man was leaving duty, and then we should have to send over two men specially.
6347. Is it not a pity that you have anything to do with that line. You have nothing to do with the management; how are you introduced into the collection of the registers? Well we had the traffic and all in the first instance, but the Minister or Commissioner said that as the thing was so small it ought not to be under two heads; and we continued to gather the tickets and read the registers.
6348. You have always done that? Yes.
6349. That is taking the management out of the proper hands? Well, I think it is a debatable point as to who should manage it. I think the loco. should simply provide the machinery for removing the cable, and that we should continue.
6350. I am speaking of what exists. The Locomotive Superintendent is the general manager of the North Shore line? Yes.
6351. Then it is quite irregular for the traffic manager of the city lines to interfere at all. It seems to me that the traffic manager of the city lines should have no interference whatever? If not, expense will be incurred, because a separate officer would have to be told off to do the collection, and for such a small thing it would not be worth while.
6352. Has he not a foreman or leading man over there? No. Mr. Brown, the running foreman, looks after the traffic at the Shore.
6353. So that it is absolutely necessary to find some one from your office to do this work? Yes.
6354. And the complaint is that this officer of yours does not go over sufficiently often? Well there is a scheduled time for the bags to be emptied; the fault lies in the spare man, to whom you refer to, not being there at the appointed time.
- 6355.

6355. Has it not occurred generally with regard to other men? No; I think not. That is the only case J. W. Tyrer, which has been brought under my notice.
6356. In another case, that of conductor Wilson, the relief time being between 2:45 and 3:41 p.m., the ^{12 Sept., 1888.} conductor had leave to go at 12 o'clock;—what did the Loco. Department expect you to do on that occasion. Were you expected to send a clerk over at 12 o'clock to take that one man's register? We did not know that he was away.
6357. What is the position you have taken up. Have you objected to sending over at these wrong hours to collect, or have you said, "You must notify us when a man is being relieved at these irregular hours, and we will then send someone"? I have said that the loco. should make arrangements for our having the register and the bag when they give a man leave. I do not think we should send over to take one man's bag.
6358. It would be a very expensive thing? Of course it would. I think I have reported to that effect.
6359. It would really mean sending one man from the Audit Branch and another man from the Traffic Branch to collect this one man's returns? Yes.
6360. The collection of a return would possibly cost more than the total of the collection itself? Yes.
6361. If it is said therefore that the time at which the men leave and start work does not interfere with this question at all, and if a proper system were introduced they could leave at any time, that would be entirely incorrect? Most decidedly.
6362. Because if the men leave at any time you would require a resident officer from the Traffic Branch, and a resident officer representing the Audit Branch? Yes. If they want their men to be relieved at certain times they must make arrangements accordingly.
6363. There would be no difficulty in making this note against the day's return—that such and such a man had not given in his bag? There was nothing in the case to which you refer to show that the man was on duty. They say that the schedule showing the men on duty is readily accessible every day; but I do not know that it is so.
6364. Do I understand you to say that this irregularity in connection with the North Shore line is not a frequent occurrence, and that it only occurs in reference to spare conductors, for instance? To my knowledge, that is all.
6365. Even if you were to be asked to send over your man for these irregular returns, it would be absolutely necessary that you should be advised by some one when you had to send? Most decidedly.
6366. And you have not had that advice? No; that is what I have said.
6367. What is your opinion of Lambert as a register repairer? The only thing I can say is just by way of comparison. As regards his mechanical abilities I cannot say anything. I think he has repaired them better than we had them repaired by Smart and Felton.
6368. Who is Smart? A watchmaker in Market-street. He was introduced to us by the gentleman who brought us the registers.
6369. What led you to discontinue Smart's services? He repaired the registers so wretchedly. I think they were frequently taken to him and brought back again in their former condition.
6370. What led to Lambert being employed? There were complaints about Felton, and Lambert applied for the position. In support of his application he produced a character from some one in New Zealand for whom he had worked as a machinist.
6371. Do I understand that Felton followed Smart? Yes.
6372. And there was no great improvement? There was for some time. At first there was an improvement as compared with Smart's work; but latterly, whether it was owing to Felton not being so careful, or whether it was due to the extra wear and tear of the registers, I could not say—the work was not so good.
6373. I presume that Mr. Felton having to superintend the watch repairs could not give his personal attention to the registers? I suppose not.
6374. *Mr. Brock.*] Do you know the name of the second applicant at the time Lambert was appointed? I do not remember.
6375. You know that there was a second applicant? Yes; I remember that now, but I do not remember his name. I know that he had one of the registers, and that he made certain supposed improvements.
6376. He took the ratchet out? He took some part of the machinery out—I do not know what it was.
6377. And when it was handed over to you it would ring without registering? It would.
6378. *President.*] Do you remember that when this person sent in his register repaired, as it was alleged to be, it was submitted to Lambert? It was.
6379. Did that not seem to you rather a singular mode of procedure? Personally, I should not have done it. This man was submitting a tender offering to repair the registers at a cut-down price. In any case Lambert was particularly affected if this man's offer should be accepted.
6380. And if it had been Lambert would have been left out in the cold? He would.
6381. Was it not an extraordinary thing, under such circumstances, to submit the register to Lambert? It was.
6382. By whom was it done? By Mr. Roberts.
6383. But apart from all that you have good faith in Lambert? As I said just now, he has repaired the registers better than anyone we have had before, but I cannot speak as to his qualifications as a mechanic.
6384. You find that there are far less complaints now than when the other two men had the repairing? Yes. The registers are better repaired than they were by the other two men.
6385. Has not Oakes ever impressed upon you that these registers were unsatisfactory? I knew that before Oakes had anything to do with them. He has mentioned it.
6386. You have spoken rather favourably of the registers, if I understand you correctly? I have said they were not reliable.
6387. But you said you thought that they were as good as any other system which could be devised? For the particular work on our cars.
6388. Still the objection, we understand, that Oakes has made to them goes further than that; he has considered from the first that they were very unreliable, and very apt to get out of order? I think you will find that I said that they would keep in order for some time after they were new, but that afterwards they were not reliable.
6389. The reports made by Oakes occasionally were not, in your opinion, sufficient to warrant you in recommending a discontinuance of the system? I occupy a somewhat peculiar position. I am simply the Chief Clerk, and I have merely to carry out my orders. 6390.

- J. W. Tyrer, 6390. You have not been called upon for an opinion in the matter? No.
- 12 Sept., 1898. 6391. Do you believe in the tearing of the tickets? No.
6392. Were you consulted in regard to that system? No.
6393. Did Mr. Roberts introduce it, do you know? No, he did not.
6394. When you went back from the tearing of the tickets to the register, were you consulted? No.
6395. If I understand you correctly, if you had been consulted when the tearing system had been introduced you would have been opposed to it? I should.
6396. And if you had been consulted when the proposition to return to the registers was made, would you have been in favour of it? Yes, as between that and the tearing system.
6397. Do the conductors come much in contact with you? Pretty frequently.
6398. Are you well able to judge of their character and efficiency as conductors and so forth? Fairly well.
6399. Are there many men with whom you are dissatisfied? Yes, a fair number.
6400. And in what respect are you dissatisfied with them? Some of them are slovenly, and have not sufficient polish for the position they hold, and some of them I should not like to trust.
6401. Will you tell us of those you would not like to trust? You place me in rather an awkward position. As you are fully aware our men have not to pass any examination by me or by any other officer; we simply have instructions to put on a certain man, and he is put on if there is a vacancy, irrespective of whether he is fit for the position or not. If a man does wrong he is punished. The next thing is, that he goes to half-a-dozen Members of Parliament, and what we have done is to be practically undone. Under these circumstances what is the good of my saying anything about the matter.
6402. You must not argue the matter in that way; you are here to answer questions. I have asked you a question, and I think it is a perfectly fair one? I should prefer to run through the names of the men first, and to give you the information afterwards.
6403. Will you give us further information then as to these men you consider unreliable? Yes. Will you excuse me pressing the point—that the information I give you has to be considered private,
6404. Not altogether private? You see the position in which I am placed. I have to get my living. You know how these things are done. I do not wish to imperil my position. If I were an independent man it would be a very different thing altogether.
6405. I cannot see that. I think it is your bounden duty to give the names. Mind you should have grounds for what you say? I have no proof; that is why the question is difficult to answer; it is only my impression of the men, and if I were in business myself there are certain men whom I would not employ.
6406. Exactly. We should like to have the names of the men whom, if you were in charge of the concern yourself, you would not employ? I said if I were in business myself.
6407. If the concern were yours, then, give us the names of the men whose services you would dispense with? I will give you the information later on. The question is, to my mind, a very important one, and it is one which may affect me. I should prefer, therefore, to be very careful in giving you an answer.
6408. I do not see how it can affect you. It is exceedingly desirable, in view of this Commission having been appointed, that you should give us all the information you can? If I had absolute proof in any case that I might give to you I should be perfectly safe, because I could say, "It is known that so and so did such and such a thing." The cases to which I refer are not those in which I have any proof of that kind. I have formed suspicions only from my own observation, consequently I am not in a position to give you the definite information which I should imagine you would require.
6409. Would your suspicions be sufficient for you to act upon if the service belonged to yourself? Yes, because I should then be free and independent; I should be my own master.
6410. *Mr. Brock.*] What is your opinion of Greeley? I certainly would not employ him. I have put almost as much in writing in connection with the case in which the tickets were found in the pocket.
6411. What is your opinion of that case? I think the tickets were planted there.
6412. Were you disinclined to credit the story that the coat had been borrowed for seven weeks? I do not discredit that, but the statements made to me were of such a nature that I do not think Greeley was telling the truth, and his great reluctance to give his version to me in writing strengthened that impression. I had to tell him that I would give him half an hour, and if he did not do so I would suspend him.
6413. Why did he say anything about the tickets at all—he volunteered the information? No; it was dragged out of him. He makes a mistake; he goes to a public-house while on duty, and takes with him the driver; then he tells one of the special conductors, Moran, that he had been to have this drink, and that he put his hand in his pocket. It was a hot day for a man to be wearing an overcoat at 10 o'clock in the morning. He puts his hand into his pocket and pulls out the tram-tickets.
6414. Why did he pull them out? He did it unthinkingly. He pulled out the tickets, and the driver drew his attention to them, and said, "What have you got in your hand?"
6415. I doubt if I understand your mode of reasoning on this question: you doubt the man's statement about the overcoat? It is strange that he should have had it on on such a warm day.
6416. Do you consider the mode of finding the tickets was invented;—do you think that the whole story as to how they were found was a yarn? Not as to how they were found—there was a witness.
6417. Then it does not seem to me that the overcoat matters very much;—it was not necessary for him to wear an overcoat in order to carry the tickets? No.
6418. At any rate you doubt Greeley's statement in connection with these tickets? Yes.
6419. You think he stole the tickets himself? I do not think the man he charges with putting the tickets there did so.
6420. What is your opinion of Tunks? I think he is a decent fellow.
6421. You do not think he would have done such a thing? I do not think so.
6422. That makes you suspect Greeley? That, combined with the fact that he seemed reluctant to put his statement in writing. As soon as the thing was reported to me verbally I made Moran put his statement in writing, and then I sent for Greeley, and I eventually obtained his statement in writing; then I had the driver, and put the matter privately, without registering it, before Mr. Vernon. Of course we could prove nothing.

6423. *President.*] The way you have spoken about Greeley leads me to suggest an amèndment in the question, which I put to you originally. We want you to mention only such men as you have some cause for suspecting; you had no hesitation in saying what you said about Greeley? No; because I had the case in writing. J. W. Tyrel.
12 Sept., 1888.

6424. In asking you to let us know what men you suspect, I mean you to mention only such men as, from their habits, or something in connection with them, you know that you have good ground for suspecting; I did not mean you to name men under circumstances of such a doubtful character as would possibly jeopardise your position? I understand that.

6425. Now, I will ask you a question about another conductor who is either dishonest or a very ill-used man;—what do you know of Boyd? I know nothing about him.

6426. Do you know him? I do.

6427. Do you know his private character? I do not know his private character. He comes under my observation only when on duty.

6428. What do you know of his official character? I think he is a man who does his work.

6429. Do you think he is perfectly honest? I have no reason to think otherwise.

6430. What do you think of Archibald Fraser? I do not think much of him. I never did.

6431. You never heard of a report made by Inspector Bremner in reference to Boyd some months ago collecting his tickets without tearing them or ringing his bell? No; we have had no charge of that kind. If such were the case why did not Inspector Bremner report it at once.

6432. We do not wish you to give information which will injure yourself, but we should like to know the names of the men you suspect? I will give you any information in my power which I believe to be reliable.

6433. In regard to some of the men whom you suspect, but in connection with whom you have no tangible ground for suspicion, it might be well for you to give the Commission the names in confidence, so that they may be guided in coming to conclusions; we should not act purely upon your report, but it might, with other circumstances, lead us to a conclusion in regard to certain men? Yes; I understand that, and will give you the information.

Albert Frederick Primrose called in, sworn, and examined:—

6434. *President.*] What is your position in the Department? I am in charge of the receiving office.

6435. How long have you been with the Department? I have been in the Tramway Office seven or eight years. A. F.
Primrose.
12 Sept., 1888.

6436. Do you remember some months ago a conductor named Keen coming in with a story about the possibility of manipulating the registers? I do.

6437. What did he say? Mr. Roberts came down and asked me to get him a pair of registers and a piece of wire. I took them up to Mr. Roberts's room. Keen was there. I heard him say that the conductors had been manipulating the registers by inserting a piece of wire. Mr. Roberts gave him the register and a piece of wire and asked him to do it. He put the piece of wire in, but he could not make the registers work.

6438. Did anyone else try it? I saw Mr. Roberts try it.

6439. Did you try it? I believe I did, and I could not make it work.

6440. When you had all failed to make it work, what was the next step taken? Mr. Roberts asked me to leave the register with him, and said he would see Lambert. That is all I know about it.

6441. Was Lambert sent for? That I cannot say. I heard Mr. Roberts say he would send for him, and I am under the impression that he did send.

6442. But you did not see Lambert with him? I do not remember seeing Lambert examining the bells with him—not that day.

6443. Have you ever seen him examining any registers with Mr. Roberts at Mr. Roberts's request? No, I do not think so; not that I remember.

6444. Did not Mr. Roberts tell you subsequently that Lambert had seen the registers you had taken up, and had made a certain statement with regard to them? I heard Mr. Roberts say that Lambert had said that they were all right; then the matter dropped, as far as I was concerned. After Mr. Roberts had said that I thought there was nothing in it.

6445. That is all you know about the matter? I never heard anything more about it until I saw something about the frauds in the papers.

6446. You are quite sure that you did not either go for Lambert, or that you did not see him with Mr. Roberts on that occasion? I am certain that I never went for him, and I am certain that Mr. Roberts said that he would see Lambert.

6447. But as far as you know, did he see him? I only know from what he told me afterwards.

6448. Therefore you cannot say that a piece of wire was exhibited to Lambert, and that he was asked whether this thing could be done or not? No.

William Lambert recalled and further examined:—

6449. *President.*] We have sent for you again in reference to a little discrepancy which exists between your evidence and that of Mr. Roberts's with regard to the possibility of the manipulation of the registers with a pin or a piece of wire. Mr. Roberts positively asserts that on the occasion of a conductor named Keen bringing this thing under his notice—that is, that it was possible under certain circumstances to manipulate the register by the insertion of a piece of wire at the foot—he sent for you, and showed you the register with which he had been endeavouring to do it. He also states that he showed you a piece of wire, and that you reported that it was impossible to do the thing in the way suggested? The only time he mentioned anything to me about a piece of wire was in connection with the four pair of registers. W. Lambert.
12 Sept., 1888.

6450. That was after the disclosures were made? Exactly.

6451. I asked him distinctly upon that point, and he said that it was five months ago when Keen came to him with the statement that the registers could be manipulated. Now, I may tell you that we traced you beyond doubt on that occasion to Mr. Roberts. You were seen going into his office and you were seen

W. Lambert.
12 Sept., 1888.

seen coming out again. His statement is that he introduced the subject to you, that is, as to the possibility of doing the thing with a piece of wire. This is a very important point indeed. Mr. Roberts was very positive about it, and he states in effect that understanding that you said that it could not be done with a piece of wire, he told Moran about the impossibility of the thing, the result being that Moran discontinued any effort to trace that kind of fraud. We want you to remember very particularly what occurred at this interview with Mr. Roberts on the subject of the registers? The first time Mr. Roberts asked me any question with reference to a pair of registers and a piece of wire was when he handed me the four pairs. As I told you before, I did not have any interview with Mr. Roberts with reference to any register and a piece of wire afterwards. I think you asked me if I had had any interview with Mr. Roberts as to a pair of registers. I had almost forgotten it, but it came to my recollection that about the time you mention he did call me into his room. I will not be sure that he did not send for me. I am under the impression that he did do so.

6451½. That is five months ago? It may be. I believe he sent for me because I had my screw-driver with me when I went into his office. He showed me a pair of registers, and I examined them. He said, "Are they in good order?" I said, "Yes." He said nothing about a pin, in fact he said nothing about the circumstances under which they were being examined. That is all that took place. He said, "Are they reliable," and I said, "Yes."

6452. There would be no force or reason in such a communication as that, because the registers submitted to you were only an ordinary pair of registers handed to him by Mr. Primrose with which to make a certain experiment. What object could he have had in asking you simply if the registers were in good order? I cannot say. I know nothing of the circumstances. I did not know where the registers came from.

6453. That was the only question put to you. You were asked to examine the registers and see if they were in good order? That is the only question, I am on my oath, and I say that no word whatever was said in reference to the possibility of the registers being manipulated in the way they apparently had been. There was no question as to a pin or a piece of wire. I have no object in telling you anything but the truth, because it could not affect me in any way.

6454. It is difficult for us to understand that you had this interview with Mr. Roberts which you yourself admit, and to which we are able to trace you, and that the whole conversation should be as to whether that pair of registers was in order or not. We know from what others have told us that there was no question as to those registers being in order or not. The question was whether they could be manipulated with a pin or a piece of wire? I was never asked a question of that kind. The piece of wire was never mentioned to me prior to my receipt of the four pair of registers which I have already mentioned. I know nothing of the circumstances under which this particular pair of registers was submitted to me for examination. I know that I opened them, and that Mr. Roberts said, "Are they in good order? Are they reliable?" I said "Yes," and he said "That is all I want to know."

6455. I cannot conceive what object Mr. Roberts could have had in asking you such a question. After Keen's statement he went over to Mr. Vernon, and concluded to send all the way out to Newtown for you, and you would have us believe that he did so merely to ask you a question which he could have answered perfectly well himself? As far as the manipulation of the registers is concerned I have known of it since I undertook the job of repairing. Anyone who knows anything about mechanism will know that it is so.

6456. And you say you told Mr. Roberts this? Yes.

6457. How long ago is that? At the end of November, 1885. Three years ago. Mr. Tyrer, Mr. Primrose, and I think Mr. Knox were all present.

6458. I think you have already told us that you have a good opinion of those registers? I have.

6459. Is it not a fact that Mr. Oakes and others, officers of the Department, have had a very bad opinion of them? I am not aware of it. I always understood that all except Mr. Primrose thought that they were the best checks we could have.

6460. Is it not true that Mr. Oakes from the first hour has always had a very poor opinion of them, that he often combatted the matter with you; that you have had frequent arguments on the subject; and that you have praised the registers up, while he has run them down? No; I do not remember his arguing against the registers at all.

6461. You are sure that he has never mentioned the subject to you? We have often talked the subject over.

6462. According to Mr. Oakes, you have often had arguments on the subject, in which you have been for the registers and he has been against them? I don't remember his being against them in that way. I know that Mr. Primrose was always against them.

6463. Bearing in mind that Mr. Oakes is bred under Mr. Primrose, as it were, is it not possible that he may have had the same idea? I hardly think that Mr. Primrose and Mr. Oakes would have the same opportunity of judging of the general usefulness of the registers as one in my position would have.

6464. That is not the point. We are rather seeking to get from you a confirmation of the statement that Oakes has repeatedly argued with you against the registers, while you have defended them? I do not remember it. I have heard conversations in which Mr. Oakes has spoken in such a way as would lead me to suppose that he was rather favourable to them. I think I have heard him say that he could not see anything as a substitute for them.

6465. A man may easily think badly of a thing, and at the same time shrug his shoulders and say, "I cannot see any help for it"? I cannot say that I recollect Mr. Oakes arguing against them, but I know that Mr. Primrose did.

6466. But you are absolutely certain as to what passed between yourself and Mr. Roberts, and that he never before the disclosures mentioned to you the possibility of manipulating the registers with a pin or a piece of wire? No; never prior to my taking the four pairs.

THURSDAY, 13 SEPTEMBER, 1888.

Present:—

A. RICHARDSON, Esq., PRESIDENT.

F. A. BROCK, Esq., J.P.

William Hannam recalled and further examined:—

6467. *President.*] We have recalled you because we are not altogether satisfied, from what has since come under our notice, that you gave us fully all that passed between yourself and Musgrave;—when you were here before you told us of certain overtures which Musgrave made to you, and of a meeting at Waverley which had been arranged? Yes, I remember that. W. Hannam.
13 Sept., 1888.
6468. But we think that you could give us further details if you would only do so? I told you all the particulars. Of course I could not recollect the exact words Musgrave made use of. It is seven or eight months ago, and I did not take much notice of the man at the time.
6469. Is it not a fact that you have been or are on very intimate terms with Musgrave? No, it is not.
6470. Have you not repeatedly been in close conversation with him? No.
6471. Never? Well on the two occasions I mentioned—those were the only times.
6472. You were not in the habit of frequently meeting Musgrave outside the work? No.
6473. What is this that we hear about your taking a woman on to your car out to Forest Lodge some time ago; we understand that you took her up in the street, and that you invited her to ride with you? I don't know anything about it further than that this person came on to the car, and paid her fare like an ordinary passenger. She went to Glebe Point. I gave Mr. Roberts the particulars about it when he asked me.
6474. And are you now giving us the particulars? I am not telling you the exact details. All I know is that this young person went out to Glebe Point with me.
6475. Who was she? She is a servant girl in the city.
6476. Do you know her? I don't know her intimately.
6477. Still you knew something of her? Yes.
6478. Did you invite her to get on to the tram? I didn't invite her exactly. I put up my hand.
6479. Was she intending to ride with you before you put up your hand? I could not say.
6480. But when you did that she came on to the tram? Yes; and went out to Glebe Point with me.
6481. And do you mean to tell us that she paid her fare out there? I do.
6482. Although you had to waive her on to the tram? Yes.
6483. What happened when you went to Glebe Point? When we got there we had about 8 minutes. I went on to the side of the road about 50 yards from the tram, and we stopped there talking until a couple of minutes of the time to go. She then got up on to the tram again, and came back to Sydney.
6484. And do you mean to sit there and tell us that she paid her fare both out and in? Yes, I do.
6485. You expect us to believe it? You can please yourselves about that.
6486. You must admit yourself that it is rather an extraordinary story. This woman had no business at Glebe Point, except to take a pleasure-ride with you. According to your own showing, on your arrival at Glebe Point she merely had a chat with you, and then came back again to Sydney; that is, she paid 4d. simply for the pleasure of this few minutes chat with you at Glebe Point? Yes. Do you think she would sit in the tram with other passengers and not pay her fare?
6487. You are asking us questions now? Well, it is rather an insult to offer to a man to say that a young person would get on to his tram and not pay her fare.
6488. You regard that suggestion in the light of an insult? Yes.
6489. Did you allow the general public travelling on your tram to see you waive this young girl on to it? I don't know whether they saw me or not. I didn't make any secret about putting up my hand.
6490. Since you speak about insult, do you think that this was a respectable and reputable thing for you to do—to call a young woman out of a street in Sydney on to your tram, and to take her out with you on your car to Glebe Point, and bring her back again to Sydney? I don't see any harm. I merely put up my hand, that is all I did.
6491. On the journey out and on the journey in where was she sitting? Inside the car.
6492. Did you have any conversation with her during either of the journeys? I don't think so; I may have spoken; I could not say for certain that we had no conversation; perhaps I spoke to her as I passed on, that is all.
6493. Does it stand to reason that a young woman would go out in your tram with you in this way, paying her fare both ways, and having no conversation with you on the journey, merely for the sake of 5 or 8 minutes chat with you at Glebe Point? Yes, I think so. She is a young person I have known for a few months. We had nothing very particular to talk about.
6494. What did you talk about? Not anything connected with the tramways.
6495. I don't suppose you did; but what did you talk about. It must have been something very important for a young woman to waste her time, and to pay 4d. out of her own pocket? I don't recollect what we talked about. It was not very much anyhow.
6496. But you state positively that all you did at Glebe Point was to have this conversation with her? That was all.
6497. Nothing further was done? Nothing further.
6498. Did you not tell Mr. Roberts that she did not pay her fare? I did not.
6499. You are sure of that? I am positive about it.
6500. Where was she when you called her on to your tram? At Market-street.
6501. You are sure it was not at Belmore Park? Positive.
6502. What was she doing there on the footpath? I could not tell you.
6503. Was she standing or walking? She was standing.
6504. She was not going to Glebe Point, I imagine? I could not say. I don't suppose she was.
6505. Is this the first and only time this young woman has ridden on your tram? I think she has done so once or twice before.
6506. In the same way—just taken a trip out and home? I could not say that.

- W. Hannam. 6507. I don't mean riding in the tram in the regular way on these last occasions, but taking a trip as on this occasion just for the sake of a little conversation with you? I think she has done so once before.
 13 Sept., 1888. 6508. On the same line? No.
 6509. You are not permanently on any line? No. I am an assistant conductor.
 6510. You are a married man? Yes.
 6511. Have you not had some little trouble at home about these trips? None whatever.
 6512. Have they not reached your wife's ears in any way? No.
 6513. You don't think this was a very regular proceeding on your part? It may have been irregular as regards my conduct; but not as regards my calling. I admit that I did wrong as regards my own affairs.
 6514. Yet when the suggestion was made to you just now you regarded it in the light of an insult from the Commission? That was about not paying the fare. I would not allow my own wife to travel without paying her fare, to say nothing of anyone else.
 6515. But you told Mr. Roberts I understand that this young woman did not pay her fare? I swear I did nothing of the kind.
 6516. And you are still quite sure that she did pay her fare? I am positive.
 6517. Two pence on each occasion? Two pence on each occasion.
 6518. Did you refund the money to her out of your own purse? I did not.
 6519. She was at the cost of the trip? She was.
 6520. Did you give her anything at all? I did not.
 6521. Have you ever given her any money? I have not.
 6522. Why did you hesitate in answering that question? I had to think about it.
 6523. Are you positive that you have never done so? I am positive. I never gave her sixpence.
 6524. Do I understand you to distinctly deny that neither on nor off duty you have had any frequent or close conversations with Musgrave? Never. I don't think I have ever spoken to Musgrave twice off the job since I have been here.
 6525. If others have told us as positively that you have been seen doing so, they are saying that which is not true? They are telling a falsehood. I may have been once in his company off the trams off duty. I don't quite recollect, but I have never hardly spoken to him off the job. He spoke to me twice on the cars when we were working.
 6526. But only once in your life off duty? Yes.
 6527. What do you do with yourself at night-time? I stop at home.
 6528. You don't frequent any of these betting-rooms? No; I never go out once I get home.
 6529. Or do any gambling or anything of that kind? No; I never gamble.
 6530. Have you never had meetings with this young woman at night? No.
 6531. You must admit that it is a most suspicious circumstance, whether you are inclined to feel insulted or not, your riding with her in the car in this way. You must admit yourself as a man of common sense that the case looks very bad? I don't see it. A young lady gets up on to my car and pays her fare. I cannot see any harm in that.
 6532. Does it not look very suspicious indeed that a young woman should go out to Glebe Point simply for the purpose of having a few minutes conversation with you? Well she did do so.
 6533. I suppose she was disengaged at the time, was she? Yes.
 6534. Is she in a situation? She was in a situation. I suppose she had the night out.
 6535. At what time did this ride take place? Somewhere about 8 o'clock in the evening. I could not be certain within half-an-hour.
 6536. You left Sydney at 8 o'clock? About that.
 6537. Therefore you were at Glebe Point in the dark? Yes.
 6538. But still we are to understand distinctly that during those 8 minutes at Glebe Point nothing further passed between you and this young woman than a conversation on the footpath? Nothing further. I can bring both the driver and the fireman to prove that I was not further away from the tram than I have stated.
 6539. You are quite sure there is no further information you can give us in connection with these frauds? I have told you all I know about them. Musgrave is the only man who ever talked to me about them, and I have told you the substance of what passed between us.

Walter Wigg recalled, and further examined:—

- Walter Wigg. 6540. *President.*] We have sent for you because we believe you are able to give us some information with regard to a rather suspicious circumstance which occurred in connection with conductor Hannam? Yes.
 13 Sept., 1888. 6541. The circumstance referred to is that of a young woman riding with him to and from Glebe Point some time ago? Yes, but I cannot say that she went to Glebe Point. I know that she got on to a Glebe Point tram. I got off at Liverpool-street. It was one Saturday evening. I am not sure about the date, and I think it was between 7 and 8 o'clock. I was standing at the corner of Market-street. I saw a young woman waiting there. She was leaning against a verandah post. I saw the Glebe Point tram with conductor Hannam on it in charge come along. He beckoned to the young woman and she went over and got into the car. I thought there was something suspicious in the circumstance and I went over and got on to the front of the car. She was in the second compartment. I stood and looked through the glass and saw that Hannam collected the other fares and passed this woman by.
 6542. *Mr. Brock.*] You are positive about that? Yes.
 6543. *President.*] What did you do then? I rode with him as far as Liverpool-street and there I got off.
 6544. You did not speak to Hannam? No. I told Mr. Roberts of the circumstance the next morning. I did not report it in writing because I had other suspicions in reference to Hannam at the time, and I did not want to put anything in writing just then.
 6545. What other suspicions had you? I thought that he was one of those who were likely to be mixed up in these frauds.
 6546. What made you think so? Well I had seen him several times knocking about the worse for liquor.
 6547. Off duty? Yes.

6548. Anything else? No. There was nothing else except the appearance of the man. I don't care about his appearance very much. Walter Wigg.
13 Sept., 1888.
6549. But you don't judge by appearances? Sometimes.
6550. Have you known him to be out at night often or anything of that sort? No. I have never come across him.
6551. Where have you seen him the worse for liquor? Once at Newtown, on the Newtown Bridge.
6552. At what time was that? It was in the day-time.
6553. Was he in his uniform? No; he was not.
6554. He was off duty? Yes.
6555. It was not his shift? No.
6556. You have never seen him intoxicated on duty? I can't say that I have.
6557. If you had you would at once have reported him? Certainly.
6558. Have you ever seen Hannam in conversation with Musgrave? No. I can't say that I have.
6559. Or with Cook? I have seen Cook on his tram. That was one of the reasons I thought it would be better for me not to report this other matter.
6560. You have nothing very tangible against Hannam causing you to suspect him? No. I heard that Musgrave had made some overtures to him, and I thought to myself at the time that if that was true it was most likely that he fell in with them.
6561. Is he a man who is reported to be short of cash or anything of that kind? Do you mean in reference to his register?
6562. I mean privately? I don't know.
6563. I ask you these questions because it seems to me that in order to have suspicions one must have some ground for them, and if a man is a married man and keeps to his home at night and so on, it is difficult to entertain any strong suspicions regarding him? Yes; it is. I don't know whether he keeps at home.
6564. You have only seen him this once drunk or the worse for liquor? Now, I think of it, I saw him so a few nights ago.
6565. Was he on duty then? No; he was going off duty. I met him as he was going home. He had just gone off duty.
6566. What did you notice then? I thought that he was the worse for liquor.
6567. Might not his red complexion give you some idea of that kind without anything further? It might, certainly.
6568. Was he staggering? He was.
6569. Did you hear him speak? Yes, I did; and I thought that his voice was very thick.
6570. Is there anything material which you could give us in the way of evidence in connection with these frauds which has not been already elicited from Moran? I might mention one thing. I was under the impression that Moran knew about it, but he tells me that he did not. Just before Mr. Roberts went to Melbourne to the races, on the 1st of last March, he spoke to me in reference to getting a man to take a little shop somewhere on one of the tram routes, and to put all these men we suspected on to that route, and then to let this man become friendly with them without making any overtures to them, in order to see if they would make overtures to him. I brought forward a man I thought suitable for this purpose.
6571. Who was he? Charles Peck.
6572. Is he a straight man? Yes, as far as I know.
6573. What was the result of this? Mr. Roberts went away to Melbourne, and nothing more came of the matter.
6574. It fell through? Yes. Moran knows the man I recommended.
6575. Beyond this there is nothing more you can tell us? No.
6576. In connection with the frauds? No.
6577. You have worked pretty well with Moran throughout in connection with this matter? Yes.
6578. What sort of woman was it who got on to Hannam's tram? She was a disreputable looking character.
6579. You mean by that that you think she was a woman of the unfortunate class? Yes; I think so.
6580. What men do you suspect in connection with these frauds on anything like good grounds? Fraser, Ferrier, Musgrave, Connors, Hannam, and O'Donnell.
6581. We should like to know what reasons you have for suspecting O'Donnell and Connors? I have seen this man Cook on Connors' trams several times, and I know that Connors, before he came on to the trams, was arrested for assault and robbery.
6582. Do you know that for a fact? Well, I did not see him. I believe he was discharged; but I have heard from several different sources that he was arrested on that charge.
6583. Is he a man of known bad character? He has been drunk several times. I had to go myself once and take him off his tram.
6584. That is on record, I believe? Yes. His wife was always coming to the office complaining about his not giving her any money.
6585. What about O'Donnell. What reason have you for suspecting him? I saw him with Ferrier on the evening of the day when Ferrier was brought here to the Commissioner for Railways.
6586. After Ferrier had been here? Yes.
6587. Was he with him in such a way as would excite your suspicion? No; but it seemed to me that he was evidently wanting to know what had been going on.
6588. Were they conversing for any length of time? I saw them in King-street, and they went away together down the street. I did not follow them.
6589. They were evidently in company? Yes. Then after Robertson had been here I saw O'Donnell several times with him with the object, I suppose, of learning any news which might be going, although I do not wish to connect Robertson in any way with the matter.
6590. What is your opinion of Robertson? I think he is a decent man.
6591. You were at Crown-street when he left his duty once or twice? Yes.
6592. You saw him coming out with the gamblers on the first occasion? Yes.
6593. How comes it that you call him a decent man when he was in the company of these men coming out from the hotel? He came out at the same time that they did; but he may not have been in their company; he may have accidentally got mixed up with them.
- 6594.

- Walter Wigg. 6594. Do you think that Robertson's explanation, that he was merely going there to relieve nature, is a genuine one, or that he went there to have a look at these men—to have a chat with them and to look at them gambling? I do not know.
- 13 Sept., 1888. 6595. But you must have formed an opinion one way or the other? My opinion was that he went in to have a drink.
6596. But although that was your opinion you do not connect him in any way with these frauds? No.
6597. Is he a married man? I believe he is, but I am not quite sure.
6598. You have never heard or seen anything against him? Nothing beyond this matter.
6599. Have you ever heard that he left his points before? No.
6600. Or that he was ever drunk? No.
6601. Has he ever been reported for anything? Not that I am aware of. I think not. I think he was put off the cars because he got too heavy. He wished to be put off so that he might not have so much running about. He got too heavy to run up and down stairs. He was a conductor until he went to Crown-street.
6602. *Mr. Brock.*] You think all the other men, except those you have mentioned, are good men—that is, you would keep them in their present positions? I am rather suspicious about Ambrose Scott.
6603. Why? He is always about racecourses, betting, and so on.
6604. *President.*] You have heard the story about the severance of his connection with the railways? Yes, I was told that years ago.
6605. Perhaps it was that which made you suspicious? Yes, a station-master at Ashfield told me that he could not understand how Scott afterwards got on the trams.
6606. Who was the station-master then? Mr. Bissett, I think.
6607. Did he tell you that the case against Scott at Ashfield was very clear. Did he lead you to infer that it was? What he told me was that Scott had said that he left the room to go to the closet, and during his absence some one purloined £5 or thereabouts of his cash. The station-master led me to believe that this was only a got up yarn of Scott's.
6608. Do you know conductor Keen? Yes.
6609. Do you think that he is an honest and well-meaning fellow? I have not a very good opinion of him. Two or three times he has been anxious to run with yarns about his mates.
6610. Have you any reason to believe that these yarns were not genuine? No, I have not.
6611. When you find a man so disposed in the Department you are not inclined to think well of him;—is that it? It is generally the case that they do it in order to find favour for themselves.
6612. Beyond the men you have mentioned, you have a good opinion of the tramway employees generally? Yes.
6613. There has been a great deal said, and perhaps even more insinuated, with regard to Mr. Colls in the office? Yes.
6614. And I think it is really due to Mr. Colls to endeavour to clear the matter up one way or the other. Have you any reason to believe that Colls was in collusion with Musgrave or Ferrier? No.
6615. What is the extent of what you have heard or seen with regard to Colls and his connection with Musgrave? I only know that he is a brother-in-law of Musgrave's, and that Musgrave lived with him for some time.
6616. But with regard to this information going out of the office, have you formed any opinion about that? It would be only natural for Colls if he accidentally saw anything relating to Musgrave to tell him to look out and be on his guard.
6617. Does it not occur to you that there could be no middle course in the matter—that there must be either connivance or exposure? Yes, certainly.
6618. Have you in your own mind any reason to believe that Mr. Colls knew that Musgrave was defrauding the Government? No, I have not any reason for thinking so.
6619. You have nothing at all to go upon except the relationship which you knew existed between Colls and Musgrave; and Colls says that he would no more shield Musgrave than any other man in the service? Well, I think it would be only natural that if, as a relation of Musgrave's, Colls saw any report relating to him he would say, "You had better look out."
6620. If you had a near relation who happened to be a scoundrel, what would be your action in regard to him under similar circumstances? I should kick him out of the house.
6621. You would shun him in every way—perhaps the more strongly from the fact of his being a relation? Yes.
6622. As I have said before, there has been a good deal of talk about information getting out of the office. In one particular case the police have put it strongly that the contents of a certain report from themselves got out of the office. As far as we have been able to see, that was a mare's nest, because the information given by the police did not reach the office until Ferrier's dismissal had taken place. Under these circumstances, do you think it is to be wondered at in any way that the information got abroad? No.
6623. There would be nothing in that matter to connect Colls? No. The policeman, I think, charged me with giving that information because I said something in this room which he did not like.
6624. What was that? It was something I said in reference to an informant of his.
6625. With reference to Dominic? Yes.
6626. What was it? Stove told me that he knew a man who applied for a license, and who was going to get the license, and then take tickets from Musgrave and sell them. Stove at first denied that here, and would not give the name.
6627. He did not deny having the information? He did at first. When I got outside the room he commenced to bully me because I divulged something he had said to me—as he thought—in confidence.
6628. *Mr. Brock.*] What is your opinion of Greeley? My first opinion of him was that if any one was selling tickets it was he. I said so to Mr. Vernon, but Greeley appeared to be so anxious to follow this thing up that I began to think he was genuine. With reference to the tickets in his pocket, I thought he would have said nothing about that unless the other man had seen them.
6629. *President.*] Do you still think that Greeley is genuine? Yes; I fancy he is now.
6630. Are you aware of this, that after he told Mr. Roberts that Dolan was the man who was treating with Siddons, he himself was seen in Siddons' several times at night? No.
6631. Were you aware of that? No.

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6632. Are you aware that he has positively denied it? I heard that he had done so.
6633. Do you think that any decent man would lend himself almost unasked to this kind of detective business? I believe he was in the police at one time, and he may have gained his wish for it there.
6634. He admits that he was angling with Siddons over the matter? Yes; I think he received instructions to do so.
6635. From whom? From Mr. Roberts, I believe.
6636. If Greeley had been caught during these two or three months, when he was apparently doing the detective business, would you have believed one single syllable of this? No. Perhaps I ought to mention that I was sent to countermand an order which had been given to him in reference to making overtures.
6637. Do you think Mr. Roberts would be likely to give such an authority to a man like Greeley without letting you and Moran know of it? No, I don't think so. I know that at one time he was told to offer tickets or to sell them.
6638. Mr. Vernon, when he heard of it, disapproved of it, did he not? Yes.
6639. He did not approve of a conductor being allowed to simulate the part of a dishonest man? No; of course it would be compounding a felony. I know that Greeley had some instructions, and that I had to go and tell him not to carry them out. I distinctly remember going and telling Greeley to go no further in the matter. Luckily he had not seen Siddons.
6640. You remember when it was first reported to Mr. Roberts that the bells could be rigged by means of a pin or a bit of wire? Yes; I think it was about the end of February.
6641. Who first brought it under notice? Keen, I believe.
6642. Do you know what followed upon Keen coming to see Mr. Roberts with a story about the possibility of this thing being done? Mr. Roberts, I believe, submitted the bells to Lambert.
6643. How do you know that? He told me so.
6644. Did he tell you that he would do it, or that he had done it? I understood him to say that he had done it.
6645. Were you present when Keen went to the office and the registers and the wires were used? Yes; I think I was in the office; I am not sure.
6646. Do you remember Mr. Primrose fetching up a pair of registers and a piece of copper-wire? I saw him with a pair of registers, but I didn't see what was going on.
6647. You distinctly remember Keen making this statement? Yes.
6648. Do you remember following upon that that Lambert came to Mr. Roberts and saw him; do you know that of your own knowledge? Yes.
6649. How? The second time Moran got the bells to submit to driver Graham, and when he brought them back, he spoke to Mr. Roberts in reference to the matter, and Mr. Roberts said, "It is the same old story; it cannot be done; I have just shown it to Lambert."
6650. Was Lambert there at the time? I believe he was. I think he was inside the room then, but I didn't see him.
6651. What led you to believe that he was there? Something Mr. Roberts said, I don't exactly know what it was.
6652. From something Mr. Roberts said you inferred that Lambert was inside the office? Yes, in Mr. Primrose's room.
6653. And that he had just expressed the opinion that the thing could not be done? Yes; and afterwards, when I was speaking to Mr. Primrose, he said, "Do you believe it can be done?" I said, "They say it can be done, but I don't know how."
6654. Did he say anything about Lambert's expression of opinion? Yes; he said that Lambert had said that it could not be done.
6655. From whom did he derive that? From Lambert himself, I suppose.
6656. Or was it through the medium of Mr. Roberts? That I don't know.
6657. There is an important discrepancy between the evidence given by Mr. Roberts and that given by Lambert. Mr. Roberts states positively and distinctly that he consulted Lambert upon this particular point; Lambert says that Mr. Roberts merely submitted a pair of registers to him and said, "Lambert, are these registers in working order?" and that he never once submitted the matter to him in the form of a question as to whether the thing could be done with a piece of wire or not? It would be strange if Mr. Roberts did not do so, seeing that he had just previously been told that it could be done with a piece of wire; that would be the main point under consideration; why otherwise should he submit the registers to Lambert at all? I am sure he gave me to understand that Lambert had told him that it could not be done.
6658. What was the effect of this opinion, or, I should say, this supposed opinion of Lambert's on the operations of yourself and Moran? I thought that we had been had by a hoax or something of that sort.
6659. But what was the effect of the information;—did you in any way lose ground? Yes; certainly. We thought there was nothing in the report which we had heard.
6660. You did not follow the matter up? We did not follow it up any further then.
6661. You let it entirely fall to the ground until when? Sometime in June.
6662. From when? From March.
6663. From March until June you let the matter rest, under the impression that the information emanating from Graham was a mare's nest. You ceased from inquiries in that particular direction? Yes; I was away on my holidays for three weeks.
6664. Otherwise you let the matter entirely drop? Yes; until we saw this man Cook about again.
6665. Where was that? We saw him riding on the trams, and we saw Ferrier riding about a great deal. Ferrier, too, had always plenty of money, and our suspicions were aroused again.
6666. How did Greeley come into the matter again early in June? I saw Cook on his train, and I said to Moran, "There is Cook on the train now; you had better go and see Greeley and see what is up." Moran went on to the tram, and I waited for him.

Edwin Tatham called in, sworn, and examined:—

- E. Tatham. 6667. *Président.*] We understand that you have an invention for the improved collection of tram-fares which you desire to submit to our notice? Yes.
- 13 Sept., 1888. 6668. Will you as briefly as possible explain the operation of your invention? Yes. The checks are printed on a continuous roll or coil of paper by the patent machine, which also counts and records the number printed and winds an arbitrary number upon spools each bearing a distinguishing mark. The printer taking note of the numbers of the spools, and the number of checks thereon, hands them to the chief of the fare department, ready for insertion in the "registers." As required they are inserted in the register, and accompanying each register would be a return sheet, checked by the guard and a clerk, in which all particulars of its use would be summarised, and, if necessary, the number which the register indicated at any certain stage of its journey could easily be written up. If also deemed advisable the check tape or paper might be made of various colours, say a distinguishing colour for each route, or say a distinguishing colour for uncertain periods of time. The guard, being provided with his register, would collect cash-fares and detach checks from his roll to the value of the paid fare, and hand them to the passengers, these checks being cancelled and recorded as they leave the register. The fares for a full journey could thus be collected from the passengers upon entering, and he would at the sections only need to exhibit his checks. For dishonest persons or dishonest guards of course the usual regulations would be required, but in this system they would only be few.
6669. I must compliment you upon the brevity of your statement, but it seems to me that, in the final portion, you have if anything rather erred on the side of brevity; you tell us for instance that dishonest persons or dishonest guards would of course require the usual regulations, but that, under your system, these would be very few;—we should like you to enlarge upon that point? The instrument I have invented will give you two checks against the guard and one against the general public.
6670. What checks do you consider you have? In the first place the tickets are in the form of an endless tape, which is perforated by the machine which prints the tickets into sections. Each one of these sections comes out of a ticket indicator after registration. Then you have the same check that you have at the present time in the shape of a bell. It is impossible for the conductor to take out a ticket without ringing the bell. When the conductor gets to the end of a section he has instructions to move a lever, which will have the effect of loosening a figure and thus altering the obliteration line at the back of the ticket. In one of the machines the same section will alter the date and a letter at the back of the ticket. These alterations can be made at the end of a journey or at the end of a section.
6671. Do you find it necessary to have a printing machine in connection with your invention? Yes. I have had to invent a machine specially to print the tickets used in the ticket indicator. I have here a model of that machine. The tickets can of course be printed upon paper of any thickness you may deem necessary, and there is this further advantage that the machine prints the tickets and perforates them at the same time.
6672. How many tickets can you print in an hour? I will work the model and show you. You see I have printed 300 tickets in 23 seconds. Mr. Lyne, the late Minister for Works, was so satisfied with the machine that he gave the Government Printer instructions to have two machines made from this model.
6673. Are they in the Government Printing Office now? I do not know.
6674. Could you print enough tickets upon one spool to last for a week? Yes.
6675. I see that you transfer the tickets from a big spool to a smaller one? Yes; you can transfer them in any number you please, and the machine is so contrived that it will count the tickets as they are transferred.
6676. I suppose you would keep the tickets in certain numbers after they have been transferred to the small spool? Yes.
6677. You must remember that in this matter it would be necessary to keep the printing department separate from the traffic department; the printer would receive a requisition for so many spools of tickets, each containing the same number—the number I suppose which would be necessary to charge the indicators each time? Yes.
6678. The clerk, whose duty it would be to provide the conductors with tickets, would take these spools and fill up the empty indicators? Yes.
6679. Until the tickets are used by the conductor they do not become numbered? No.
6680. That is, they are not numbered until they are being used? No.
6681. Then they are numbered in that process for the first time? Yes.
6682. Then what check have you as between the printing-office and the traffic office. Suppose the traffic office requisitions for 50 spools of 1,000 each, or 50,000 tickets, what check is there if the tickets are not numbered? There is an indicator on the machine at the printing-office showing you how many are printed.
6683. But how does the traffic clerk know that he has received 50,000 tickets? Each hundred tickets on the spool is shown by a red mark.
6684. Do I understand that the clerk would have to unroll each spool to see if he had 1,000 tickets? No, he could see from the marks whether he had 900 or 1,000.
6685. You think he could take the numbers from the coloured indications of each 100? Yes.
6686. Suppose that this could be satisfactorily arranged, remembering that there would probably be some man intervening between the traffic clerk who acknowledged the tickets from the printer, and the traffic clerk who supplied the indicators;—what would be the next step. Would the clerk who handed the tickets to the conductor be in a position to swear that there were 1,000 tickets on each spool? Yes.
6687. You must remember that if we are to prevent fraud there must be no guesswork about the matter? I quite understand that, but you can make quite sure of the number. Besides that, I do not think it matters whether the conductor has 1,000 tickets or not. He issues a certain number, which are indicated by his machine, and he must account for the number he has issued. He will have to account for the number shown by his register, not for the number taken off the spool.
6688. Suppose a conductor took 100 tickets off a spool of 1,000 and registered away until he got to 900, going then to the office and saying, "I never got 1,000 on that spool. You must give me another 100"? He could not use the 100 tickets he had taken, because his bell must ring every time he issues a ticket, and if the bell did not ring the passengers would know that he was not issuing his tickets properly. Then again, he could not take 100 tickets out of the indicator without opening the instrument, and I think it could be closed up in such a way as to render it difficult for him to do so.

6689. I notice that the bell has not a loud ring. Do you think it would be heard by the passengers? I E. Tatham. think I could improve the bell if you do not think it sufficiently loud.

6690. I think it rings too quickly. If the tickets were withdrawn rapidly it would not show clearly enough the number of tickets abstracted? I think that could be managed. Of course the guard must be instructed when he arrives at the end of a section to shift the obliteration mark, and it can then be seen by the indicator how many tickets have been issued on that section. The passengers must not throw away their tickets until they reach the end of that section, or they will have to pay again. 13 Sept., 1888.

6691. I observe that the obliteration mark on the tickets is very slight, and that the number obliterated is very small. Do you think a conductor would be able to see standing on one side of a car that a passenger sitting on the other side held in his hand a ticket with a number proper to the section obliterated? With tickets of the size now on the spool, it could not be seen at a distance, but, at the same time, you must remember, that the conductor going round the car would have some knowledge of the passengers who had paid their fares. If he had any doubt in regard to a particular passenger he would ask that person to show him his ticket, and he would at once see whether it was the ticket proper to the section.

6692. But don't you think that if the cars were in any way full the conductor would not have the knowledge enabling him to exercise this check? I think it would be easy, under ordinary circumstances.

6693. How many tickets would each indicator hold? That depends upon the thickness of the tickets, but it could be changed at the end of every trip if you thought fit.

6694. Having regard to the thickness of the tram-tickets now used, do you think you would be able to provide a register which would carry enough for a round journey, say 500? Yes; and I do not think that the instrument provided would be much bigger than the present registers.

6695. Now we come to the conclusion of the journey. The man hands in his indicator, and receives another in lieu of it. Supposing he has been running on a light line, such as Forest Lodge or Glebe Point, where the indicator would last for more than one double journey, the clerk would see that there were perhaps 300 tickets left, and he would say to himself, "Those will do for another round trip." He would give the man back the same register, after having dotted down the reading. If, however, the register was exhausted, or nearly so, the man would have another register issued to him? Yes; there would be no difficulty in arranging for the degrees of traffic on the different lines.

6696. Well, the conductor says, "Here is my cash;" the clerk counts it. What does he find? He finds that it agrees with the number on the indicator.

6697. If the conductor hands in 6d. or 3d. short, what does the clerk say to him? He tells him that he is short of cash.

6698. Can he say to him, without any doubt, "You must give me another 6d., and the sooner the better." The conductor, under those circumstances, could not say, "Oh, this register does not show the proper number." Could the clerk call upon the conductor to make up the amount, knowing beyond doubt that, if short, the conductor had lost the money, or that he had given some wrong change? Yes, the clerk could do that without any hesitation. The instrument is absolutely certain in its operation.

6699. Do you urge that it is so accurate that a conductor deficient in this way several times could be dismissed? Yes.

6700. Would there be no difficulty in issuing the tickets from the register? In order that the conductor might be ready he should have a certain number let out of the instrument. He could then give them off the moment they were required.

6701. But in this way a conductor will be almost sure to arrive at the end of a journey with a number of tickets registered, but not issued. Suppose he trades on this by taking several fares just at the end of his journey, tearing the tickets off, but not issuing them, pocketing the cash, and producing the tickets as some he has drawn out without being called on to issue them? Of course that might happen, but that would tell against any machine.

6702. I think it would be unwise to encourage the conductor to draw any tickets from the machine until on the point of issuing them; moreover, if he did so, the passengers would not have the check afforded by the ringing of the bell? Yes; that is so.

6703. Take a tram going to the cricket ground; the conductor has not been able to collect the whole of his fares, and a number of people get off there and say, "Oh hang the tickets, what is the fare," and then go away giving the conductor cash, and receiving no tickets? The conductor has no business to postpone the collection of the fares until so late a period of his journey. A number of passengers under the circumstances you name would leave the conductor altogether, and that might happen under the present system.

6704. Might not a guard pick up some of the tickets belonging to the previous section, and issue them fraudulently on the subsequent section if he were allowed to draw tickets from the indicator, before he was on the point of issuing them? I do not think he would do that, because the passengers might compare their tickets, and would at once detect that one ticket had one number obliterated, while another ticket had another number obliterated. Besides that I would employ an inspector to watch the men.

6705. In such a case as you suppose might not the conductor say to the man who held the ticket, which he had fraudulently issued, "Here you have a ticket belonging to the previous section. You have not paid for this section at all." Under those circumstances some passengers might pay again? That is not very likely to happen.

6706. You referred in your opening remarks to some regulations which you seem to think it would be desirable to have? I think it would be necessary to promulgate regulations imposing penalties on the guard who tendered a passenger a check not detached from his register in the sight of that passenger. Upon any person who exhibited as a receipt for his fare any check not obtained from the guard of the tram on the same journey on which it is so exhibited; upon any person who entered a tram-car with any undestroyed tram-checks in his possession; upon any person who upon leaving a tram-car on demand of any officer of the Department, does not exhibit and give up genuine checks of the value of the journey he has just made, upon any person who barter, sells, gives, presents, buys, purchases, or accepts any undestroyed tram-checks from any other person.

WEDNESDAY, 19 SEPTEMBER, 1888.

Present:—

A. RICHARDSON, Esq., PRESIDENT:

F. A. BROCK, Esq., J.P.

Albert Frederick Primrose called in and further examined:—

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6707. *President.*] When we sent for you the other day we did so merely to ask you a question or two bearing upon the evidence given by others with regard to the manipulation of the registers. We think it is desirable to ask you a few more general questions relating to your position in the Department. What is your position? I am in charge of the receiving-office. When the registers were first introduced I came down with them from the audit office.
6708. You were previously in the audit office, then? Yes.
6709. You came down with the registers, to do what? To read them, and to furnish the returns.
6710. Describe the process of reading? It is simply this: When a conductor brings in his returns the register is read, and the return is placed to his account.
6711. What do you mean by account? Do you mean a book, a sort of ledger, with a heading for each man, or a heading for each line? A heading for each man and each line. The Waverley line, for instance, and the Waverley men are in one place, and the Coogee line and Coogee men in another place.
6712. What do you do with the men who are transferred a good deal from one line to another. Suppose, for instance, a man is on the Waverley line in the morning, and on the Leichhardt line in the afternoon, do you enter his return under two headings? That would be an assistant conductor. We should ask him where he was running, and if he said that he had made so many trips to Leichhardt, and so many trips to Waverley, we should have to apportion the return accordingly.
6713. How would you apportion it? The conductor would be asked how much he thought he had taken.
6714. You read the register only once a day? The register is not read every trip, but the bags are emptied every trip. We continue to read the registers once a day.
6715. Then, when a conductor gives in his register at the end of the day, if he is not a fixed conductor you ask him how much he thinks he has made on the different lines, and you apportion the return between those lines, is that it? Yes.
6716. We should like to know by what process you apportion the earnings? The conductor would tell us what he thought he had taken.
6717. Let me give you an illustration: Suppose a conductor has made two runs to Waverley to and fro in the morning, and that he has made in the afternoon two or three runs to Forest Lodge and back, by what process do you arrive at the earnings of the Waverley line and of the Forest Lodge line, respectively? We go by what the conductor tells us.
6718. What could the conductor tell you? He would have some idea of how many tickets he had taken on each line.
6719. Although his bag had been emptied after each trip during the day, and he had not examined his register, you think he would be able to tell you how many tickets he had taken for the different trips? Yes.
6720. Is that the only way of arriving at a knowledge of what is earned on the different lines? Yes, I think so, under those circumstances.
6721. Do you consider it a satisfactory way? Of course if the men were put on certain lines and finished on those lines it would be better, but they are sent about from line to line.
6722. Are we to understand that this is exceptional, and that the majority of men would be able to say, "This is my register; it represents takings on the Waverley, the Forest Lodge, or the Leichhardt line," as the case may be. Would the majority of the registers represent the takings on one line? Yes.
6723. It would be an exceptional case in which a man would say, "Some of this belongs to Leichhardt, some to Forest Lodge, and some to Glebe Point?" Yes. As a rule, if a man is put on the Leichhardt line we get the whole of his returns from that line. Very few returns are mixed up in the way you suggest.
6724. Therefore they are not material? No, and it sometimes happens that a conductor, after his finish at night on the Leichhardt line, may be put on to the Waverley line, in which case he would start upon the Waverley line with a clear bag.
6725. Is there any reason why the registers should not be read at the end of every round trip? That could be done of course; the bags are emptied.
6726. Where are they emptied? At the office.
6727. Where are the registers read? They are read by Mr. Oakes down in the yard, as an independent check.
6728. As the bags are taken to the office to be read at the close of every trip, is there any reason why the registers should not be read at the same time; would there be time to do so? Yes, there would be time.
6729. The reading of the register is a very short process if a man understands? Very short. The only thing in what you suggest is this, that we should have about a thousand entries in a day.
6730. Would it make the check more difficult? No, I do not think so, but I do not think there would be much check in reading the registers. It might be done to ascertain the earnings of each line on each trip, but I do not think it would be a check against the men taking tickets.
6731. Why? If a man wanted to take a few tickets he could take them at the end of the journey just the same.
6732. Have you any particular reason for thinking so? No.
6733. But you must have a reason for your opinion? That is my private opinion.
6734. But what is your reason for it; why would not the men be caught and found out? Suppose he rang but did not register the tickets you could not find him out; for instance, a man might receive twelve or fourteen tickets, and register only ten; he rings so fast that it would be impossible to detect the difference. How could he be found out under such circumstances as those?
6735. I thought you were driving at another idea; I thought you were going to say that the registers were not much check, because the men's returns were not expected to balance with them exactly? Since I have been in the office I have never expected a man to come out exactly right with his register.
6736. What discrepancy would you consider a fair thing for a perfectly honest and capable man? Do you mean in a big day's takings? 6737.

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6737. In an ordinary day's takings? I think if he came within twenty either way it would be very good.
6738. If you were dealing with a perfectly honest and capable man you would not come to the conclusion that he was not as careful as he ought to be because he came in with twenty tickets wrong? No, I should not.

6739. Do you mean for every trip? No, for the day.

6740. Then if the registers were read for each round trip you would bring out a much nearer balance? Yes.

6741. What should you say would be the discrepancy on every round trip between the register and the actual contents of the bag? In a morning run I should not think it would be more than three or four.

6742. You think there would be that number out on every round trip with a perfectly honest and careful man? I think so.

6743. Why do you think there would be this discrepancy? For many reasons; many of the tickets get close together, and a conductor may receive three tickets for two, or *vice versa*.

6744. Do you think that is likely? Yes.

6745. But the trams ought to be doing much better than they are if many people give three tickets for two or two for one? Well a great many people make mistakes in giving tickets. If the tram is full the conductor has to trust to the passengers a great deal. Of course if he carried out his instructions to the letter he would be all right, because he would receive only one fare at a time; but I do not think he would have time to carry out his instructions consistently. The passengers themselves collect the tickets, and the conductor may very easily be given seven tickets for eight or *vice versa*.

6746. Do not the conductors, as a rule, count the tickets when they are ringing them off at each compartment? I am sure they don't.

6747. What do you think they do? I think they count the passengers and take it for granted that the tickets are right.

6748. My experience is that they count the tickets? I have seen the cars so crowded that I am sure it would be impossible for a conductor to collect the whole of the fares and register each fare separately.

6749. I have noticed particularly that the conductors count the tickets at each compartment before ringing them off? Of course in collecting the tickets in this way they are not carrying out their instructions.

6750. What are their instructions? On the receipt of each fare they are supposed to ring the bell.

6751. They do that when collecting the top, but when collecting the bottom they would not have time? Well that is what they should do in all cases.

6752. *Mr. Brock.*] But the tickets are often collected by the passengers? Yes; and they may often be short of the proper number.

6753. But the conductor should count them? That may be, but how would that be at night when there is hardly any light about.

6754. Under such circumstances you think the conductor counts the number of passengers? Yes.

6755. *President.*] You seem to consider it impossible for the conductors to carry out their instructions. Is it not a pity to give instructions which must be inoperative? Yes; to carry out the instruction I speak of the conductor would have to get inside each compartment.

6756. You recognise that it would be practically impossible for the conductor to say to the passenger who handed him the fares of four other passengers, "I cannot take them that way, I must have them singly?" Yes.

6757. But if he counted the tickets when he got them into his hand and then rung them off, would not a careful man under that system come out right? I am sure he could not come out exact.

6758. Have you any great opinion of these registers that will not balance correctly with the receipts? I have no opinion of them whatever.

6759. You believe in ticket tearing, I suppose? I believe in the tickets being cancelled on receipt.

6760. We have had the ticket-tearing system for several months, what is your opinion of it? I think you would have to trust altogether to the conductor's honesty.

6761. You think that under that system the conductors could do almost anything they liked with the tickets? Yes; they could easily tear them long ways instead of across. On an upper deck at night they could do practically what they liked.

6762. Pretty well what they liked? Yes.

6763. Therefore if you think the register system bad you think the tearing system worse? Yes.

6764. Then what are we to understand. I understand that you approve in some measure of the tearing system;—what tearing system would you advocate? I believe that if we had tickets of different colours the system might answer very well.

6765. You mean that tickets should have two parts? Yes.

6766. And you think that if the tickets were in two parts, and that if the passenger had to give the conductor one part only, retaining the other, there would be no possibility of fraud, because the ticket would be of no use in the way in which it was handed to the conductor? Exactly.

6767. But would you not have any number of passengers giving up their tickets whole—passengers who would not be bothered tearing them up, and so on? I do not know. You will have to trust the public to some extent.

6768. You are advocating a system analogous to the omnibus bonus system. In that case there was some inducement to the public to keep their little butts, because each butt gave a chance of a prize, and three-fourths of the people knowing this used to keep their butts; but even with this inducement it is a fact that a large number used to throw their butts away? Yes; I am aware of that.

6769. But if you had no inducement of that kind, does it not seem to you that the passengers would be giving up whole tickets, leaving it to the conductor to tear them if he thought fit? Possibly.

6770. But if you admit that you admit the possibility of fraud, do you not? Yes; I do not think there is any perfect system if a man wishes to be a rogue.

6771. You know the Melbourne system? I have not seen it, but I have heard about it. I believe the best system that we could have, if we could secure a proper check, would be entirely cash.

6772. A system something like the box system of the omnibuses, if it could only be introduced? Some system of the kind if it could be adopted,

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6773. What do you think of a system by which the cash would be collected as in a box, and under which the cash would, at the time of collection, register itself apart from the manipulation of the conductors? Yes; but who would put the money into the box.

6774. The passengers? But they might put in bad coin.

6775. But supposing the receptacle was arranged for pence only? That would do very well.

6776. And suppose that these pence in passing through registered themselves so that if a conductor at the end of a journey had not the exact number of pence registered, he could be asked at once to make up the difference? Something like that would do.

6777. I gather from your answers that you are dissatisfied with any system which does not impose upon the conductor the necessity for giving in a certain return? Yes.

6778. You see that once you allow a margin you cannot draw any line? Yes, that is quite true.

6779. If you say that you cannot fairly expect a conductor to bring in what his register shows it is difficult to draw a line, and say that the conductor who is ten short to-day is honest, and the conductor who is fifteen short to-morrow is dishonest, and should be punished? That is my view. I should be sorry to punish any man who was fifteen out under the present system, especially if it came on to rain; because from what I have seen of the system I am sure it is not reliable when the registers get wet.

6780. Why? Because the ringing is not perfect. I have seen so much of them in one way and another that I once drew up a report and sent it in to the late traffic auditor. If you look at that report you will discover my opinion of the registers.

6781. What would be the date of that report? I do not know. It was before Lambert had the repairing of the registers.

6782. Long before? No. They were taken away from Mr. Felton just afterwards.

6783. The report was made while Felton had them then? Yes.

6784. What is your opinion of Lambert as a register repairer? I should say that the registers have been better than they were before.

6785. Do you think he has a thorough knowledge of the mechanism of them? Yes; he seems to understand them. They were a perfect nuisance when Felton had them, because they used to ring without registering, and sometimes they would even register without ringing.

6786. They have done that since? I believe they have.

6787. Did it often happen when Felton had them? Often. I have issued several pairs a day which would be wrong, but I am sure that the men did not know of it.

6788. Why? Because when they have had registers which would ring without registering for a whole day they have brought in the usual number of tickets.

6789. Used all the men who had bad registers to do so? Yes; their returns on those days would correspond with their returns on other days.

6790. You have noticed the returns a great deal, I suppose;—have you noticed comparatively the returns of certain conductors, who it is almost certain, have been committing fraud. Have you noticed any particular conductors bringing in small returns for certain lines, in comparison with the returns of other conductors running at the same times on the same lines? I have noticed one conductor's returns, and I have heard of his being suspected; I refer to Archibald Fraser. I have noticed that his returns have compared favourably with the returns of other men. When he was on the Coogee line he always brought in as much cash as, or more cash than, the other men.

6791. Have you examined his returns since? I noticed them at that particular time.

6792. When did you hear that he was suspected? I saw it in the papers.

6793. And you had no opportunity of checking him after that? No; he went away.

6794. Do you mean that, when you saw from the papers that he was suspected, you looked back at some of his old returns? I did so while he was still in the Service.

6795. When and why did you do that? We often singled out a few men and compared their returns.

6796. Was Fraser a suspected man at this time? No, not then. When a new man is put on to a certain line, we sometimes make a comparison of this kind.

6797. You have done it with regard to other men besides Fraser, on that particular line? Yes.

6798. Did it not occur to you to say when you found that Fraser was suspected: "It is strange that he has committed frauds, because his returns came out favourably when compared with the others"? I was looking at his account the other day because Mr. Roberts had asked me to prepare a return for the Commission.

6799. You mean a return showing the takings of Musgrave, Fraser, and Ferrier;—is it ready? Yes.

6800. How did the returns come out? Very well. Musgrave's figures compare favourably with the others. It is very hard to get out a return such as you want, because Musgrave for instance may be told off to run on the Waverley line for a week, and then be changed to another line.

6801. But surely you know the nature of the return for which we asked. If for instance he were on the Leichhardt tram for three days, we wished his returns compared with those of another assistant conductor on the same line at the same time; we did not want the Leichhardt returns set against the Waverley returns, or *vice versa*? I quite understand that. I have got out the return as nearly as I possibly could.

6802. What does the return show on the face of it? It shows what each man has brought in. The easiest way would be to put a certain man on a certain run for a week and then to put another man on to the same run for the same time, but the assistant conductors are shifted about so much that it is hard to make a comparison of that kind.

6803. Would it not be a good plan always to put a conductor on to a line for a short period and then change him to another? Yes; I think so. From what I can understand I think it would be better if the conductor in charge had more power over his assistant conductor.

6804. Ferrier, Fraser, and Musgrave were all assistant conductors? Yes. Fraser for a portion of the time covered by the return was in charge of the Coogee run in place of some one who was away on a holiday.

6805. You think the assistant conductor ought to be more under the control of the conductor;—in what way do you mean? I think that when a man goes out in charge of a tram an assistant conductor should be given to him, and that assistant conductor should not be given up and told to go upon any other line until he had been formally handed over to the foreman by the conductor. That is not the system now adopted.

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6806. What is the system now? An assistant conductor gets on to a Waverley tram, he jumps off that tram at a certain street and then gets on to another tram and comes in with that. Suppose a conductor got on at Bridge-street and rode up as far as Begg-street—the heavy loading would be finished there—he would then get off the tram and return to Bridge-street with another conductor.

6807. Still on the same line? Well he may be sent on to Newtown.

6808. But that would be when he got back to Bridge-street; he must finish his service on the same line? Yes.

6809. He would not go with a conductor to Begg-street and on the return journey with another conductor—break off at Liverpool-street and get on with a Newtown conductor? No.

6810. He would have to go back to Bridge-street? Yes.

6811. But if he went to Begg-street he might go out with the Waverley and come back with a Woollahra conductor? He might do that. I think it is hard for the foreman to tell at times where the assistant conductors are.

6812. But do not the foremen allot them to the other men? Yes.

6813. If a man were wanted upon a Newtown run, who would send him there? The foreman. He would know where he started the man, but he would not know exactly where he was at any particular time afterwards.

6814. If it rested with the foreman to say, "Smith, you will have to go with Brown on the Waverley run this morning," he might afterwards find out that Smith was required to help Robinson on the Newtown run, he would take him off the first run accordingly? Yes; but suppose the assistant conductor went to Begg-street with a full tram, and that when the loading became light he got off. Suppose he did not choose to meet another tram, the foreman would not know where he was. The man might slope around a corner and disappear for an hour or two. The foreman would not know whether the assistant conductor was on another tram or whether he had gone on to Waverley.

6815. But what would be the assistant conductor's instructions at starting? That I cannot say.

6816. But if you are giving us an imaginary case, you must have your details ready—you must know what you are talking about? All I know is that I have heard conductors say that it was hard for them to get an assistant, although the assistant was supposed to be somewhere about the line. I have heard them say that it was very hard to get hold of one.

6817. That might be, and yet the foreman would know all about it? Yes.

6818. But it would be very unsatisfactory for the foreman to put a conductor on to the Waverley line for one trip and then know nothing about him all the day;—surely that is not possible? I say that it is possible for an assistant conductor to go as far as Begg-street, and that he may get down there, no one knowing where he is afterwards.

6819. Would not the foreman know that the assistant conductor had been only as far as Begg-street? No, because the man in charge might have had a full load, and might have taken his assistant on to Waverley.

6820. Does the foreman say to the assistant conductor, "You must go with conductor so-and-so until he is done with you?" That is what I should think.

6821. But we want to know the practice, not what you think? I cannot give you the practice.

6822. Then you may be giving a bad reputation to a system without knowing anything about it? I have not followed it up, but I have often heard men in charge say that they have been in want of an assistant and have not been able to find one.

6823. But that would not show the state of things to be such as you imagine it to have been? All I say is this: that I do not think any man should be in want of an assistant under the circumstances I have described, because there are plenty of them.

6824. Let us follow out your line of argument: Supposing that this extraordinary want of system exists. A foreman sends an assistant conductor to work with a conductor until the conductor is done with him;—do you mean to say that the foreman knows nothing about the assistant until he chooses to come in and report himself;—is there no check upon him in connection with his wages or the returns he brings in? Well, he signs on and he signs off.

6825. Take an imaginary case: Let us suppose that an assistant conductor has been handed to a conductor to run on the Waverley route until the conductor has done with him. He goes to Begg-street, beyond which, the loading being light, he is not required; the conductor tells the man that he can get back to Bridge-street. According to you, the assistant can clear out for two or three hours for his own edification, and when he is tired of that can get on to a Waverley or a Woollahra tram and return to Bridge-street? Yes, that is so.

6826. Is there nothing to check him and prevent him from going away for several hours? I cannot see how they can tell, unless there is a sort of running sheet, showing where the assistant was put down and where he started again.

6827. As a matter of fact has not every conductor to give in a running sheet? Not as to his assistant.

6828. But has not the conductor to say, "Assistant so-and-so"? Yes; he could put down his assistant, and you could trace him from one running sheet to another, but that is all.

6829. He would appear in the first sheet as going as far as Begg-street, but if he chose to absent himself for several hours what check would there be when his name appeared upon the next running sheet? None that I know of; I cannot see any.

6830. *Mr. Brock.*] Suppose a man discovers that his assistant has not come back, is nothing asked about it? Not that I know of.

6831. Was the system of reading the registers after each round trip ever adopted? We did it once for a week or a fortnight sometime ago.

6832. Why was it abolished? It was adopted to ascertain the earnings of each trip under some new time-table; they wanted to get at the value of each trip.

6833. Who used to read the registers then? They were read in our office then.

6834. The tickets were taken in the same place? Yes.

6835. *President.*] I have before me the return to which you referred, and it seems to me that it is of very little use, because you are not able to give a comparison between the particular runs but only between the different days;—is that so? Yes, the comparison is not as to the runs.

6836. Let us take one example: On the Waverley run on the 8th July, Musgrave gave in 1,564 tickets; Reece, on the 18th, gave in 1,012 tickets. What runs would they represent? That is just the point; Musgrave's runs may have been very much heavier.

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6837. While Reece's runs might have been comparatively light? Yes; that is just what I told Mr. Roberts.
6838. So that the return is really worthless? Yes.
6839. We wanted a comparison of the trips, that is, trip against trip, but I understand that under our system that is impossible? Yes; the tickets were not taken each trip as they are now. It is only during the last two months that the tickets have been taken every trip.
6840. Are the tickets counted when they are taken now? No, they are weighed when the conductors have finished. We have boxes with the men's names, and the names of the runs upon them.
6841. It is of no use to count them at the time because you do not read the registers? Quite so; we do not know what the register shows.
6842. How long does it take to read the registers? It would not take a man who knew anything about it any time at all.
6843. Until the frauds were discovered the bags were not emptied at every trip? No.
6844. This return refers to the time when the bags were emptied once a day, and not always then? Yes.
6845. In any one case in this return are you able to say that the runs are identical, or that the men have had the same number of runs? No; not only that, but we could not say whether the men were on the trams all the while. Of course Fraser's case, at the period I have referred to, was exceptional; he was in charge, and he would have to run.
6846. Was Ross in charge? Yes.
6847. The return shows that Fraser, on the Coogee run, was engaged on the 7th, 8th, 9th, 11th, 12th, 13th and 14th, and that Ross was engaged on the same line on the same dates. Fraser gave in a total of 11,358 tickets, while Ross gave in a total of 10,380 tickets; do these numbers refer to the same trips and the same number of trips? No, they refer only to the same days. One man might have been on No. 1 run, and the other might have been on No. 2 run.
6848. Then this return is of no value? Well it is not worth much. A man must be watched and we must understand exactly where he went if we are to compile a return of any use.
6849. Supposing a man had five trips to Waverley and one to Botany on the same day, to what line would you credit the runs? I should pay a portion into the Waverley line, and I should ask him how much he had from the Botany line.
6850. When the man came in would you ask him what line he was on? Yes, certainly.
6851. Supposing the man mentioned the Waverley line and forgot the Botany trip? I suppose we would have to take his word.
6852. Suppose now that a man was committing fraud, and that while running on a very heavy line he wanted to make it appear that he was running on a light line: suppose he had been doing four trips to Waverley and two to Forest Lodge, and that wishing to be cautious he said when he came in that he had been two trips to Waverley and four trips to Forest Lodge, reversing the order of things? Well in that case we should put four trips down to Forest Lodge I suppose.
6853. That would not affect that man's returns if you were making an estimate of his running compared with another man's running? No.
6854. Well is there no check upon that? No, unless the foreman could say where the man had been running.
6855. Have you no running board? We receive a paper from the foreman every week as to where a man should run, but a man might be marked off for Waverley, and on Monday night, when we ask him where he was running, we might find that he was going to Marrickville.
6856. You mean that the board is not adhered to? It is not.
6857. Is it not right and proper that there should be a daily statement of the lines upon which the men are running? Yes, I certainly think that we should have a statement which could be relied upon.
6858. Could that not be done? It certainly ought to be.
6859. Who would do it? The foreman.
6860. Could he not each evening make a statement of the runs? He would have to be certain whether a man had had so many trips.
6861. But could he not determine what he was going to do on the next day? No, I do not think so. A man might be wanted for one line when he was marked off for another.
6862. But could not the foreman say, "As far as I know, that is how the men will be running to-morrow? Yes.
6863. If an alteration took place, would it be a herculean task to let you know that Brown, for instance, had been taken off one line and put on to another? No, I do not think so.
6864. If you had such a statement before you, would it not be a check against the men? A great check.
6865. You would know something about them, whereas now you are entirely dependent upon the truthfulness of the man as to where he has been running? Yes; at present we never go out of the office to know what a man is doing.
6866. If it were only a matter of apportioning the earnings it might not be such a great question, but as far as I can see it would be important for a dishonest man to say that he had been less upon one run than upon another? It would, but suppose a man comes in and his register is right, it would not much matter on what line he had taken the tickets.
6867. But we are assuming that a man's register is not all right, and that he has been cooking? Of course that would be a different matter.
6868. Under such circumstances would it not be important to the man to be able to say, for instance, that he had been running more upon the Forest Lodge than upon the Waverley route, when as a matter of fact he might have been running almost every trip to Waverley? Yes; but if a man was running on the Waverley route and brought in 400 when we knew he ought to have 600, it would be reported.
6869. You seem to lose sight of the fact that the man's register would be faked. How often have you made a report such as you have just suggested? If we thought that a man ought to have more tickets we should make inquiries and see what he had been doing.
6870. Have you done that often? No, I have not.
6871. Is it a fact that you have given much consideration to the matter? Sometimes I have thought that a man ought to have more tickets.

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6872. If we are told as an absolute fact that the conductors are not asked where they are running to, what would you say to that? I know that they are asked. As far as I know they must be asked unless the clerk puts them down in the book by guess-work. They never check an assistant without asking him where he is running.

6873. But as to the conductors-in-charge? They are booked for certain lines and they are always on them.

6874. Are they never taken off? Yes; last night a man on the Leichhardt run was at Waverley as an assistant. He would be booked to Waverley.

6875. For the whole of the day you mean? He came in at 5 o'clock, having finished his day's work at Leichhardt; then he went on to the Waverley line, making a clean start.

6876. Is it a fact that the conductors-in-charge are shifted about? Yes; when they do overtime.

6877. But not as a rule? No.

6878. *Mr. Brock.*] The same conductor would be on the Coogee line for years? Yes.

6879. *President.*] Do you mean to say that a tram never comes in from (say) Leichhardt, changes its board, and then goes out to a different place? No; not that I know of.

6880. Does that not frequently happen? No; not that I know of. I know that there is a conductor on the Leichhardt line who changes about sometimes, but we know of that.

6881. As far as you know the motor always runs to the same place? Well sometimes on Sunday a railway tram will be sent to Coogee or Bondi.

6882. But on ordinary days? They may be changed, but I do not know of it.

6883. You see the object of my question? Under circumstances such as those I indicate a man will be frequently going on to another run. We could not say it was so unless the men told us.

6884. With a tightly worked time-table that might have to be done? Yes; I understand what you mean, but the men should come up and have their bag emptied, and tell us.

6885. But you do not know whether the men do that? No; but when they come up we are always ready to empty their bags. I think it would be better if our office were at the terminus, because we could then keep a better lookout on the men; it would also save two men's wages. There are two conductors bringing the bags in now, and I consider that is very dangerous.

6886. Supposing a man came to the office and told you that he was going to the racecourse, you would read his register; suppose that man did actually five trips to the racecourse, and afterwards came to you and said, "After all I did not go to Randwick, I continued on the Botany run," what check would you have against that? We could check him very easily, because when a man is going out to the race course his register is read, and there are clerks there to receive his earnings. We could easily find out whether the man had been out to the course, or whether he had not.

6887. How? By inquiry.

6888. It would be so exceedingly transparent that the man was obviously telling the truth or perpetrating a great fraud that you would not allow the matter to pass without inquiry? No.

6889. Has it ever happened in your recollection that a man, after coming to you and having his register read and prepared for a race trip, has come back and told you that he did not go upon the race run after all? They have done so.

6890. What means have you taken to verify his statement? The man might say, "I did not go to the race-course; I went to the cricket-ground."

6891. But do you accept his statement? Yes.

6892. You actually say that if a man who had been entered for the race run were to come and tell you that he had been withdrawn from that run and had been put upon another, you would accept his statement? Yes.

6893. Why did you not say that in answer to my other question about the man who might have been running on the Botany line? Well the man could not have had five trips; he might have had one.

6894. But if he could have had one trip you would accept his statement? It might happen in this way: A man would come up and say, "I am going on to the racecourse," he might then go down to the foreman and be asked to go on to the cricket-ground; he would then come back and say, "I have been on to the cricket-ground, I am going on to the racecourse now."

6895. You know that the man might have been ringing one for every shilling, and you accept his statement that he has been ringing one for every penny? Yes.

6896. If you admit the principle—if you say that you would accept such a statement without question—I do not see how you could limit the thing to one trip; why should not the men do five trips as well as one? If it comes to that a man could go to the racecourse five trips, and say that he had been only four.

6897. Don't you see that in that case a man would be ringing one for every shilling, whereas in the other case he would be ringing one for every penny, thus making 11d. for himself? Well of course we have to take the man's statement.

6898. *Mr. Brock.*] Suppose the register is faked? Of course that could be done.

6899. I understand you to say that under the present system you take the earnings every trip? Yes.

6900. Then how is it that you would not know whether a man had made four trips or five trips? The conductor is instructed to come in at every trip, but he might not do so. The bags are emptied at the racecourse during the day, and in the evening here.

6901. *President.*] Does the clerk at the racecourse work in unison with you? Yes.

6902. I suppose you compare your lists at the end of the day? Yes.

6903. He gives you a return of the men's running? He compares the bags emptied here with the bags he has received.

6904. Would not the comparison of the lists act as a check upon the men? Well under certain circumstances, a man acting as you suggest would be bowled out at once, but I suppose that if he wanted to perpetrate a fraud he would not get out of his car at Randwick.

6905. You said just now that you took a man's word in regard to his trips, now you say you compare the two racecourse lists; would not that act as a check? We might make the comparison, but if a man's name were missing from one of the lists, and he said that he had been running on some other line we would have to take his statement.

6906. You enter the men I suppose who come to you to have their registers read for the racecourse? Yes; and we suppose they are going there.

6907.

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6907. Could you not say to your clerk, who was going out to Randwick, "Here is a list of the men that are coming out to you"? The clerk is already at Randwick, he will have gone out at 10 o'clock.
6908. Have you not telephonic communication with Randwick? Not that I know of.
6909. Would it not be very simple for you when you have ascertained the number of men put on to the racecourse, to send that list out to your assistant at Randwick? I should have to send out a lot of lists because a man might come up at any moment to have his register read. The men do not know where they are going to.
6910. Does it not strike you that the present arrangement is wretchedly imperfect? I can see now that it should be different.
6911. Are you not in your position expected to make arrangements for proper collection and for the checking of conductors? Well I am supposed to receive what the men bring in; I am not supposed to know where they have been to.
6912. You do not deal with the registers now? No.
6913. The men in the first instance would have to go to Mr. Oakes to get their registers read for the racecourse, and they would afterwards bring in their returns to you? Yes.
6914. Does Mr. Oakes accept the statement of the men that they have not been to the racecourse? I do not know.
6915. Do you think that Mr. Oakes, having prepared a man's register for the racecourse, accepts his statement that he has not been there? I cannot say.
6916. How often has a man come to you and said, "I have not been to the racecourse, I have been to some other place"; how often in your whole experience has that happened? I should think that there would be about two men on each race-day.
6917. As many as that? Yes.
6918. Out of what number? About twenty.
6919. And you accept the statement of these men without the slightest inquiry as to whether they have been to the racecourse or not? Of course I should see the other returns from the various lines, and I should know whether they were near the mark.
6920. In our opinion this is a case in which cheating of a most exceptional kind could be resorted to. A man is enabled to cheat to the extent of 11d. every time he rings his bell; it is a chance which a man would not get in a whole month of his ordinary time? Yes; I see that.
6921. And yet you have not seen that it is necessary to substantiate the statements which the men have made? Not in the way that you suggest.
6922. You still think that this has happened twice on an average every race-day? Yes; I should think there would be two men on an average.
6923. How often, as far as you can recollect, has Musgrave come to you and told you that having had his register read for the racecourse he has been put on to another line? I cannot remember Musgrave having said so at any time.
6924. Can you remember the names of any of the men who have done so? I think Bartley has done so, but he is a very precise man. I am sure that if he was running only to Liverpool-street, and was going on to another line, he would have his bag emptied; he is so very particular.
6925. Is Ferrier among the number? Not that I know of.
6926. Is Fraser do you think? If I looked over the book I could tell you.
6927. Do you remember O'Donnell having said such a thing? I should like to refresh my memory before giving you any names.
6928. Are you able, from reference to your books, to give us this information reliably,—can you say definitely what men have done this thing and how often they have done it? I could give you an idea. I have known men to have been to the racecourse, who have had their registers read, who have said that they were going on to other lines, and who have come back to the racecourse again. They would go on perhaps till the traffic was light; then the foreman would take them off again; but before going they would come in and have their registers read.
6929. Is it the case that a man might be put on to the racecourse perhaps several times in the course of one day? Yes.
6930. But it would not suit a man to be transferred from the racecourse to the Marrickville line and still to have the racecourse earnings debited to him? Of course that would not suit him. We have an order that a man going to the racecourse shall start with a clear bag, but should I be expected to make inquiries in every case where a man told me of a change?
6931. I think if you did your duty properly you would? Then all I can say is that if I did I should have a great deal of running about to do.
6932. Have you ever expressed an opinion about O'Donnell? Not that I know of.
6933. Have you ever said that you suspected any one of the conductors of fraud? I don't think so.
6934. When did you first become aware that the frauds were going on? When I saw them mentioned in the *Daily Telegraph*.
6935. That is the first inkling you had of the matter? With the exception of Keen's register. I remember that he came to the office, and I saw that he could not do what he said he could do. After that I did not bother any more about the thing.
6936. During all these years you never had a suspicion that anyone was robbing the Department? I did not say that.
6937. You never suspected any one of fraud? I never suspected anyone of stealing the tickets. I concluded that if the Government had suspected that there would have been a different system. I concluded that the conductors were supposed to be all honest men.
6938. You do not know much about the conductors? Only from seeing them at the window. I never had anything else to do with them in any way.
6939. *Mr. Brock*] Did you not suspect anyone at the time they were tearing the tickets? No individual conductor. I thought that if they wanted to make tickets they could do so; but I never dreamt that they were selling them.
6940. *President*.] What check have you in regard to the return of the registers by the men;—suppose that a man, instead of returning his register to be read on any one day, were to keep it for a week? He could not do that.
6941. Why? Because we should ask for it.

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6942. When? We should see him at the window.
6943. But he would not come there? What would he do with his returns?
6944. He would keep them? Being a week on the cars?
6945. Yes? That would be impossible.
6946. We have had proof that this has been done from Wednesday until Saturday—that a man did a run on Wednesday and did not bring in the return till Saturday;—what check have you against a man doing that;—I have no great faith in any of your checks? Of course we have to trust to the men to bring in their returns.
6947. If a man chooses to keep his register for a week it gives him greater opportunity for extracting tickets and so forth;—he can do so without any check, except the fear that when he does so someone will notice it? I never knew a man to keep his register a week.
6948. How can you be sure that he does not do so? If a man made no return I should ask if he was still on—I should go and see the time-book and ask the foreman.
6949. Why did you not do so on this particular occasion? I do not know to what you refer.
6950. Musgrave kept his register from Wednesday until Saturday, when he returned a collection for Wednesday, and, for aught we know, other days between? When did it happen?—I was away in March and part of April.
6951. But I suppose the system would continue irrespective of your absence? I could not see how a man could do such a thing.
6952. What systematic check have you against such a thing being done? The only check we have is to take the man's word.
6953. You take that for everything it seems to me? Well for a lot of things.
6954. But if you had a list of the men's runs every day, and were to receive an intimation from the foreman that such and such a man had been changed, you would have a perfect check? Yes, I suppose so.
6955. You would see the list and compare the day's takings with it, and you would at once wonder why (say) Jones's return was not in? Yes.
6956. Has it ever happened that a man has been sent to the racecourse and has brought back Coogee tickets, and that you have been unable to determine to what line the earnings should be credited? I remember a case some two or three years ago where a man went to the Cricket-ground, to the races, and to Coogee.
6957. He had his register set for the races? No, for Coogee.
6958. But he would not come in for a special reading for Coogee? We used to read the registers for the Cricket-ground when the fare was 3d. The man was running to the Cricket-ground and was sent on to Coogee. I think he also did a trip to the racecourse. I know that he had three runs.
6959. What did he return? I do not remember; he credited so much to the racecourse and so much to the other runs.
6960. Supposing he had been a scoundrel he could have taken any amount of the racecourse earnings? Almost the whole lot.
6961. Is that what you call system? No, it is not.
6962. Did you report it? No; it happened some years ago.
6963. If a man did such a thing on that occasion could he not do it again? He could. I think the system is wrong in that way.
6964. Was it not your duty to point it out? I could not stop him; there was no one to read his register.
6965. Could you not have reported the matter, so that someone in authority could have said, "Lee, if you ever do such a thing again you will be dismissed as sure as you are standing there"? The man would have had to disobey the foreman. If the foreman sent a man to Coogee, and he came back and did not have much of a load, and he were told to stop at the racecourse and pick up there, what could he do?
6966. A man is on the Coogee run, and, although he is running within 1d. and 2d. sections, he is told by the foreman to stop at the race platform and collect shillings? Yes.
6967. What foreman told him to do that? I do not know.
6968. If it had been reported the foreman might have been brought before some authority and told that if he did such a thing again he would be dismissed? I only remember one case of the kind, and that is Lee's.
6969. That is the case of an honest man finding himself in a difficulty, and saying truthfully, "I have been on all three of these lines; I do not know what belongs to one, and what belongs to the other"? Yes.
6970. Suppose the man had been dishonest and had kept back all his race earnings, and had come to you with his return, saying, "Coogee;"—would you have been any the wiser? Not a bit; the traffic seems to be regulated by the foreman.
6971. Is it not a fact that racecourse and other tickets are often mixed up in such a way that you cannot tell what has been collected? No; the racecourse tickets are always kept separate.
6972. Are the racecourse tickets the same as the others? Yes; there are twelve of them.
6973. Would it not be better to have shilling tickets? Yes, a great deal better.
6974. Suppose under present circumstances the racecourse tickets got mixed with the tickets of another line, it would not be possible to distinguish them? They never get mixed with another line.
6975. But on one occasion, as you have admitted, they were mixed? Yes; that was one case, but it is some years ago.
6976. You tell us in one moment that the thing has occurred, and then you tell us that it cannot occur? If every man were to bring in his return as he should do it would be credited separately.
6977. Has this mixing of the tickets not occurred more than once? The case I have mentioned is the only one I have heard of. If a man were on the racecourse it is not at all likely that he would allow himself to be put on to the Coogee line, where he would register a 1d. at every ring, without reporting the matter.
6978. Have you not often told Moran that you have had racecourse tickets mixed up with others? I never had much conversation with Moran.
6979. But did you not tell him that? I am almost prepared to swear that I never told him that.
6980. If Moran tells us that he did, he is fabricating? I do not know much about Moran.
6981. That is not the question? I never had any conversations with Moran about the working of the office that I know of. If I had anything to say about the working of the office I should not go to Moran; I should go to Mr. Roberts or to Mr. Tyrer.

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Frank O'Brien called in, sworn, and examined:—

6982. *President.*] What is your position in the Tramway Department? Traffic Inspector.
6983. For how many years have you been so employed? Nearly five years.
6984. How are you engaged; what are your duties? They are principally in connection with accidents. I have to keep to record of all accidents—to make a report of them and to collect information. In cases of claim I prepare briefs for the Crown Solicitor.
6985. Who gave you instructions to do that work? The Commissioner in the first instance.
6986. Did he send for you personally and tell you to do it? I have had several personal interviews with the Commissioner.
6987. Had you no instructions from the Secretary? I received instructions afterwards from the Secretary from time to time.
6988. Who gives you your general instructions? The Secretary. Perhaps I had better explain the matter from the beginning: I had several interviews with the Commissioner and the Secretary in connection with tramway management, and especially in connection with the frauds at that time. I was engaged in considerable trouble, owing to different parties each defending themselves against the other. I had to make inquiries in all matters of that kind. I went into the matter of frauds as far as the conductors went; then I had to take up cases of accidents specially; now I continue to do those cases and to make any inquiries sent to me by the Secretary. I have a general supervision over the conductors, and if I see anything wrong I go to Mr. Roberts, or perhaps write to him.
6989. Are you under Mr. Roberts? No; I am specially kept free from the different departments, so as to enable me to make an impartial report of any matter sent to me when disputes arise between the traffic and the loco.
6990. Your duties are now pretty well confined to accidents? Yes, and to North Shore work.
6991. Does it keep you fully employed? Yes; in fact I sometimes have more than I can get through, and there is an order that when I require assistance I am to apply to special conductors.
6992. Where do you get the details of the accidents from? The report is sent in from the conductor to the traffic superintendent, and the fireman and driver send theirs to the loco. They are in turn sent to me, and I make inquiry and report.
6993. Why did you send me in a private note, asking that Moran might be excluded from the room while you were giving your evidence? I did not know the course the inquiry might take, and years ago, when I had more to do with the conductors than I now have, I had to report against Moran. I do not want to bring up these old troubles, but I thought that something might possibly be asked me which, if Moran were here, I should not, perhaps, like to answer.
6994. You thought that if Moran were in the room it might tend to the bringing up of an old trouble, is that it? No, not exactly that, but I thought that I might be asked some question bearing upon the matter. I once got a great deal of abuse through bringing up a number of thieving employees who were then upon the trams. The men banded themselves together in different ways, and subjected me to a great deal of annoyance.
6995. I should have thought that you would be more likely to bring up matters connected with the old grievance if Moran were absent than if he were present? That is what I mean.
6996. But I understood you to say that your object in excluding him was that you might not bring them up? No, it was that I might not offend him.
6997. Is it not a fact that you wanted Moran excluded in order that you might abuse him and bring up this old trouble? Not at all; I have no feeling against Moran now.
6998. Do you think it was very proper on your part to send me in that private note? I did not know what to do.
6999. Do you often write private notes? I have done a great deal in that way.
7000. And is this the way in which you always write them? Not necessarily.
7001. How would you write them otherwise? That would depend upon the circumstances.
7002. Is this the form you always adopt? I cannot say.
7003. Do you always sign your name? I sign my initials commonly.
7004. But always your name or initials? Yes.
7005. You swear that? Yes.
7006. When did you write this anonymous letter I have in my hand? I cannot see to read it without my glasses; if you will excuse me for a moment—I swear I never wrote that. I may explain that my handwriting is not certain. I have been shot through the shoulder, and I write very differently at times.
7007. Then if we were to come to the conclusion that you had written this anonymous letter we should be entirely wrong? Yes; dozens of anonymous letters were written about me at one time, and they went so far as to send to the Commissioner a little model coffin for presentation to me.
7008. I received this letter this morning; you are certain you did not write it? I am certain I never did, but I think I know the man Martin to whom it refers. I had to get up an inquiry over the diamond stud business, and Martin was discharged through it.
7009. You said that you had to get rid of some thieving employees in the Department. What connection had Moran with them? He was one of those who was under supervision at the time.
7010. What was he? He was a conductor on the Botany line and he was reported for having appropriated cash fares.
7011. How did he relieve himself of the odium of such a report? It was never proved against him.
7012. But how came he to be removed from the position of conductor and to be placed in a more responsible position? I do not know; I could never understand it.
7013. Whose doing was that? I could not say.
7014. Would such a step as that be taken without the authority of the head office? I suppose it would be upon the recommendation of the Traffic Superintendent.
7015. Did it ever come under the notice of the Commissioner or the Secretary that Moran was suspected of dishonesty? A number of names were submitted to the Commissioner and the Secretary at the time, and Moran's name was on the list I gave in.
7016. It was you who suspected him then? Yes; but I had another source of information.
7017. What other source? A conductor.
7018. What was his name? He is not on the trams now.

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7019. Never mind that; give us his name? His name is Pierce.
7020. What did he say? He gave me general information; it was necessary to do the side-wind business to get at the matter; it was of no use to go openly to such work.
7021. On the information he gave you did you detect any real fraud? Well, I have watched Moran myself.
7022. But did you detect any real fraud? Yes.
7023. What was its nature? The appropriation of a cash fare.
7024. Were other conductors doing that? Yes.
7025. What was done with them? Some of them were dismissed.
7026. Why were not all of them dismissed? It was thought that if an example were made of five or six of the worst cases it would deter the others and give them a chance of mending their ways.
7027. Although it was ascertained that a certain number of men were actually dishonest, only a few of them were punished? Yes; it was with great difficulty indeed that even those men were punished. An inquiry was held by the Minister of the day, Mr. Wright; papers were called for in the Legislative Assembly, and were ultimately produced. They will enlighten you as to the circumstances.
7028. Have they any reference to fraud in connection with tickets? Yes.
7029. It was absolutely proved against certain men that they had robbed the Government, but it was considered just and wise to dismiss a few of them only and keep the rest on? Yes.
7030. Do you know who suggested that course? We could not prove the matter satisfactorily; we went to the Crown Solicitor and submitted several cases to him; he advised that we should not succeed legally in open court and that we should really expose our own weakness. The recommendation was then made to discharge a number of the men.
7031. Who made the recommendation? Myself and Mr. Roberts.
7032. You have given us some most extraordinary arguments and reasonings. We have heard that a number of men were guilty of fraud, and that a recommendation was made that some of them should be dismissed and that others should go scot free? Mr. Roberts and myself compared notes. His source of information was separate from my own. I mentioned to you the name of Pierce; perhaps I ought to add that he is now in a very good position in the Customs and I should be sorry if his name was dragged into the matter.
7033. Is it not a fact that you had no positive proof against any one of the men? No legal proof.
7034. Were you satisfied in your own mind that every one of these men was dishonest? I was.
7035. Then how did you come to recommend that a few should be picked out for dismissal and that the others should be retained in the Service? I was speaking just now of the men actually dismissed.
7036. Did you not lead us to suppose a little while ago that you were absolutely certain in your own mind that all the men you suspected were dishonest? No, not all of them. If I said so I did not clearly understand your question.
7037. But did you not say that there were a certain number of persons who were dishonest and that you came to the conclusion that it would be better to pick out the ringleaders and dismiss them, and to leave the others in the Department? Yes; we picked out the worst of them.
7038. Do you mean that you picked out those who had stolen pounds and that you left those who had stolen shillings? We picked out those against whom we had proof.
7039. With regard to the others there was merely suspicion? There was some doubt about the others. We were not absolutely sure in every case.
7040. What was the nature of the fraud? There were several descriptions of fraud.
7041. What was the system at that time? It was similar to that now practised. The same registers were in use. They were continually getting out of repair and there were different methods by which the conductors failed to pull them.
7042. The same registers you say? Yes.
7043. Well how was the fraud perpetrated? One way was this: They would get the tickets for one compartment, and then miss ringing for some of them. This was easily done, because they got the tickets in a bunch, and they might, for instance, ring only eight for ten. They would go to another compartment and receive cash; they would then ring the ticket-bell instead of ringing the cash-bell, and would put the cash into their pockets, putting the spare tickets which they had previously collected into their bags. That was one system.
7044. How did you prove that against any of them? I have watched them doing it.
7045. You have absolutely seen a man collect a cash-fare and ring his ticket-register? Yes.
7046. What action did you take? I reported it.
7047. And what was the man's statement in reply? He was never asked to make a statement.
7048. Was he dismissed for doing it once? He was among the dismissed men.
7049. For doing it that once? Not for doing it that time alone; it was a common practice with him.
7050. Do you mean to tell me that the men accused had no opportunity of answering the accusation? Not in particular cases.
7051. Did not the men know you? Not at the time.
7052. You were introduced really as a detective? No; I was known to be employed at the time; but I was not generally well known to the men.
7053. Did the conductors know that you were employed? Not at first.
7054. Therefore you were to them an utter stranger? Yes.
7055. What was your course of action? When I noticed anything wrong with a man I made a point of following him, so to speak, for several trips, riding with him again and again to satisfy myself that I had not been mistaken in the first instance.
7056. After satisfying yourself on that point you would recommend his dismissal? I used to put him down on my list.
7057. Do you remember how many men you put upon your list? I think I named a dozen men, and Mr. Roberts also named some. By order of the Secretary we compared notes, our sources of information being different. I think, if I remember rightly, we each wrote twelve names, and when we came to compare them we found that eight or nine, if not ten, were the same.
7058. That is the same men on both lists? Yes.
7059. How many did you dismiss? Five out of the ten which were contained on both lists.
7060. Was Moran one of the five who was retained? Yes.

7061.

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7061. He was one of your twelve? Yes.
7062. Was he on Mr. Roberts's list? No.
7063. How did you come to strike him out? When we compared notes Mr. Roberts said, "I will give him another show."
7064. Mr. Roberts evidently did not suspect Moran? No.
7065. Did you suspect Moran as strongly as you suspected the other twelve on your list? No.
7066. What did you see in connection with Moran? I saw him put a cash-fare into his pocket on one occasion.
7067. Well, what did he do then? He did not ring for it.
7068. Was he challenged with that? I do not think so.
7069. You reported the matter, I suppose? I made a note of it in my list at the time.
7070. Having noticed that Moran did this thing, I suppose that upon the principle you announced to us just now you followed him up on several trips;—what was the result of it? I followed him up as far as I could.
7071. What was the result? I am not sure.
7072. When a man's character is at stake we should like you to be very sure as to what you actually do know? I think it happened about the time that I compared notes with Mr. Roberts. As Moran's name was not on Mr. Roberts's list I think I left the matter alone.
7073. Although you were perfectly sure in your own mind that Moran had put a cash-fare into his pocket without ringing for it, you gave no special consideration to his case as at all events a suspicious one? The matter dropped, as I just said, and after the men were dismissed I did not follow it up any further.
7074. How long after this did you find Moran changing his position? I do not remember when it was.
7075. Is it not rather strange that you should have lost sight of the fact when Moran's position was changed? I was in no way connected with the changing of his position.
7076. But it was changed? Yes.
7077. When did you know of it first? I could not say.
7078. Did it not strike you as a very extraordinary thing that this man, whom you suspected and whom you had actually seen pocketing coin, should be promoted to a position in which he would supervise others? I might have known of the circumstance, but Mr. Roberts might not have known of it.
7079. Did it not strike you as being exceedingly strange that Moran should be promoted in this way? Yes; I have always been surprised at that.
7080. How soon did you consider it your duty to take it upon yourself to report that this was a thing that should not be done? I never reported in the matter.
7081. You were perfectly satisfied that this man who, by your showing, was a rogue, should be promoted to the position of looking after dishonesty in others? I did not make any report about it.
7082. Has Moran's name never appeared in writing in your reports for any action of the kind? No, excepting the lists that I made at the time.
7083. Moran's name did not appear on the revised list? No; his name was only in my original list when I compared notes with Mr. Roberts.
7084. The original list was seen only by Mr. Roberts; it was not seen by the Commissioner or the Secretary? No.
7085. Knowing this, did it not occur to you to be a duty of the highest importance that you should draw attention to this matter when you saw that Moran was promoted as a specially trusted individual? I had no proof.
7086. *Mr. Brock.*] What do you mean by that, when you said just now that you saw him do the thing? Well, there was only my word against his—that was the awkwardness of the position.
7087. But your word was enough to dismiss five men? Not alone.
7088. Was Mr. Roberts's opinion coupled with yours? Yes; we both initialled the same paper.
7089. *President.*] You considered between you that these five men were not the stamp of men who should be employed as conductors? Yes.
7090. A list of ten went in officially, five were dismissed and five were retained;—with whom did the decision rest? With the Commissioner.
7091. I presume there was a report from some one as to these ten men, pointing out that five were actually dishonest, and that, with regard to the other five, there was mere supposition? Yes, so far as their honesty went; they were unfit in other ways.
7092. You mean that they were certainly careless if they were not dishonest? Some of them were in the habit of drinking, and were careless in collecting.
7093. Those were the five who were not dismissed;—were they disgraced? No, nothing was done after the dismissal of the other five.
7094. What happened in regard to the five men who were retained? I rather think that some of them are yet in the Service.
7095. Could you not give us their names? I might be able to do so by going over the whole list.
7096. You seemed to remember the name of Moran glibly enough? Well, I saw him here, and that put him into my mind.
7097. Is that the first time you have had him in your mind since you saw him taking the 3d.? So far as the other men are concerned I was called here this morning without preparation; I supposed that I should not be called at all. I was under the impression that the inquiry was finished.
7098. You would like to have had a week's notice of our intention to call you, I suppose? Not necessarily, but I cannot remember at a moment's notice all these things that happened years ago.
7099. You remembered Moran's name keenly enough? Yes, some of these matters were brought back to my mind very keenly day by day when I was gibbeted in the Assembly by Members of Parliament as a rogue and a vagabond.
7100. You have no personal ill-will or feeling towards Moran? No.
7101. You have not had any quarrels with him? No.
7102. Have you ever had any conversations with him? Many.
7103. Is it not a fact that you are largely indebted to Moran for almost every work which appears to your credit? No.

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7104. Is it not a fact that although you send in these reports, the bulk of the information is collected for you by Moran? No, it is not—I am quite competent to do it myself. I have had twelve years experience in Sydney in connection with street traffic. In these matters I instruct Moran and Wigg as to what I want; they do not instruct me.

7105. Do they not collect a great part of the information to enable you to make your reports? I have sometimes had more on my hands than I could possibly get through at the time, and on my explaining that state of things to the Secretary a general order was given that when I required assistance it was to be afforded me by Wigg and Moran. They have always done their best for me and have helped me in many cases, but they are not from their experience competent to instruct me in any way about reporting.

7106. You send in the reports and get the credit for doing the work? Not special credit.

7107. But the work is considered to be yours? Yes.

7108. As a matter of fact, is it not largely helped out by these men? No, not lately; sometimes for months I have not had to call upon them for assistance.

7109. You tell us distinctly that this alleged dishonesty on the part of Moran never came into your mind from the time you furnished your confidential list to Mr. Roberts until you sent your private note into me this morning? It has often been in my mind.

7110. I understood you to say in accounting for what I thought singular—that your memory should be so good in the case of Moran, that you never thought of the matter until you came here this morning and knew that Moran was here also? I think you asked me as to when Moran was appointed to his present position, and as to whether I did not think it strange; I think I told you that I did think it strange.

7111. I understood you to say that you did not know when the change took place? I do not remember the exact date.

7112. Although you thought the change an extraordinary circumstance you made no report? No; I was alone so to speak; there was simply my word against his.

7113. Then do you absolutely consider in your own mind that Moran is an improper person to be employed as he is now employed? Years ago I should have said so, but a man is not always bad because he has once been so. It does not follow that a bad man will be everlastingly bad.

7114. You think that at one time he was dishonest? I have no doubt about it.

7115. Perhaps you think that on the principle of setting a thief to catch a thief it was after all not such a foolish thing to put him in his present position? No; Moran knew all that was going on on the cars and was therefore of great advantage to us.

7116. You think on consideration that his action might give him a special fitness for the position? To a certain extent, because knowing how the thing was done he would be better able to detect it in others.

7117. *Mr. Brock.*] There was nothing clever in what he did? No; but he would probably know all the methods. It was proved in evidence in connection with the men who were dismissed that several of them had been seen by officials pocketing cash-fares.

7118. Is it not possible that you are mistaken in regard to Moran? Not in this particular case.

7119. You know that he did not ring? He did not ring; he simply put the cash-fare in his pocket without ringing.

7120. Is it not possible that he may have over-rung before? If he had there was nothing to show that he had done it. I know that such mistakes do sometimes happen.

7121. Is that the only time that you suspected Moran, or had any grounds for suspecting him? Yes.

7122. How soon were you removed from that class of work? I was never actually removed from it; but just after the inquiry to which I have referred we were flooded with claims in connection with accidents, and at an interview with the Commissioner he asked what was the best course to adopt. I had been accustomed to manage such matters in connection with the Omnibus Company. I pointed out to the Commissioner what I thought was the best thing to be done—that we should collect all possible information, and keep a proper record of it, so as to be prepared for these claims. Claims were being made three or four months after the occurrence of the accident, and we were being constantly taken by surprise.

7123. You had been some years with the Omnibus company? Six years.

7124. What caused you to transfer yourself to the tramway service? I left the Omnibus Company to go to Melbourne; Mr. William Cain offered me a better position there. My wife, however, is a confirmed invalid, and the doctor advised us to stay in Sydney rather than go to Melbourne. The directors of the Omnibus Company then spoke on my behalf to the Commissioner; this resulted in an interview, at which the Commissioner put me through a considerable verbal examination, and I finally received an appointment.

7125. How long after that was it before you got these cases against the conductors and got rid of them? About eighteen months altogether.

7126. *President.*] You were at work sometime before you made your report? Yes—sometime before the men were finally disposed of.

7127. Before that you were as well known to them as the Post Office? Yes.

7128. Therefore your usefulness in that particular line was really at an end? Yes, so far as any secret work was concerned.

7129. You were so well known that you might have got into a car fifty times, and a dishonest man would have acted honestly? Yes; if he thought I was there.

7130. For a system of that kind to be of any use you must have strangers coming now and again? Yes; that is where Wigg and Moran are placed at a great disadvantage. Whatever their will and experience may be they are put out of court by being so well known. I may add with regard to myself that for six months after I came into the Service my time was fully occupied in reporting for the Secretary upon various matters occurring between different branches of the Service.

7131. What sort of reports would these be? In the first place the Board of Health were writing in the papers about a supposed pollution of the drainage at the Randwick works. I went out, and, in conjunction with Mr. Howe, I went into the whole matter, and we made a combined report about it. Another matter cropped up in connection with the giving way of the brakes. It was suggested that the brakes opened and separated, and there was a question as to whether this was a source of danger. I had to report upon that and a number of other miscellaneous matters.

7132. I hold in my hand a copy of the Parliamentary paper to which you referred? Perhaps before you proceed further I may be permitted to say that in the part I took in the punishment of the men referred to

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to in that paper I made some enemies, and that they have subjected me to continual insult and snubbing. Anonymous letters have been written to the Commissioner, and also to my wife, couched in the most filthy terms. I believe Mr. Roberts also had a number of anonymous letters sent to him. Just after this occurred a model of a coffin, which I hold in my hand, was sent to the Commissioner for presentation to me. The Commissioner joked about the matter, and said it was rather complimentary to me than otherwise, and it showed that I had done my duty. I mention the matter to show that there was a good deal of spite against me. That has continued almost till now. I have never reported against a man unless I thought him deserving of it.

7133. But this kind of treatment may not proceed from men in the Service? I very much doubt as to whether some of the men now in the Service did not do it.

7134. Perhaps some of the suspected five? Very likely.

7135. What are the names of the five suspects who were not dismissed? I suppose I may ask whether I am liable in any way outside for evidence that I may give here. I am not in a position, after all these years, to give you absolute proof, but I think there are documents in the office which will show you something about the matter.

7136. You can do no harm by mentioning the names of the five men who were under suspicion; you need not say anything more than that;—the retention of the men in the Service itself shows that the suspicions were not well founded, so that the mention of the names can do you no harm? Conductor Tipping, who is still in the Service, is one of them; Matthew Williams and Thomas Lane, who are also in the Service, were others.

7137. Lane went a little off his head, and was out of the Service for some time? I know that he has had an accident since then.

7138. He was the man who smashed his register very badly? I did not hear of that.

7139. Are the other two men out of the five not in the Service now? Cavanough and O'Connell were two others; they are not in the Service now.

7140. I presume you have since observed the conduct of the three men, viz., Tipping, Williams, and Lane? Yes.

7141. Have you ever had cause since to suspect them? With Williams I have; but I don't think I can say fairly that I have with the others.

7142. What line is Williams on? He is on the Leichhardt line. He was on the Randwick line for a considerable time.

7143. The stout dark man? Yes.

7144. Was there ever any report about Williams? He was on my list.

7145. But since then? I fancy there have been, but not from me; I think the Superintendent has had many complaints about him. I do not know whether they bear upon the question of dishonesty, but I rather think he is very well known in that connection.

7146. When had you first any knowledge that these frauds were going on? Do you mean the present frauds?

7147. Yes? I have no personal knowledge; I only know of them from what I have heard. The first I heard of them was from a sensational paragraph which appeared in the *Star* about the 14th July. I have rumour of special conductors making inquiries, but I have known nothing about the matter.

7148. Are not these special conductors under you? No; the only time they come to me is when I am pushed with work; then they help me in making inquiries.

7149. I thought they were assistant inspectors, so to speak? No.

7150. But they are properly so? They were called, at one time, revenue inspectors, but the term was afterwards altered to special conductors.

7151. Were they employed at the time these men were dismissed? Wigg just came into the Service at the time these troubles occurred. He was formerly connected with the detective police.

7152. Where was Moran before he was employed upon the trams? I do not know.

7153. Therefore you really have no information to give us about these frauds? No, not about the present frauds.

7154. You have observed from the papers that certain men have been suspected? Yes.

7155. What is your opinion of these men—of Musgrave, Fraser, and Ferrier, for instance? I was not at all surprised to hear what I did about Musgrave; he was knocking about a great deal and living evidently above a conductor's pay; then he was running about on the cars all day, smoking good cigars and dressing in a flash sort of way.

7156. What about Fraser? I did not like his manner, but I am not prepared to say there was anything wrong about him.

7157. And Ferrier, what of him? I had a very bad opinion of Ferrier before he left the cars; in fact I have often spoken to Mr. Roberts about him. He was indirectly the cause of the death of a girl on the Leichhardt line—that is, if he had been in his proper position on the tram the accident might have been averted. In talking that matter over with Mr. Roberts the question of his being a bad specimen of a conductor cropped up.

7158. Not so much as to his being dishonest as negligent and careless? Yes; he would be talking with flash girls rather than looking after his duty and collecting his fares.

7159. I understand that for some years you have not very specially directed your attention to the supervision of the men? No, I have not.

7160. It has rather been handed over to these special conductors? To some extent.

7161. Therefore you are not in as good a position as you formerly were to answer for the men's characters? No; whenever I see anything now I go to Mr. Roberts personally, or write to him, and the same with the locomotive branch. If it is not a matter requiring a special report, I mention it to the heads of the department or to the traffic or running foreman.

7162. Do you remember a conductor named C. S. Wilson? Yes; he is one of the men mentioned in your anonymous letter.

7163. Are his initials C. S.? I am not sure. I used to know him as Charles Wilson. You will find a statement of his case in the Parliamentary paper I handed to you. He was one of the batch who were put down for dismissal.

7164. On what date was he dismissed? About April or May, 1884.

7165.

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7165. Have you any idea where he is now? I have not seen him for twelve months; about that time I saw him in Sydney; he had a brother who was at that time driving a motor. He was one of the prime movers in the matter of the diamond studs; he and Cullen were the two principal men who were against Mr. Roberts in that matter.

7166. Did you know Martin? Yes.

7167. What was the matter with him? He confessed at the inquiry that he had used Mr. Roberts's name for the purpose of getting other men to join in a raffle for a set of studs.

7168. *Mr. Brock.*] There is a great similarity between the writing in this anonymous letter and your own handwriting? There may be; I do not always write alike.

7169. *President.*] Do you know the writing on the anonymous letter which introduces my name? No; I am not surprised at your receiving an anonymous letter or at my handwriting being imitated; Mr. Roberts has been deceived by it repeatedly.

7170. Do you not yourself recognise a similarity between the two handwritings? Yes.

7171. Look for instance at the two words "you"? It is a very good imitation, but I am not the writer of the letter.

7172. It is not the writing you generally use, nor is it the writing of the note which you sent in to me this morning; that also appears to be different from your usual handwriting? Whoever did it has done so to place me in a false position—that is, by imitating my handwriting.

7173. We do not think for a moment that any one has attempted to do that;—where is Martin now? I saw him in the Supreme Court in Sydney about a month ago.

7174. What is his history? I only know it since he has been on the trams.

7175. He was dismissed? Yes, for using Mr. Roberts's name in connection with a raffle.

7176. Is he not the man who persisted to the last that he was innocent? He has often told me that he was innocent and that he has had to suffer for it. There was a man on the cars named Earley, and a chief shunter, named Webber, who had the credit of being infatuated with anonymous letter writing. Rightly or wrongly, the anonymous letters written about myself and Mr. Roberts in connection with the diamond stud business were attributed to them. I remember Mr. Roberts getting an anonymous letter about me; the handwriting was a good imitation of mine and similar to that which you have shown me this afternoon.

7177. You are not connected with this letter in any way except in your own mind? Except that I am supposed to have sent it to stir up the old business about the diamond stud business.

7178. But it simply says that two men can give us valuable information about these frauds? No doubt Martin might give you information about what was going on on the cars about that time.

7179. We do not want to hear anything about the diamond studs because that matter was inquired into by the Commissioner at the time and he came to a certain conclusion? Yes, I am aware of that, but some of these men who write anonymous letters think because I was very much abused at the time I have a feeling against the Department, and that I should only be too glad to ventilate a supposed grievance, but I have no sort of grievance in the matter. My one idea is to get the thing right in the future, if possible, and to have a better system of collection, but the way in which they have written anonymous letters to me is dreadful; it is simply because of the action I took in connection with the diamond stud inquiry, which took place about the same time as the other trouble which I have mentioned to you in connection with the conductors.

7180. When did Martin leave the Service? Just after the stud inquiry.

7181. That would be nearly four years ago? Yes; in 1883 or 1884.

7182. Now, as to the system of collection;—you do not think much of the present system of bell registers? I have no faith in the registers, and still less faith in permitting the public to sell tickets. I think that has always been a weakness. In the old days we tried the same thing with the Omnibus Company, the result being that the 3d. tickets were picked out of the receptacle with a pair of tweezers, and were sold by the men for 1½d. to different small shops and hotels, at which they were resold for their full value.

7183. How many years ago would that be? About ten years ago.

7184. You are as much against the system of the sale of tickets by the public as against the bell registers? Yes.

7185. Why are you against the bell registers? Because they can be rung without registering if they are pulled in a certain way, that is, when the works once get weak. At the time of inquiry to which I have referred, I took several pairs of registers up to Mr. Felton, who was then repairing them; we examined them together to see if they were manipulated, and in every case he came to the conclusion that it was mere wear and tear. In some cases the teeth had worn out, and in other cases the spring had run weak; the result of this was that the bell would ring and that the tongue would not go back sharply if it was held by the conductor. The conductor in fact could ring a dozen times without letting the tongue go back at all, the result being that the fares would not be registered.

7186. Therefore this thing was absolutely known years ago? Yes, it was called tricking.

7187. Was the question never considered as to whether the registers ought not to be abandoned? It was known that they were not reliable.

7188. You, at all events, appear to have known it? Yes; Mr. Primrose knew it; he was then under the audit.

7189. Lambert did not know it? This was before Lambert had anything to do with the registers, except as a special conductor. He had not the repairing of the registers at that time. Since Lambert has had them they have been kept in better order; but I suppose that the time I refer to some weakness existed.

7190. Lambert seems to have known the weakness, but strange to say he had the highest opinion of the registers as a system? I cannot imagine that on the part of anyone who has studied them. They were out of use for a time, and when they were about to be brought into use again I wrote to the Secretary about them. You may remember, Sir, that I spoke to you about them, although I did not explain their defect.

7191. Not in the way you now suggest? No.

7192. Were you responsible for the introduction of the ticket-tearing system? No; not in the way it was carried out.

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7193. You do not believe in that way? No.

7194. Did you recommend anything at the time? I recommended that a ticket half red and half white should be used.

7195. That is the system you are advocating now and about which you wrote to me? Not exactly. The tickets should have been torn in two in the presence of the passengers and only one ticket should have been taken at a time. The great weakness of the system was that they were taken in a bunch, thus enabling passengers to avoid payment and causing mistakes on the part of the conductors.

7196. Under your system the passenger would tear off a portion of the ticket, handing the remainder to the conductor? Yes, and the portion given to the conductor would be put into a locked bag.

7197. Were you not consulted about this ticket-tearing system;—my impression is that you were? No, I was not. There was a difficulty in getting sufficient bells in good condition and I pointed out to the Secretary that as we used little cash only one bell should be carried. The Secretary remarked that he thought the bells would shortly be taken away altogether; that was all I knew of the system being adopted by the Department.

7198. Is it not your opinion, as a practical man, that the ticket-tearing was less effective than the bell registering? In the way it was carried out, it was. We have badly lighted cars and there is every opportunity for the dishonest conductor to practice up stairs without any possible fear of detection. Of the two systems I should still be almost inclined to favour the registers if they were reliable—that is in preference to the tearing system as it used to be carried out.

7199. I presume you are aware that the registers can be so little relied upon that it is not considered a fair thing to expect that the bag and the register will agree? I am aware of that.

7200. Why cannot that be fairly expected in the case of a careful and honest conductor? He is so liable to miss ringing, and then he may take tickets in a bunch and count the passengers instead of the tickets ringing accordingly. He may often make a mistake in that way. Then we have to deal with great crowds; in fact overcrowding is one of our greatest troubles.

7201. You believe that a careful and honest man put on to a very crowded trip would not be likely to come out right in the end? I believe he would not.

7202. You think it is too much to expect that the bag and the register should agree while these difficulties exist? Yes.

7203. Do you think that they should agree upon a light run? Yes.

7204. But that upon a crowded car a conductor with the best of intentions is very liable to mistakes? Yes, on a holiday you may see men, women, and children, hanging on to the footboards in a most dangerous way. We incur all the extra risk without getting any compensation for it, as the conductor could not possibly tell who had paid or who had not. Take a crowded compartment with a number of people standing up; a conductor receives a handful of tickets and he cannot possibly tell whether they are right or whether they are wrong.

7205. How do you propose to get over the difficulty of the sale of tickets by the public under the system of tearing which you suggest? It would not be overcome; we would still have that weakness.

7206. Therefore you would recommend something different? Yes.

7207. What is your proposal now? It is on the lines of the Glasgow system; there they work three sections, a 2d. and two 1d. sections.

7208. Is not the Glasgow system identical with the Melbourne system? Not quite; in the one case the conductor carries either a loose ticket or a small book with a counter foil; he tears out a ticket and punches it with a bell punch, handing it to the passenger as a receipt for the money he has received; under the Melbourne system the passenger gets no receipt.

7209. But the punch is a receipt? Well he hears the sound and that is all. It is one of the weaknesses of a bell system of any kind that a conductor may carry a bell in his pocket which will sound the same as in his register.

7210. You think that the passengers should have both an ocular and oral demonstration? Yes; the ticket or slip, as the case may be, should be punched; in both cases the piece will be coloured to denote the value, and will fall into a receptacle in the punch; these pieces can be counted to check the conductor.

7211. In our mind there is a serious objection to the Melbourne system—in the greater length of the process; would not the process under the Glasgow system be still longer? Not if the conductors adopted the plan of carrying a little book instead of loose tickets. I propose that they should be allowed to collect through fares, a red ticket representing a 2d. section and a white ticket a 1d. section. Take a book on the Waverley line—the red portion at the top of the ticket would be marked from Bridge-street to Queen-street, and the passenger going that distance would have only to pay 2d. If the passenger were going to the Bondi junction, the conductor could punch the 2d. section and the first of the two succeeding 1d. sections. If the passenger were going to Waverley, the conductor would punch all three sections, handing the whole block to the passenger.

7212. Would not that be a very complicated and long process? It takes some time to describe it, but I do not think it would take much time in operation. Considerable time would be saved in the collection of through fares; it would be of assistance not only to the conductors but to the passengers.

7213. Would you have the sale of the tickets in the hands of the conductors? Yes, solely.

7214. Would you not allow a man to buy a dozen tickets, giving him a small allowance, as in the Melbourne system? No, that is one of the weaknesses of the Melbourne system; it is done to oblige the public; to avoid the bother of getting change.

7215. Under your proposals you would have nothing but cash-fares? No.

7216. The conductor would receive the money and debit himself in two ways—by punching the ticket, and by the record made in his punch by the act of punching? Yes.

7217. Are you satisfied that under this system the punch would show an absolute and reliable balance, as in the Melbourne system? It should do so if the punches were kept in proper repair, but they might go wrong upon wet days.

7218. Why? Because then the tickets might get wet and the punch might get plugged up.

7219. Is not that a fatal objection? Well, assuming that the conductor gives in his account at the end of every round trip, his punch could then be examined.

7220. But if the weather were very wet and the difficulty occurred on every trip, would it not afford a great chance to dishonest conductors? To some extent.

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7221. Whenever it is wet a dishonest man might say, with a shrug of his shoulders, "It is wet weather, my punch is plugged up; you cannot expect the two things to agree"? It is not absolutely free from that objection; it is a feature in the San Franciscan system from which the Melbourne system is taken.

7222. We have had this system fully explained to us by a gentleman who has been engaged upon the trams in America, and who assures us that on almost all occasions the punch agrees with the collections, and if it does not agree the man is simply told to pay up? No doubt it is so; it is so in Melbourne.

7223. But in these places where there is perhaps more rain than there is in Sydney, how is it that they have not met with the difficulty you mention? It does not often occur.

7224. What does occur? Merely that the tickets get wet through being carried outside. It would not be so bad in my system, because the tickets would be carried in a book.

7225. What happens to the punch? It gets clogged up so that the piece taken out of the ticket by the punch does not drop into the receptacle.

7226. *Mr. Brock.*] But the books in which your tickets were contained would not get wet? No.

7227. In our cars the men could always be in shelter? Yes.

7228. *President.*] In your system you would have different books for different lines? Yes, and they would be marked from one section to another.

7229. Is this your own system? No, Parkinson, one of the men on the North Shore line, who has worked under the Glasgow system, the San Franciscan system and the Melbourne system, advocates it. About twelve months ago I was trying to get the Melbourne system brought into use on the North Shore line. I had several conversations with Parkinson, and he told me how the whole thing could be done. His opinion is that the Melbourne and Glasgow systems are the two best. He tells me further that in the Melbourne system the selling of the tickets is the one weakness; the conductors sell at 2s. 9d. per dozen, and there is nothing to show whether the conductor is paying in a 3d. fare or one of the tickets at 2s. 9d. per dozen; he punches the slip, and it shows the value for 3d., or one of these tickets, but the ticket itself, and that is the weakness, is not punched.

7230. He punches the slip? For 3d. or for one of these tickets. He gets 3d. in another direction, and instead of paying in the 3d. he can pay in the pay which can represent the same thing.

7231. You mean that a man may withdraw 3s.-worth of cash and substitute tickets for it, thereby putting 3d. into his own pocket? Yes.

7232. *Mr. Brock.*] Is there not a different slip for cashing tickets? No, it is the same.

7233. *President.*] Are we to understand that the system you advocate is the Glasgow system in its entirety? It is substantially the same, except that the book is substituted for the loose tickets.

7234. Your system involves a perforation and a butt? Yes.

7235. Where do the tickets come from in your Glasgow system; where does the conductor hold them? He carries them loose in a bag and puts the cash into his pocket; then there is the double check with the bell punch; he must punch every ticket as he hands it to the passenger.

7236. Do you think the public are so careful that a really dishonest man could not give them tickets without punching them? I daresay he could.

7237. Or on the other hand that he could not pick up some of the tickets and resell them? That is just what they used to do here, and what they are doing now at North Shore.

7238. How do you obviate that under your system? You could not help it to a certain extent. The system is not absolutely perfect; you must necessarily trust to some extent to the conductors. We sadly need some more outside supervision; a conductor can do almost as he likes from the time he leaves Bridge-street until he comes back again. There is no one to jump on to the cars and check him in any way; to watch him, or to look after him. The system which prevails in Melbourne is found to work well in that direction; some of the older and trustworthy conductors get 6d. a day extra, and anything they notice on the road they immediately report. This is known to all the men, and the system works very well.

7239. They have a sort of monitor conductor? Yes. If a man is reported for doing anything wrong you can employ a strange detective and that detective will have a good chance of bringing the thing home to the man.

7240. I suppose they have the same system of uniform inspectors as that which exists in New York? Yes, they can get on to a tram on any part of the journey if they have reason to suspect a man and can count the passengers.

7241. Do you think the system you suggest could be worked well on crowded trams? Not on crowded trams as we understand them, but it would answer on the new 70-passenger cars and on the single-decked 60-passenger cars. One conductor would be required for each car at a busy time, but there would be a considerable saving on the present cost of tickets and that would go far to meet the expense.

7242. You believe in doing away entirely with upper decks? Yes.

7243. Don't you think that a system which would place the registration of the cash received entirely beyond the conductor would be a good one? Undoubtedly.

7244. An automatic system? If such a thing could be done it would be a grand thing.

7245. That is to say that the passenger would have to put the money in for himself, and as it passed through the machine it would register itself so that when the conductor brought in his returns he would have a certain number of pence against him on the inside of the register and that amount he would have to pay up. Any system which would prevent the conductor from handling the cash, which is always a temptation, would be a good thing.

7246. Suppose the conductor were allowed to handle the cash to the extent of giving change out of it; you would not like that? Not if a better system could be arranged. I have heard of a great number, but I do not know of any such as you suggest in existence at the present time.

7247. You understand what I mean about the automatic part of the machine; you understand that every fare will have to be deposited in the machine in the shape of a penny. To follow out your view it would be necessary for a man to carry all these pence about with him; if he had not access to the cash for the purpose of giving change? Yes, I see that.

7248. That would be a serious objection, because a conductor would have such an enormous weight? Yes.

7249. But if a system could be devised in which the automatic registration would be so correct, that you could allow the pence to flow into the conductor's own hands so that he might relieve himself by giving change as he went on, you would approve of it? If such a machine could be got it would be well worth trying.

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7250. You like the idea, but you would also like to see if it could be accurately worked? Yes; there is a Berlin system I believe, something like what you have described, but the tickets are printed from a roll carried on the conductor's breast. The tickets are dated and obliterated in one process.

7251. I suppose you are of opinion that the bus system of locked boxes is the best if it could be applied? It is the best check for busses. We tried to get it in bags and boxes, but we could not work it out on account of the rolling stock.

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7252. *President.*] We have sent for you to ask you one or two questions about the way in which you deal with the registers for the racecourse. When a conductor is going out to the racecourse he brings in his register to have it read so that he may start clear for the shilling collection? Yes.

7253. Does it ever happen that a man after having had his register read for the racecourse has come to you and said, "Oh, I did not go to the racecourse after all—I went on to the Botany line; therefore I can give you only the ordinary fares? It would not occur in that way, but this might happen:—A man would run a trip to the racecourse with a register which we had read, and he would afterwards bring it back, have it read again and return to the racecourse; while lying at the racecourse he might be sent on to Coogee to bring in passengers from there, and in that way the fares would get mixed.

7254. What is the sense of that? There is none at all that I can see.

7255. What would you do in a case of that kind? We have always made the racecourse money right, and have given the surplus to Coogee.

7256. But how could you make the money right? A conductor going out to the course in the afternoon would have only a few passengers. The clerk would have come in from the course, but if he had been there the man would, I suppose, have had his register read before he went on to Coogee.

7257. Do I understand that the registers are read at the course every trip? Yes; at each end on race-days.

7258. You think that if a clerk were at the course all day this mixing of tickets could not occur? Not if the register was read.

7259. What guarantee is there that the conductors who go to the course hand in their returns to the clerk every trip? There is no guarantee at all.

7260. The man need not go near the clerk at all? I do not think he could avoid that because directly a tram arrives we are expecting the conductor.

7261. What is the average number of conductors appointed to the racecourse? About twenty I should think.

7262. And out of that average how many having been appointed would not go to the course but would go upon some other line? I have never known a man to do that.

7263. Is it not a fact that on nearly every race-day after the men have had their registers read for the course at least two of the number are sent somewhere else by the foreman? I do not know that has been the case; I have known them to be sent to pick up at the Agricultural Society's ground, or at the Association Ground.

7264. You prepare a register for a racecourse and the conductor goes away; when he comes back to you you have him booked for the racecourse? I should not book him until the returns were earned, because the man after having his register read might return to the yard, and then be sent somewhere else.

7265. That is just the information I have been endeavouring to obtain. What is the object of the special reading of the register when a man goes to the racecourse? It is read because there is a special fare.

7266. And yet you seem to think that it does not matter two straws whether the conductor who has had his register read goes to the racecourse or somewhere else? I did not say that I think; but after a man leaves my window he may be sent on to another line. If that were the case the only difference would be that his register would be read for pence instead of shillings.

7267. But suppose that the man, in telling you that he had been put on to another line, told a lie;—suppose that after all he had really been to the racecourse, and that he had pocketed 11d. out of every fare? Of course he could do that; that could easily be done.

7268. But have you never drawn attention to such a monstrous state of things? I think attention has been called to it almost every time there have been races.

7269. Still you have continued to take the man's word that, instead of going to the races, he has been sent to Botany, for instance? That is easily proved by the man's takings; his tickets will prove that.

7270. Why? If he went to the racecourse he would not have perhaps forty-eight tickets in his bag, but if he went to Botany, he would have to have about 1,500. Then a man coming from the racecourse would have to have his tickets in larger blocks on account of the number required for the fare.

7271. *Mr. Brock.*] But suppose the man makes a guess at the probable quantity of tickets returned by a Botany run at that particular time of the day, and uses his racecourse cash to make up the deficiency in the tickets, and then puts the tickets into his bag? Of course he could do that.

7272. But he would not make more money on the Botany run than on the racecourse? No; but he would take more tickets.

7273. *President.*] The probability is that at that period of the afternoon the run on any other line would be a light one? Yes.

7274. When men have made this statement to you and have asked you to consider their rings penny-rings instead of shilling-rings, have you not considered it necessary to test the statement? Yes; and I think I have frequently done so. I think that on almost every holiday since I have been in the Department attention has been called to this mixed fare business—that is, to conductors going on to two lines, the racecourse and another line, and getting their fares mixed. The foreman has been instructed, I believe, not to allow it.

7275. But this is not a question of mixed fares. A man comes to you really under the belief that he is going to the racecourse, and when he gets down to the yard the foreman sends him somewhere else. The man goes to Leichhardt, and he says to you later on, "I have not been to the races, I have been to Leichhardt." Would you take that man's word, even supposing you thought he had acted honestly, or would you feel disposed to question the foreman? I might do so.

F. Oakes.
19 Sept., 1888.

7276. Mr. Primrose says that on an average two men would be put in this position on almost every race-day, and that no inquiry would be made into the truth of their story? I think you have misunderstood Mr. Primrose. What he means, I think is, that a conductor would be sent to the racecourse, and that while there he might be sent on to Coogee.

7277. We have had that statement from him as well, but there is this other distinct statement, that out of an average of twenty men on the racecourse every race-day a couple are turned off, and are told to go somewhere else, and that their story is invariably accepted? I cannot remember one case where the thing has occurred exactly in that way, that is when a man has had his register read for the racecourse and has then gone straight away on to another line. I remember dozens of cases where men have been sent to the racecourse and have then been sent on to other lines before their registers were taken.

7278. You have reported cases in which fares have been mixed have you not? Yes.

7279. Can you refer us to any of these reports? I have not reported it in writing.

7280. Whose attention did you call to the matter? Mr. Tyrer's and Mr. Roberts'.

7281. Is Mr. Tyrer aware of this? Yes; he has always endeavoured to obviate it, and has said that we should try to avoid it, but sometimes when a conductor has been lying out at Randwick and all the people almost have come in from the racecourse, there still being a lot of people at Coogee, the foreman has sent him on to Coogee to bring those people home.

7282. Why could not the foreman read the register and afterwards give you the reading? I do not think he could understand the register.

7283. But it would be quite possible to insist that there should be someone there to read the registers to meet cases of that kind? Yes.

7284. The clerk who reads the registers at the racecourse sends in his return? Yes; he brings it in when he comes.

7285. It is said that the men need not go to this clerk, and that he does not look after them? When I am out there, and I am there a great deal, I always see how many conductors there are on the trams, and then I see that their registers are read.

7286. *Mr. Brock.*] We are told that a conductor could sneak about one trip out of five for himself? I do not see how that could possibly be done if he reads his register.

7287. But you have heard of registers being faked? Then he might take the whole lot.

7288. You have read the registers at the racecourse yourself sometimes? Yes; and I have always taken care to ascertain who the conductors were.

7289. *President.*] Mr. Primrose led us to suppose that a man could avoid getting his register read at Randwick, and that he could then come back to the Sydney office and declare that he had been upon another line. Mr. Primrose has admitted that there would be no check against such a thing as that? Mr. Primrose has not been to the course I think and probably does not know the system. The clerk would naturally be expecting a conductor from each tram as it arrived.

7290. But would he make inquiry if the conductor did not come to him? Decidedly.

7291. How many conductors would there be? Well, I should inquire how many there were. Of course if there were two in the swindle one might drop off at Darlinghurst. There are two receiving clerks at Randwick besides myself. All that I do there is to look out for the conductors.

7292. You do only the reading and the other man looks after the money? Yes.

7293. Who takes the cash out at the racecourse? Blackstone and one of the others.

7294. And what about the money which the conductor brings back from the racecourse? He brings back nothing. He runs back empty. If two men come out to Randwick on to a car they would not come so quickly as to render it likely that we should miss them. There are long intervals between the trams, and we are doing nothing but reading.

7295. Then there is no need for reading at the Sydney end? No; except when the people are coming home from the races. I ought, perhaps, to explain, that under ordinary circumstances a man lying at Randwick would have his register read before being sent on to Coogee.

7296. What time do the readers leave? About 2 o'clock.

7297. A man arriving at Randwick after that time and being sent on to Coogee would not have his register read? No.

7298. But at any previous time of the day his register would be read and his cash would be taken? Yes.

7299. So that in point of fact after 2 o'clock the Department is at the mercy of the conductors? Yes.

7300. Would it be a Randwick tram which would go on to Coogee? A tram would be sent out to the races in the afternoon. It might collect a few stragglers, for which, of course, shillings would be collected. The tram would lie at Randwick waiting for the people to come into town. Presently the foreman might find that he had several surplus trams, and hearing that there was a great crowd at Coogee, he would send one of these surplus trams light to that place to bring a Coogee load back to Sydney.

7301. Is there no one at Coogee who could read the register as for the racecourse? No.

7302. Surely on such occasions it would be worth while to have a man there for the purpose? Perhaps.

7303. *Mr. Brock.*] If you saw two loaded cars come to the racecourse would you be satisfied if only one conductor turned up? No; I should ask the conductor if he had a mate, and I could tell immediately from the returns if there was a swindle.

7304. I thought you said that one man might get off at Darlinghurst, leading you to suppose that there was only one conductor on the tram? I do not think that could be done without detection now. I think of it, because I should discover from the returns at Randwick that there was something wrong. What I meant was that the man himself would not be missed if the other conductor said that he had no mate. I have been out at the racecourse a great deal—almost every time there have been races—and I am pretty certain that no man could come out there and return to Sydney without his register being read.

William Hannam recalled and further examined :—

- Conductor
W. Hannam.
19 Sept., 1888.]
7305. *President.*] We have a few more questions to ask you. You remember relating to us the circumstances under which Musgrave made certain overtures to you on his car on one or two occasions? Yes.
7306. We want you to fix the date of those overtures as nearly as you can? I do not know how I could do it. I might, perhaps, come somewhere near it by looking at my book.
7307. Perhaps I can help you. We understood you in giving your first evidence to say very distinctly that it was during the retrenchment period that Musgrave was on your tram? Yes.
7308. Are you absolutely certain of that? I am certain that he was not on the cars.
7309. That he was not at work? I can swear that he was not on the cars at the time.
7310. But he might have been car-cleaning? No, he was not. I would not be quite sure, but I think he may have been on the water-tanks at the time. My impression, however, is that he was not then on the tramways at all.
7311. It would be somewhere about the time that he first came back you think? Yes.
7312. That would be about December, or the end of November? Somewhere about that time, but I think he was off the trains altogether when he spoke to me.
7313. *Mr. Bröck.*] Would it be shortly before he came back? Yes; I know that it could not have been very long before.
7314. *President.*] You remember swearing the other day that you collected a fare from that young woman who made the expedition with you to Glebe Point? Yes.
7315. When did you collect her fare? Soon after she got in the car; she got in at Market-street.
7316. Where would your tram have been when you collected the fare? I do not generally go for a fare directly a passenger takes his seat. Perhaps I might let them go past the first stopping-place.
7317. Had you collected any fares before this young woman got in? Yes.
7318. When did you next go to collect fares? We generally commence at Hunter-street, and then we collect again at King-street. We might go as far as Park-street before collecting again.
7319. You think that is where you collected this young woman's fare? Yes.
7320. You are absolutely certain that when you went to the car to collect other fares after she got in you collected hers? Yes, I do not think there were above half-a-dozen passengers in the car.
7321. And if it has been sworn positively that you went round to collect the fares and that you never attempted to collect one from her, would it be true or false? It would be false. There is a matter I should like to mention, although I do not know that there is anything in it: It was somewhere about the morning after this happened that Mr. Roberts called me off the car and told me about it. He said, moreover, that I had taken this woman out with me; and had had connection with her at Glebe Point. I told him that it was false and that I could bring both the driver and the fireman to prove that it was false. He said that he had got an anonymous letter containing that statement. I said, "Bring your charge against me, and I am prepared to disprove it." I never heard anything more of the matter until now.
7322. Who were your driver and fireman? Rose and Brophy. I may say that we get very little time on the Glebe Point runs.

THURSDAY, 20 SEPTEMBER, 1888.

Present:—

A. RICHARDSON, ESQ., PRESIDENT.

R. W. THOMPSON, Esq., M.P., | F. A. BROCK, Esq., J.P.

John Walsh recalled and further examined :—

- J. Walsh.
2 Sept., 1888.]
7323. *President.*] You are not surprised, I suppose, that we have sent for you again? Well, yes I am.
7324. Did you not see a certain letter in the *Daily Telegraph* on the 12th September last? Yes.
7325. Did you not feel sure that we should require you to confirm the statement which you had made to us? I did not think you would.
7326. Have you seen Mr. Harris since you were here? No.
7327. You have had no conversation on the subject? No.
7328. He has not charged you with having made a certain statement to us? No.
7329. How long ago did this matter to which you previously referred occur? To the best of my knowledge it was about three and a half years ago.
7330. When did you first mention it? The first time I mentioned it was about five weeks ago.
7331. After keeping the matter snugly in your own breast for three and a half years you suddenly bring it out;—what led you to do so? Well, Greeley was telling me and another gentleman about how the tram-guards were defrauding the Government.
7332. Where were you? In an hotel.
7333. Where? At Woolloomooloo.
7334. Greeley was there, you say? Yes, and he was mentioning about certain men, and how he had caught them in the act—something like that. Then I told him about this matter, but I did not mention any name.
7335. You told him that you were not surprised, because you knew all the time that there was something wrong? Yes, and that I saw it on that occasion, anyhow.
7336. *Mr. Thompson.*] You refer now to what you have already related to us? Yes.
7337. *President.*] You are aware that Harris has denied this matter absolutely? Yes.
7338. He says that it is a pure fabrication? So I see.
7339. He is anxious to know who gave the information, so that he may take proceedings against the person? Yes.
7340. Now it seems to us that you ought to be on your mettle to prove the statement you have made? How am I to prove it? There are only these words that I have said; I have told you all I know.
7341. Was no one else there at the time? Yes, there was somebody else in the bar.
7342. Who was it? I do not know.
7343. Under what circumstances were you in Harris' hotel? I went in to have a drink.
7344. In the ordinary way? Yes.

7345.

J. Walsh.

20 Sept., 1888.

7345. But you were out of your beat? No; I was living there, at the time
7346. When did you leave Redfern? About three and a half years ago.
7347. Are you still on friendly terms with Harris? The best of terms.
7348. When did you meet him last? I have not seen him for two or three months. I last met him at the races.
7349. We understood you to say that when you saw Harris doing this thing you gave him a caution? Yes.
7350. What did you say to him? I told him that it was not a right thing to do.
7351. You did not say that before any third party? No.
7352. Not before the conductor? No.
7353. You went into the back parlour? No; I stopped there and the conductor went out.
7354. What did Harris say? I could not exactly tell you now what he did say.
7355. Did he endeavour to make out that the transaction was a straight one? I do not think he remarked anything.
7356. In what shape were the tickets? They were loose.
7357. How did the conductor bring them; were they in a bag? He took them out of his pocket.
7358. They were unmistakably used tickets? Yes.
7359. Harris made no attempt to dispute that point? No; he did not.
7360. You spoke to him again about it did you not? No.
7361. What did Harris say when you gave him this caution? I could not exactly say.
7362. Did he say that you were not to interfere, and that it was no business of yours? No.
7363. He took it kindly? Yes.
7364. Did he say that it was risky, or did he say that he would do it again if he got the chance? No. I do not think he intended to do it again.
7365. Did he say he would not do it again? Since I cautioned him I think he said, "Oh, I do not do this thing." Those as nearly as I can recollect were his words.
7366. On the 22nd of August you said that Harris, in reply to you, said he would not do it any more? Yes; I think those were the words he might have used.
7367. Did you not, when you mentioned this matter to Greeley in the public-house at Woolloomooloo, tell him that the man was still a conductor, and that you could identify him if you saw him? I did not say that he was still a conductor.
7368. But you said that you could identify him if you saw him? I could form a pretty good idea. It was some time back, and the man was in uniform then.
7369. You told Greeley that you yourself had bought tickets from Harris? One occasion I bought three in a tram.
7370. Was that some time after? Some time after.
7371. Some of these very tickets I presume? I could not say. You will often see one person in a tram oblige another with tickets in that way.
7372. You have not had any misunderstanding or quarrel with Harris? No.
7373. I suppose the idea that you dreamt or invented this story is to be ridiculed? Well, I don't know. I don't think myself that I could have invented it.
7374. You are absolutely certain that the thing did take place? Yes. I saw the tram conductor pass the tickets over to him.
7375. Then what was the action taken—was a receipted bill given? No. The other party I referred to in my evidence made the remark that a bill for 25s. was settled by the transaction. This is what the other man told me outside.
7376. He said what? That the conductor paid a bill of 25s. with these tickets.
7377. You had a talk with this other man then? Yes, for about 2 minutes.
7378. Was this after you had warned Harris? I did not warn him then; the man and I came out together, and we stood there talking.
7379. Can you not remember, for your own sake, who this man was? I could not say who he was.
7380. He evidently knew more about the transaction than you did? Yes; he was nearer to Harris than I was.
7381. He was at all events able to give you information as to the amount settled by the tickets? Harris did not tell me that a bill was paid; that was only what the other man told me.
7382. Did it not astonish you when you saw these tram-tickets handed to Harris, and nothing given in return? I saw the conductor take some liquor away.
7383. *Mr. Thompson.*] In his pockets do you mean? Yes, a couple of bottles.
7384. *President.*] Your impression was that he was buying this liquor with the tickets and not paying off his score? I could not say exactly, but I fancied somehow that he was buying grog with the tickets.
7385. When you had your conversation with the other man who was present you were made wiser;—you found out that they were really given to pay off an old score? Well, that is what the man said.
7386. *Mr. Thompson.*] Was it in consequence of your talk outside with this man that you afterwards went to Harris and told him it was a wrong thing to do, and that he ought not to do it again? Yes; it was only what any man would do under the circumstances.
7387. As one friend would act towards another? Yes; this man outside said that the conductor was knocking six or seven quid a week out of the thing.
7388. How long is it since you have seen the man who made this statement to you? I have not seen him since that night.
7389. He was not an acquaintance of yours? No.
7390. *President.*] Do you mean to tell us absolutely that Harris has not challenged you with this matter? He has not.
7391. *Mr. Brock.*] And you do not think he suspects you? No; because if he had suspected me he would have come down to me. I have generally gone into his place on Tuesday, and then he is always asleep.
7392. Are you surprised to hear that the moment the thing was mentioned to him he asked whether you were the informer? Yes; I may say that I hope my name may not to be used, because I am in business and it might injure me very much.

- J. Walsh. 7393. You place us in a false position;—we do not care about having letters of this character in the papers? Of course he ought not to have put it in at all.
- 20 Sept., 1888. 7394. *Mr. Thompson.*] You observe that the writer says, "I trust, as an honorable and upright man, I never gave any person to think differently?" Yes, I saw that.
7395. *President.*] Did you not say that you had not seen Harris for three months? As nearly as I can recollect.
7396. August 19th is just one month ago? Yes.
7397. Do you say positively that you were not with Harris on that day one month ago? Yes; I think I was talking to him then.
7398. That is not three months ago;—you will not do yourself any good by keeping anything back? I am not keeping back anything.
7399. Be as frank as you can in the matter; you see that it is all your own doing; we did not ask you to make the statement; you made it voluntarily to Greeley and to others; you let it sleep for about three years and a half, and then you suddenly came out with it five weeks ago? I am very sorry I ever spoke of it. I have never suffered so much mentally as I have suffered over this matter.
7400. But there could be no utility in bringing up a thing of this kind unless you were prepared to follow it out? Well of course Harris's word is as good as mine as far as that goes.
7401. *Mr. Brock.*] I am surprised that you think that Harris's word is as good as yours after the statements in his letter? Well that is now how the matter stands.
7402. The letter gave to your statements the most absolute and unqualified denial? I am aware of that.
7403. The matter is bound to come out; Harris suspects you, and he is bound to have it out with you; the best thing you can do is to allow the Commission to make use of your name? I do not care to do that.
7404. *President.*] You had a conversation with Harris about the time you gave your evidence here? I recollect that I went to see him just before I gave my evidence.
7405. *Mr. Thompson.*] You have done absolutely the right thing, and not only for your own sake but for the sake of public justice, and in order that right may be done you should do all you could in the matter, even although you were to break friends with Harris? I do not want to be had friends with anyone.
7406. I may tell you, with regard to this Commission, that you are just in the same position as though you were a witness in the Supreme Court; you have precisely the same protection? That may be.
7407. *President.*] If the conductor were brought before you now could you be sure that he was the same man? I might be. I have told you the truth in the matter. It is not at all likely that I should come here with a lie; it would be of no benefit to me.
7408. Did you not say that you could point out the man, because there was no other man on the trams like him? I believe I said I could point him out.
7409. You have often been with Mr. Harris? Yes.
7410. Have you often seen him taking 'bus tickets in part payment for drinks? Not 'bus tickets.
7411. You said in your evidence that a conductor in the case lived nearly opposite the place? I said somewhere about there, I think.
7412. Did you know the conductor well? No; I had seen him only once before that. I could not say where he lived, but it occurred to me that he was living somewhere handy, because it looked as though he had just come off the tram and was getting a drink before going home.
7413. Where did you live when you were at Redfern? 116, Young-street.
7414. What business had you? I had the same grocer's shop, but my private residence was at Redfern.

John Martin called in, sworn, and examined:—

- J. Martin. 7415. *President.*] Where do you reside? 134, Bourke-street, Woolloomooloo.
- 20 Sept., 1888. 7416. What is the nature of your business? I keep an hotel at the present time.
7417. We have received a communication to the effect that you have it in your power to give us some valuable information with regard to the matter of the tram frauds generally;—have we been correctly informed? Quite the reverse. I know nothing whatever about them; it is four years since I left the Department. At that time I considered that the tramways were honestly and straightforwardly conducted. I was in the Service three years.
7418. Did you resign? No.
7419. How did you come to leave? Through no fault of my own; through a raffle I had in the Department.
7420. Was there anyone else concerned in the raffle? No; I was the only one.
7421. But you have no information to give us about the recent frauds? Nothing at all, more than this: that one evening, where I am living now, I heard Mr. Walsh giving some information to one of the conductors about something which had taken place at Redfern.
7422. What was the nature of it? Greeley was at my place, and he was telling us about the tramways, and as to how the tramway frauds were carried on. Mr. Walsh happened to be there, and he said, "I believe there are a lot of crooked things among the conductors," or words to that effect. He said, "On one occasion I myself saw a conductor giving a publican tickets to pay a score." I believe that is what he said. Whoever has told you that I could be of any more information has made a great mistake.
7423. Did you hear Walsh name the publican at whose house this was done? I heard him name the sign of the hotel; but I cannot remember that he made use of the man's name at that time.
7424. Was it the "Man of Kent Hotel"? Yes, that is the name.
7425. Did you see a letter in the *Telegraph* on the 12th of the month from the landlord of that hotel? I believe I did; I think I saw it in the *Evening News*.
7426. When you read it did you connect the two things together? Yes. I took it that it referred to the same thing which had been mentioned at my house.
7427. *Mr. Brock.*] When Walsh mentioned the matter did you know the landlord of the "Man of Kent Hotel"? No.
7428. But you could have found out? Yes, if I had gone up there; but the thing had nothing to do with me.
7429. Walsh was not keeping the thing any secret when he mentioned the name of the hotel? No; he spoke it out openly.

7430. *President.*] Were many others there at the time? No; there were only three of us.
7431. *Mr. Thompson.*] Was your dismissal from the Service in any way connected with a man named Wilson; was he mixed up in the matter of the raffle? Not that I know of.
7432. Did you know Wilson as a conductor? Yes.
7433. Did he not leave the Service about the same time as you did? I fancy before I left it, but I could not be sure; it is four years ago.
7434. You were not mixed up together in the matter? No.
7435. It was said with regard to your dismissal that it had something to do with some studs which it was said belonged to Mr. Roberts? Yes; I believe they did say that.
7436. I should like to know how it is possible you could be dismissed from the Service from the mere fact of your having held a raffle for a set of studs in your own house? It was not in my own house.
7437. Where was it held? In an hotel, George-street West.
7438. Was it the "Hunter River Hotel"? That I could not say.
7439. How could exception be taken to your conduct merely for raffling a set of studs? The matter was not in my jurisdiction or I would not have decided in that way.
7440. How did the inquiry come about? I do not know. Some busybody Member of Parliament brought it up in the House; anyhow I paid the penalty by having to leave the Service.
7441. You were made a sort of scapegoat? Well I know that I suffered.
7442. Suppose we received a communication of this kind: "If you get hold of John Martin, late conductor, he will, if put on his oath, furnish you with some valuable information *re* the suspected frauds and in days gone-by"? I cannot give you any information whatever; I know nothing whatever about any frauds in the Department. Whoever wrote that letter to you made a great mistake.
7443. *President.*] Do you know Mr. O'Brien in the Department? Yes.
7444. Did you know him at the time of the stud matter? He came in the Department a little before that.
7445. Was he connected with the case? I believe he had something to do with it. He did not examine me, but I believe he was gathering all the particulars he could.
7446. *Mr. Thompson.*] How long after you left the Service did you take the hotel? About twelve months afterwards.
7447. And during your tramway conductorship you were not following any business? No. I had been an hotelkeeper before I came into the Department. If I could give you any information which would enlighten you on the subject of the frauds I would consider it my duty to do so, but I cannot.

J. Martin.
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Francis Joseph McMahon called in and further examined:—

7448. *President.*] We have sent for you again, because you have expressed a wish in writing to one of the Commissioners, Mr. Thompson, to come before us again and make a statement, but before you do so I would direct your attention to the evidence which you gave on a previous occasion. You then told us that you had no information to give, and that you knew absolutely nothing in connection with the frauds? Nothing conclusive.
7449. We are quite prepared to hear any statement you have to make, but do not let it be a long rambling one, having nothing to do with the question at issue? I will be brief and to the point. When I first attended this Commission I thought that, as a matter of etiquette, I should only answer questions, and that I should answer them to the point, and that if I could not state anything conclusively it was no use my stating it at all. I explained that to Mr. Thompson as soon as I could see him afterwards. I said I thought I should not be permitted to make general statements.
7450. *Mr. Thompson.*] When you were here before I asked you whether you were in a position to give us any information which would take us one inch beyond that we already knew, and you said in reply that you were in the dark as far as that was concerned? Possibly.
7451. How is it that since you were here, and were evidently unable to give us any information, you have found yourself in a position to give us some? I had the same information then as I have now, but I did not think I had a right to do what I should like to have done. I was told by one of my fellow workmen, Conductor Reach, that at an inquiry of this character we had only to answer questions.
7452. *President.*] But when you heard me trying to drag things out of you, trying to get any possible information out of you, you did not think it your duty to give that information? Not to make a statement.
7453. *Mr. Thompson.*] I put it to you as broadly as I could in the question to which I have referred; noting that you had taken an active part in the matter; I supposed that you would be able to tell us something of value. I want to do so to-day.
7454. I must confess that I was infinitely disappointed to find that you could not tell us anything beyond what we already knew? Well, I am perfectly willing to make a statement to-day.
7455. *President.*] What is the information you wish to give us now? I do not wish to blame the Board in any way for not stating anything, but as I took such a prominent part in the deputation and in the meetings I thought it was my duty to state my reason for doing so. The reasons I advance now are not conclusive. I can only show you why I took such a part. I would have done so on the previous occasion, but Reach informed me that I had only to answer questions. As soon as we saw the statement in the *Star*, the guards were all very indignant about the matter; several of them spoke to me, and we decided to hold a meeting for the purpose of vindicating our characters. At that meeting some reference was made to some officials in the office. Stack referred to Musgrave being a friend of Colls', and riding about with Colls on some occasions, which he said looked very suspicious.
7456. You are sure he said on some occasions? Yes; I think that is the remark he made. With reference to Ferrier being dismissed in connection with this matter I may say that I knew Ferrier for some time as an assistant guard. At one time, when we had our concerts at the Protestant Hall to inaugurate the fund of the Sick and Accident Society, of which I am the President, I sold Ferrier a ticket, and it was a couple of months before I got the money for it. He was always borrowing money whenever

Conductor
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McMahon.
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Conductor
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he could, and when I heard he had been dismissed for doing these frauds I thought some mistake must be made about it. I looked at it in this light, that it was a curious thing that this man should always have been borrowing money when he was making from £10 to £15 a week. Then as to Musgrave, he was very careless about the collection of his tickets; he was not particular at all, and one of the drivers, Batten, told me that when he was on the tram with Musgrave, tickets were frequently given to him. It seemed to me that this did not look like fraud, as I thought that if he was committing a fraud he would be anxious to get as many tickets as he possibly could. That was my own calculation. These are some of the reasons why I took such an interest in elucidating the matter publicly.

7457. We have not seen much elucidation yet? In my remarks at one of the meetings I referred to these matters.

7458. You may have made some remarks at the meetings, but so far we have not seen much elucidation of the matter? I endeavoured to do so at the meeting—to show that it was not possible for the men to make the number of tickets which was alleged in the Press. I am still of that opinion. I do not think it is possible for any man to go ringing his bell and faking it, as it were, in the way it was talked of.

7459. Have you come here as an advocate of the men who have been dismissed? No; I have not seen one of them since I was here.

7460. I did not ask you that. Have you come here simply for the purpose of advocating the cause of the men who have been dismissed from the Department? No. I am sorry that I neglected to state these matters when I came first. I was aware that this matter might get into the House, and that it would be seen that M'Mahon had taken a prominent part in the meetings and had made no reference to it at all at the inquiry.

7461. Although you had such ample opportunity to do so? I will not say that I had not; it was a mistake on my own part. I admit that I had every opportunity.

7462. After having every opportunity for doing so you have heard something important which you have not yet given us? I only wanted to show why I took such an active part in these meetings.

7463. You took an active part in the meetings because you were convinced these men were innocent;—is that it? I thought there was something wrong somewhere—what it was I could not exactly state.

7464. *Mr. Thompson.*] But you decided that Musgrave could not do what it was said that he had been doing—making tickets? I did not think it was feasible that he should do so when he was so neglectful in collecting his tickets. It did not look to me so very suspicious.

7465. A man might be very neglectful and be a thief into the bargain? It might possibly be so; I would not dispute that, but this is one of the reasons why I spoke out at this meeting.

7466. *President.*] Ferrier being a man who was decidedly loose in money matters you at once concluded in your own mind that he could not possibly be a rogue? I would not say that he was not, but it does not look as if he were.

7467. Why so? If a man is a rogue, making £10 a week, he would be able to pay me 2s. 6d. in less than two months, and he would not want to borrow money.

7468. *Mr. Thompson.*] Did not the very fact of his keeping you waiting all that time for the money, when you knew he was getting 7s. a day, show that he was a dishonest man, having regard to his obligation to you as an officer to the society to which he belonged? I should not look at it in that light.

7469. Did you know how much a day he was getting? 7s.

7470. How much did he owe you for the ticket? Half-a-crown or three shillings.

7471. A third of his pay, and yet he kept you waiting how many months? A couple of months.

7472. Where do you think his money used to go to? I do not know. He asked me one night in the room to lend him 2s. 6d. I thought to myself, "I am a married man, and you are a single man; if you do not know how to take care of your money I will not give you any of mine."

7473. Being such a spendthrift that he had not a half-a-crown to bless himself with at the end of the week he was probably a thief into the bargain? There is a possibility of his being so.

7474. *President.*] And a gambler also, perhaps? I was not aware of that. I may have been misled in the matter by my own conclusions, thinking that he had no money. As one who had watched the thing daily, and who was in the habit of coming into contact with the conductors, I advocated that Ferrier should make a statement at the meeting. Someone brought him there, but I do not know who it was.

7475. Did you advise Ferrier to make the statement he did—to say that it was all a joke—all a hoax? No.

7476. Speaking for myself, I do not consider that you have given us any information of any value since you came into the room. You may have something more to say. I think it is rather singular that as an employee you should think fit to express the opinion that these dismissed men have been improperly dismissed? I did not say that; I do not wish to imply that in any way.

7477. Your statement amounts to that or to nothing? It may be utterly worthless as far as its being a statement is concerned. All that I wanted to do was to vindicate my conduct.

7478. *Mr. Thompson.*] You say in your letter, "I beg to state that when I was before the Board I thought I had to answer questions only, as I have since explained to you. If you will recall me I will go into the whole matter before the Board of Inquiry." What has the vindication of your conduct to do with the whole matter. Did you only wish to come here and say that in your opinion Musgrave and Ferrier are not the dishonest men they are supposed to be? No. I came to tell you why I took such a part in these meetings.

7479. We know why the meetings were held. Some of the men who were indisputably honest thought that the reports in the newspapers reflected on the men as a body. That I suppose is the reason for the meetings? Yes.

7480. Cannot you give us any information beyond that which you are giving us? It would be hard to get at the whole of this matter, because there is so much favoritism and cliquism in the Department.

7481. Never mind the favoritism and cliquism. We are a Royal Commission appointed to get at the very root of this matter. I am certain there is something on your mind which you have not let out. Let us know what it is, not only for your own sake but for the sake of your brother conductors. It is entirely through the efforts of yourself and your brother conductors that this Commission has been brought into existence, and you know from what I said to you before that I cannot help thinking that you and the other men have not done your duty by yourselves and by the public unless you tell us down to the very root of the matter all that you know, all that you have heard, and all that you suspect. If you have anything to say say it out now, or for ever after hold your peace? There is nothing I could say.

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7482. *President.*] What do you mean by the expression favouritism or cliquism? Well there is a lot of favouritism in the Department.
7483. How—in what respect? Men are favoured in many respects.
7484. Who are favoured? I cannot mention individuals, but some are.
7485. Are you one of the favoured ones? I am not.
7486. You are just the reverse? I do not want favours from anyone; I only want fair play.
7487. You think you are quite the reverse of a favourite one I imagine? Yes.
7488. You think you are an ill-used man? No; I have never been ill-used.
7489. But you think yourself ill-used by others being favored? Others may be favoured and still I may not be ill-used.
7490. Are you getting fair play? I have nothing to complain of.
7491. What kind of favouritism do you mean? There are a regular lot who are favoured. One man gets what they call a soft thing and another does not get it.
7492. *Mr. Thompson.*] Our object is to fairly cleanse this dirty pig-stye if we can, because it is dirty and it is through you men holding your tongues about the matter that the pig-stye has become as dirty as it is. If you had been content to speak when this matter had begun to be blown about it would have been upset three years ago? A man must be very careful before he speaks that he can prove a thing. There is a possibility of this that after I had made statements referring to certain persons they would be refuted and then I should get into it.
7493. *President.*] If you know anything say it. If you know nothing hold your tongue. Do not let us have any more of these innuendoes. If you have even a fair reason for suspicion let us know what that reason is and we will dive into the matter if necessary and see to the bottom of it? At the time the tearing-up system came into force I was in favor of it. I think it was far better than the ringing off of the tickets. I thought the bells were wanting and were no good. I thought that they were an ineffectual system because they could not be depended upon in any way. The first morning we went to tear up tickets it was given out at the office: "How do you like it?"
7494. By whom? By the Superintendent. I said that I liked it very well; that I thought it was a very good system. Others said that they did not like it, and I heard it down in the yard frequently that the boss was against the tearing-up system, and as he was against it it was not likely to be a success. In my opinion the tickets were torn up and strewn about the streets indiscriminately because it was given out that the boss was against the system. At that time, judging from the financial reports which I saw in the papers, I think the trams were paying better than they did when the bells were in use. That is one of my reasons for thinking that there was something wrong somewhere about the bells, and that is why I condemned them. Another reason I thought that the conductors need not go selling the tickets was that the whole transaction was in their own hands.
7495. *Mr. Brock.*] What do you mean when you say that the conductors need not go selling their tickets? Because the whole transaction is in his own keeping as it were. If he makes tickets and it is said that that kind of thing has been going on he can turn them all into money himself.
7496. Turn what into money? Turn the tickets into money without selling them to anyone.
7497. You are referring to the present system? Yes.
7498. *President.*] Go back to the tearing time;—do you mean to say that a man had not two or three times the scope for doing it under the tearing system than he has under the register system? I do not think so.
7499. What is to stop him? His own conscience, if he has got any. The public would also stop him. The public are supposed to watch him.
7500. Suppose you were upon an upper deck, how would you collect the tickets? I would take them singly, and tear them as I collected them.
7501. Did you never collect a whole side and tear them altogether? I am not aware of that ever being done, except from hearsay.
7502. *Mr. Thompson.*] Have you not heard of these torn tickets being pasted together with tissue-paper, and being sold again in shops? I have heard of it.
7503. And have you not heard that, when the tearing ticket system was in force, the tickets were torn along the perforations instead of across? I never heard that. I have heard it said that they put them down their hands in some way, but I do not believe they could do it.
7504. You yourself have heard of the various ways in which this thieving has gone on—now in one way, now in another, and you must know perfectly well, as a man of the world, that where there is smoke there is generally fire? I never got any of the tickets which were said to have been pasted together again. If they had been offered to me I should have refused them.
7505. Have you not received service-tickets? Yes.
7506. Did you not know that they were stolen? No.
7507. Did you not get them from the general public? Not to my knowledge. I would not accept them from the general public if I knew it. Sometimes there would be a Government official sitting on the top of the tram, and he would give me his ticket, and I would not question him in the matter.
7508. *President.*] I was led to understand from your earlier observations that you were very doubtful as to fraud having taken place; in point of fact, that you believed that there had been no fraud;—is that so?—
7509. You take long enough to answer a plain question? Do you want me to answer it from my actual observation?
7510. Will you answer my question? I would answer it at once if I could.
7511. I judged from what you first said that, in your opinion, there had been no frauds? I do not wish to commit myself. You must misunderstand me. I do not wish to say a thing that I do not mean to say.
7512. How long shall I give you to answer the question? I do not know whether any fraud has been committed or not, so far as I am concerned.
7513. But what is your opinion? I do not know how to answer that question.
7514. You have told us pretty clearly that you do not believe that fraud was not committed by Musgrave or Ferrier, two men who have been dismissed? I did not say that I believed that there was no fraud on their part. I said that their action at the time did not look to me as though they had been committing fraud.
7515. Do you believe that they committed fraud or not;—what is your opinion as to these two men? I could not form an opinion.

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7516. And you have not formed an opinion in reference to the whole thing? Well, they say the frauds have been committed.
7517. Yet you go out of your way to try to show us that there was no fraud while the ticket-tearing business was on, but that there was fraud at other times? No, I am not saying that.
7518. You led us to infer that just now when you said that if the returns were examined it would be found that the trams paid better when the tearing system was in force? I think so.
7519. Would you not lead us to infer from that that the tearing system was the better check? Yes.
7520. Then what do you mean? I mean that if there were any frauds at all there would be more during the ringing than during the tearing system.
7521. Would you not really lead us to infer therefore that there was fraud of some kind? No.
7522. You gave us by inference this fact. That Mr. Roberts had been instrumental in getting the registers back, and that he was opposed to the tearing system; that he gave the men to understand that he was opposed to it, and that being opposed to it he preferred wrong to right? He may have thought that the registers were better.
7523. I should think he did; I do not know of anyone who would not think so. Do you mean to say that you do not think the registers are better than the tearing system? No; I do not think they are better than the tearing system.
7524. You think the reverse still? I do. I think the tearing up increases the medium of fraud considerably. Under the present system the tickets leave us and go into someone else's hands, that is to those in the office. There are facilities for fraud there; in fact greater facilities than there are with the conductors.
7525. You are of opinion that the frauds have taken place in the office, and not among the conductors? That is my opinion.
7526. We have got it out at last. You said just now that you had not formed any opinion with reference to fraud, but, led by the experience of your opinion as to the innocence of Musgrave and Ferrier, we have discovered your further opinion that those in the office have been committing the frauds? Well I think so.
7527. In what way? I could not tell you in what way, because I do not know further than this —
7528. Further than what? Only that the tickets go in there.
7529. Nothing further than that? No.
7530. You think that because the tickets go in there the fraud must be there? Well there is a possibility of there being frauds. There is every facility for it.
7531. Why; do you know the process in connection with the tickets? I know they are supposed to be burnt.
7532. And you think they are not burnt? I do not think so. When we held our meeting —
7533. *Mr. Thompson.*] You have heard something. I will almost undertake to solemnly swear that you have heard something and you will not tell us. If you do not tell us we shall be under the impression that you have heard something that you are still endeavouring to keep behind and in the dark, merely hinting at what you have heard and know? I will tell you all I know with the greatest of pleasure, candour, and truthfulness. I will assist you as far as I can do in answering any questions straightforwardly and as a man.
7534. Then come back to what you came here to tell us; you must know that even your suspicions may lead us to find out anything that is wrong; I do not refer to vague suspicions, but your letter to the Commission would lead us to believe that you know infinitely more than you have told us yet. Now, let us know the truth. You keep coming to the edge, like a man walking to the edge of a precipice and then retreating. As the matter stands, we may think that you are trying to make good the position of the conductors, and to make bad the position of the people in the office. If you have seen anything which has reasonably aroused your suspicions or doubts, tell it to us, like a man, and do not be fidgeting and humbugging about in this way? Well, when we bring our tickets in we simply give them to the ticket clerks, and we know nothing further about them.
7535. *President.*] Who are the ticket clerks? Sometimes Mr. Primrose, sometimes Mr. Knox, Mr. James, or Mr. Blaxland. Of course, they take the tickets out of the bags, and we do not bother any more about it, as far as the tickets are concerned.
7536. Have you ever given up your tickets to one clerk alone. Are there not two or three there? There are generally two.
7537. Therefore, if there has been fraud in the office there must have been collusion? One might go out to a call of nature, and the other might be left there by himself.
7538. Have you ever given your tickets in to one clerk only? I have not taken particular notice on all occasions. When I have noticed there have been two there, but I have not always taken notice.
7539. *Mr. Thompson.*] But from what you have seen, you believe there is an opportunity for one or the other, under certain circumstances, to deal with some of the tickets in an improper way? That is my opinion.
7540. *Mr. Brock.*] You accuse the three or four men you have named, do you? No, I do not accuse them.
7541. Do you accuse one of them? I say that if there has been fraud the facility for fraud is there.
7542. You distinctly said that you believed fraud had taken place in the office, and you named three or four gentlemen in the office who, in your opinion, had an opportunity for committing the frauds? I did not name them.
7543. You distinctly named three as being in a position in which they were likely to have committed fraud? No; there are four or five men in the office, and I would not say that it is either of them who did it. I referred only to the facilities they had for doing it.
7544. You named Mr. Knox, Mr. Blaxland, and Mr. Primrose. You say there are two more. Name them? I cannot remember two more. Mr. James takes the tickets sometimes.
7545. *President.*] Have you the slightest reason, beyond your own bare imagination, for saying that fraud has been committed in the office? No, I have not.
7546. Your only reason for mentioning it lies in an endeavour to shunt the suspicion from one class to another—from the class you represent to the class you do not represent; is not that a fact. Now be candid? I will be candid. At our meeting, of course, in refuting the statements and allegations made in the papers, I took into consideration the fact that there were facilities in other quarters besides our own, and that is the reason I spoke out at the meeting.

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7547. *Mr. Brock.*] According to you, conductors have a conscience but other people have none? Some of the conductors, I dare say, are just as bad.
7548. You said that their conscience would stop them from doing this thing? No, I did not.
7549. You would have us believe that the whole of your class are thoroughly honest and conscientious, and the whole of those in the office are rogues, scoundrels, and thieves? I would not say that.
7550. But you have said so in effect? I do not think so.
7551. *President.*] You hardly answered my last question. Is it not a fact that you are, perhaps, naturally from your position, advocating the cause of the conductors *versus* the cause of the office? I advocate the cause of honest conductors.
7552. But you have been advocating the cause of Musgrave and Ferrier since you have been in the room? I am not advocating their cause. You misunderstand me altogether; I would not do such a thing. I am not the advocate of anyone.
7553. *Mr. Thompson.*] You virtually said that neither Musgrave nor Ferrier could be a thief, because in the one instance he was neglectful and in the other he was a spendthrift? As stated at our meeting—
7554. Never mind the meeting; we have heard quite enough about that, but if you wish to refer to it further, give us exactly the facts which you gave them? I have already done so. I said that in consequence of the carelessness of the one man, and of the other in not paying me what he owed me I spoke out at the meeting as I did.
7555. *Mr. Brock.*] You said just now that you advocated the cause of the honest conductors? Yes.
7556. Who are the dishonest ones? I do not know any dishonest ones.
7557. You do not believe that any of them are dishonest? I do not believe they are.
7558. But you believe that all in the office are scoundrels? I did not say so.
7559. No, but you infer it, and it is a great deal worse to blast a man's character by inference than by straightforward talk? I did not say what you say I said.
7560. *President.*] Did you not say that you did not approve of the bell system, and that you did approve of the tearing system, because you thought it a greater check upon the office? A greater check all round.
7561. *Mr. Brock.*] You prefer the tearing system? Yes, I thought it was a better check. It was a check all round.
7562. *President.*] Were you not one of those who appealed against the extraordinary action of the Department in printing on the back of the tickets: "Please see that the ticket is torn up?" No.
7563. You think that was a perfectly legitimate thing to have printed on the back of the tickets? It did not look very nice to have that put on the tickets, but I did not have any objection to it.
7564. You do not think that any honest conductor would object? Some complained. I did not make any complaint.
7565. Do you know who complained? I could not mention anyone in particular.
7566. *Mr. Thompson.*] Did you hear any report of one of the conductors having a bell put up his sleeve which he rang instead of ringing his register bell? I never heard of that.
7567. Never? Never in my life.
7568. Tell us when you first heard of the tickets being dealt with improperly, in any way whatever. When did you first hear among the men that the tickets were being improperly dealt with by the conductors or in the office? I never heard it.
7569. Until when? Until I saw it in the *Star*.
7570. I suppose you heard at that time that the bells were faked? Yes, I saw it in the papers.
7571. You heard that the men were making money, not only by faking the bells but by not ringing at all when they took money or tickets? I saw something like that in the papers.
7572. Coming back for a moment to the receiving-room: where you say that when the tickets are received there is an opportunity for individual clerks to deal improperly with them;—did you ever see any person in that room besides yourself and those who had a right there? I have heard that others have been in there. I have heard that any one could go into the room.
7573. Have you heard who has been there having no right to be there? No, I have not.
7574. From whom did you hear that those who had no right to be in the room had been there? I think I heard it from assistant-conductor Peters. I think he mentioned it to me.
7575. Did Peters tell you who were the people he had seen there? No, he did not. He said that any one could go into the office when they liked. He said it in the same manner that you said it to me this moment.
7576. Do you yourself know personally whether Ferrier and Mr. Colls, who was in the office, were at all friendly? I do not.
7577. Have you heard anything about it? No; I have not heard anything about it; only what I heard that Stack had said.
7578. What was that? It was in reference to Musgrave, I think.
7579. Musgrave and who? Musgrave and Colls being intimate.
7580. You know that they are brothers-in-law? Yes; there is nothing to my mind in their being intimate.
7581. I may tell you once again my individual opinion that there is still something in your mind which you will not bring out, either from fear of consequences to yourself, or because it is something so nasty in the way of suspicion that you do not care to mention it. I do not know whether you have been told of it, but you are absolutely protected in anything you choose to say here, no matter what it is, if it be the truth, or if you have a reasonable foundation for thinking that it is the truth; but for Heaven's sake do not let us have pure ungrounded suspicion for the mere purpose of sheltering yourself or the other men. Do be sufficient of a man to think that you have a right to protect persons in another class as well as persons in your own class. If you have anything to tell us, do tell us for the sake of what is right. I shall make no further appeal to you, and I shall be very disappointed if you do not tell us more than you have already told us? Whatever I have told you, I have told you the truth. The man who tells a story is a coward, and I would rather trust a thief than a liar. I can give you only my suspicion. I cannot give you anything conclusively in connection with these frauds, nothing further than what I have stated to you. I have never seen anything conclusively. I have only mere suspicions.
7582. *Mr. Brock.*] Your suspicions lay only at the office? I don't say that they lay only at the office.
7583. You said you believed the conductors were all honest? I did not say that they were all honest.

- Conductor F. J. M. Mahon. 7584. You said you believed that the frauds had been committed in the office? I said I believed the facilities were there. I did not say that the frauds were there.
- 20 Sept., 1888, 7585. Do you wish to withdraw your statement then? How can I say such a thing when I have never seen it.
7586. *President.*] You said a little while ago that you had not the slightest ground for suspicion, and that you spoke merely as the result of your own bare imagination. You said that the facilities for fraud in the office were equal to, if not greater, than the facilities elsewhere, and that in your opinion frauds had occurred in the office rather than among the conductors;—is that not what you wished us to understand? There is as much likelihood of fraud being committed in the office as among the conductors.
7587. Do you not think that as a body of sensible men we should come to such a conclusion ourselves. What we want from you is information. We do not want your opinions? I was asked before if I could give you any inkling I had.
7588. But you have said that you had no reasonable ground for suspicion beyond the knowledge that there were facilities, and that if fraud had been committed it might have been committed in the office as well as at any other place? Yes; I am not going to say positively when I do not know, and when I have not seen it actually occur.
7589. Is there anything about the character or the surroundings of any of the clerks in the office who have this power in their hands to lead you to suspect them in any way whatever? No. I don't know of anything wrong with their characters at all.
7590. *Mr. Thompson.*] Do you know of any of them who are spendthrifts; who are racing or betting men; who are gamblers or drunkards? No. I do not mix at all with those in the office. When I have done my work I go away home and stop there. I seldom run about unless I go out on a little business. I seldom see the gentlemen in the office; I don't see much of them.
7591. *President.*] I do not know whether it is a matter of any concern to you, but I must say that I am far from satisfied with the evidence you have given us this afternoon. You have made certain injurious innuendos, and when you have been put to the test you have failed utterly. You have not only been unable to give proof, but you have not given the slightest reason for your innuendos; therefore I believe I may say with the concurrence of my brethren that we are dissatisfied to a great extent with the way in which you have given your evidence? I am sorry for that.
7592. *Mr. Brock.*] I think your evidence has been given in a very cruel and unjust manner? I am sorry to hear it.
7593. *Mr. Thompson.*] You have disappointed me, because I did hope that having regard to the knowledge existing among the men, that these frauds had been indisputably committed you as a mouthpiece of the men who brought about this inquiry would have had something more to tell us? You say I have not given you satisfaction—that I have not stated anything in reference to the conductors;—is that what you mean? As the mouthpiece of the men I stated principally at the meeting.
7594. *President.*] Can you not leave the meeting alone? That was one of my reasons for coming here. I told the Minister for Works that I would assist this Commission as far as I could. I did not go into this matter as I have done to day when I was here on the first occasion.
7595. Is there anything further you wish to say? I have nothing to say.
7596. *Mr. Brock.*] Tell us what does your letter mean? I think I have touched upon that matter.
7597. I know why you have come here this afternoon? Why.
7598. To take the blame off your mates and to put it on to your bosses? If you call Peters you will find that it is not so. I have not spoken to one of my fellow workmen in reference to that matter.
7599. *Mr. Thompson.*] Can you tell us of any one of the men who were concerned in these meetings and in procuring this Commission who can tell us any more than you have told us yourself? I know some who have expressed a desire to come here.
7600. I thought you said you had not spoken to your mates since you were here? Not in reference to this particular matter, but a number have told me they want to come here and make a statement.
7601. Can they make any statements which are more than bare suspicions? I do not know.
7602. Will you give us their names? M'Donald, Williams, Tipping, and Peters.
7603. Were they on the deputation? Peters was.
7604. How long is it since you saw these men? I saw M'Donald this morning.
7605. *President.*] Did he speak about it then? Not a word.
7606. When did he do so? Sometime since I was here before. I had been to see Mr. Thompson, and found that he was away in Newcastle. Williams had been to see him too.
7607. What did M'Donald say? Only that he wanted to come here. He did not tell me his business at all.
7608. What did Williams say? Williams told me nothing either, except that he had some statement to make.
7609. In connection with the tram frauds? I could not state. I do not know what it is about.
7610. And Peters, what did he say? I saw Peters last week.
7611. I suppose Peters wants to say he saw people in the receiving-room who ought not to have been there? I do not know what he wants to say.
7612. *Mr. Thompson.*] When you saw me I expressed to you, as I have done to-day, a feeling of bitter disappointment that the men who moved in this matter had not come forward to help the Commission more than they had done; but not one single man concerned in the matter has given us any help in the shape of evidence. You remember my saying that? Yes. The men did not know; they did not like to come here themselves, and they would like to be called.
7613. What is the use of our calling them unless they can put us in a position to know that they know something about the matter. A fair thing for them to do would be to submit to the President in writing what they know or imagine they know. They have had abundance of time to do that? Yes; they have had plenty of time to do it.
7614. We have been sitting six weeks, and, with the exception of yourself, not one of them has put himself in the position of being called as a witness. Some among you men, honest as you may be, must know by hearsay, if you do not know otherwise, that these thefts have been committed. You inferentially led us to believe that you knew of something of the kind occurring long before the reports appeared in the newspapers, because you approved of the alterations made in the mode of collection as a check upon fraud.

fraud. Some of you heard of it as long back as December, 1886, and it is unreasonable for you to say now that you did not hear of the matter until it appeared in the papers? I did not have any conclusive evidence or proof. When the bells were abolished it was said effectually that they were not correct.

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7615. *President.*] But they were restored? Yes.

7616. Do you think that was done without consideration or reason? I suppose it had due consideration.

7617. *Mr. Thompson.*] Don't you know as a man of the Department that the change back again was made just because it was said, if not found out, that the men were appropriating tickets by tearing them down the perforations instead of across? I was not aware that that was publicly known.

7618. *Mr. Brock.*] Could not a conductor collect the whole of an upper deck at night without tearing any of the tickets? The passengers would see it.

7619. In the dark? They could see whether he tore the tickets or not.

7620. But could they see him tearing them? If they watched him closely they could. The conductor would not know whether they were watching him or not. He would not know who was watching him in the dark. There might be a detective.

7621. But a detective could not see better than anyone else? He would watch the conductor more closely. Now and again, too, the trams come to a lamp, and then there is a light thrown on to the car.

7622. *Mr. Thompson.*] You know the little shop at the corner of Ocean and Queen streets? Yes.

7623. Did you not hear that people were buying from that shop torn tickets, which had been pasted together? No; I did not hear that.

7624. You were on that line? Yes. I was reported some time ago for selling tram-tickets. The Department sent in the report to you.

7625. Why did you think the Department sent in the report? Because you had it here.

7626. *President.*] How did you know that we had it here? Because you were reading it when you were asking me questions the other day.

7627. Did I read it to you? I do not think you did.

7628. Is there any reason why I should not have known of the complaint at the time it was made? I do not know what your position in the Department may be, but I thought that the Department had sent it in to you against me.

7629. In other words, you thought that Mr. Roberts had sent it in? Yes.

7630. You mean to say that you have no ill-feeling against Mr. Roberts? No.

7631. You will swear that? Yes. He never did me a bad turn in all his life, and I should not like to do him a bad turn either.

7632. The only two scraps of information you have given us are these: In the first instance you said that a very improper term—"How much have you made to-day"—which was being bandied about among the conductors, originated with Mr. Roberts six years ago. You held that in your memory six years, and it only came out in your evidence the other day. Then, with regard to the ticket-tearing system, you report Mr. Roberts as having said, "How do you like this?" and you say that it went abroad that the boss was against the system, the consequence being that it was such a failure that it had to be discontinued. These are the only two scraps of information you have given us in two days, and both of them contain injurious innuendoes against Mr. Roberts? Well, it is the truth.

7633. It is not possible that you have brought out these two matters in consequence of some ill-feeling against Mr. Roberts? I have no ill-feeling against him whatever.

7634. Then what is your object in mentioning these two things? I mentioned both of them in reply to questions which you put to me. I cannot do more than answer you truthfully.

7635. Are you truthful;—it is only a matter of opinion with you that Mr. Roberts' expression lead to this saying becoming general? I have spoken to some more about the matter and they say the same as I do. They say that they have heard the same thing.

7636. Who are they? I think Peters would tell you the same thing.

7637. Did he hear Mr. Roberts say this thing? I think so.

7638. These two references would certainly give one the impression either that you have ill-feeling against Mr. Roberts or that there is something more in the back ground which you will not or dare not bring out? I have no ill-feeling against Mr. Roberts, and there is nothing in the back ground which I will not bring out. I am not afraid to bring out anything I know of.

7639. *Mr. Brock.*] At the commencement of the afternoon you said that there was favouritism in the Department; that is another imputation against the officers? The favouritism might be down at Pitt-street.

7640. Do you mean Mr. Roberts when you refer to favouritism? I do not.

7641. Where does it exist? In our Department.

7642. Who are the men who benefit by the favouritism and who are the men who benefit by the cliquism? I will tell you who they say are favourites. I cannot do more than that. They say Jacob Herman and Harry Dumbrell are two. I should not like to definitely state others.

7643. You say they say these are favourites, but you have not been good enough to tell us of what the favouritism consists. Is that all moonshine too? The conductors as a rule state that these are two favourite men.

7644. *President.*] Favourite in what way? Well, if there is a Mayor's picnic at Botany, they will be sent out there, and stop there all day, and that sort of thing. I do not trouble about them. Let them have their favourites if they wish.

7645. These two men are conductors? Yes.

7646. Have you yourself seen any favouritism? I see that there is a great deal of it in every way.

7647. Well, tell us what it is? You want me to state things definitely and so conclusively that I cannot do it.

7648. We do not want pure imagination. You know that people do imagine things of the kind. They imagine, for instance, that others are better treated than themselves. This occurs in every walk of life, and you must know that? I have often thought it out myself. Men have often said that others are favourites, but I have not seen that there has been much in some of the complaints; still there is a saying in the Department that there are favourite men.

7649. When we ask you to define these things you cannot do it. Surely we do not ask you anything unreasonable if the thing is worth hearing at all? Well, it is not worth hearing.

7650.

- Conductor F. J. McMahon.
20 Sept., 1888.
7650. It is just tittle-tattle, is it not? Well, it may be.
7651. *Mr. Thompson.*] Where does the cliquism come in. That is still worse. There may be favouritism to men who are deserving of a little extra consideration, but where does the cliquism come in;—is it the officers in the office against the officers outside of the office? I do not know.
7652. Is it the conductors against the drivers? They say there is cliquism, but I have not seen any of it.
7653. You have been acknowledged in some way as being a sort of representative of the men, and they have been carrying you a lot of tittle-tattle. In reasoning the matter out for yourself that is apparently the conclusion to which you have arrived. The men have made you the old hen sitting on a mare's nest, and you have hatched nothing. All that you have said to exonerate yourself and the honest men of the Department is not worth a dump? Well, you see there is a lot of tittle-tattle. I go into the room and sign on and off. When I come to do my work I work and when I play I play. I never run about talking to conductors, but they come talking to me on certain matters, telling me this, that, and the other.
7654. It seems to me that you have allowed yourself to be made the mouth-piece of mere tittle-tattle and petty jealousies, which must necessarily exist to some extent in a large body of men. You have not helped us forward one fraction of an inch in our investigation, our object being, as you understand, to get to the bottom of these frauds? I have given you all the assistance I can. The reason I wrote to you was that I thought I had a right to come and make it known to you why I took such an active part in the meetings.

William Lambert recalled and further examined:—

- W. Lambert.
20 Sept., 1888.
7655. *President.*] I understand that you have something to add to your previous evidence, in reference to a conversation which took place between yourself and Mr. Roberts, when he sent for you in connection with the condition of a bell register? Well, as I told you before Mr. Roberts handed me a pair of registers, and after I had examined them, he asked me if they would ring without registering, and I said "No."
7656. You are quite sure when he put it to you in that way he did show you a pin in connection with the registers? He did not. As I stated before there was nothing explained with reference to that, and my opinion was that I was called upon to examine the register to check a conductor who was wrong in his accounts; or for the purpose of the registers being specially issued to someone.
7657. *Mr. Thompson.*] Do you still adhere to what you said when you were first examined—that you became aware that the bells could be tampered with almost directly you obtained your position as register repairer? I knew of course the action of the ratchet, and consequently that if anyone opened the registers they could be tampered with.
7658. You knew that soon after you got them into your possession? Yes.
7659. Your knowledge as a mechanic would tell you that that could be done? Yes.

FRIDAY, 21 SEPTEMBER, 1888.

Present:—

A. RICHARDSON, Esq., PRESIDENT.

R. W. THOMPSON, Esq., M.P., | F. A. BROCK, Esq., J.P.

Cecil Peters called in, sworn, and examined:—

- Conductor C. Peters.
21 Sept., 1888.
7660. *President.*] You are a conductor on the Tramway Department? Yes.
7661. How long have you been in the Department? Seven years on the 1st of August last.
7662. We have sent for you because we have been told by conductor McMahon that you would like to come before us and make a statement;—is that so? I never expressed a wish to come before you to make a statement; I do not know that I could state anything to throw any light upon this matter.
7663. Did you not tell McMahon that you wanted to be called? No; I have expressed no desire whatever to be called, although I am quite willing to give any information in my power, for instance, as to two men being in the room at the office; I certainly must say that I think there are people in that room sometimes who ought not to be there; I do not say that it has anything to do with the frauds.
7664. What men would these be? I saw there on one occasion two New South Wales artillerymen.
7665. Have you any idea what they were doing there? No; except that one of the officials in that room is a member of the corps.
7666. Who is it? Scholey.
7667. He went to the Soudan, did he not? Yes.
7668. Is he one of the clerks employed under Mr. Primrose? Yes.
7669. What would these men be doing in there with him—just having a chat? That is all I suppose.
7670. Have you seen others in there besides these artillerymen? No; I could not say that I have except men belonging to the Department, that is to say, the foremen.
7671. You have seen foremen there? Yes, and Wigg and Moran.
7672. But I suppose the foremen would have to go in there about the traffic? I think not.
7673. Would it not be necessary for the foremen—it would certainly be very desirable—to give information to the receiving clerks as to the conductors on different runs for the day? I do not think they do so.
7674. It has come out in evidence that they do not give the information which they should give as to the different men on the runs for the day, but it seems to us that the clerks should get a list of these men from the foremen, just like a running board, that is to say, that the foremen should give information as to the first arrangements, and then subsequently to the head clerk in the office as to the men who have been taken off particular runs, so that when the registers or bags were received they would know exactly what to do, if, for instance, a man did not bring in his bag at all, they would know that there was something wrong? We are supposed when we come off regular runs to say what lines we have been on.
7675. Would you from your point of view as a conductor argue that the clerk who is supposed to check you should take your word for everything? I think so, so far as that is concerned.
7676. You know that in almost everything it is necessary to have a check? Certainly.
7677. We do hope that people are generally speaking honest? Certainly.

7678. But you do not argue that we should so far consider people honest as to put away all check? For myself I should like to see more checks. Conductor C. Peters.
7679. Does it not seem to you right that clerks in the office should be in a position from an independent source to know on what line certain men are running and to know whether they have been put off those lines or not? Yes, I think so. 21 Sept., 1888.
7680. For instance, no one would doubt your word in the matter, but I presume you do not think that every conductor in the Service is an honest man? I should not like to say that anyone was dishonest.
7681. You have not enough to go upon? No.
7682. But you think it only a reasonable thing that there should be a certain check? Yes.
7683. It has come out in evidence that a certain conductor ran on a Wednesday and did not give in his return until the Saturday. In trying to search for a check upon that we found that the office was unable to check it in the case of an assistant conductor, because it might be thought that he was away car-cleaning, or that he was not running at all? That of course is very wrong.
7684. It would be very wrong on the part of the conductor? Yes.
7685. And is it not wrong that a clerk should be powerless to check a wrong of that kind? Yes.
7686. It would be for that reason we should think that it would be necessary for the foremen to go into the office? I do not think there is anything improper in the foremen being there.
7687. *Mr. Thompson.*] But you do not see any necessity for it? No.
7688. *President.*] When you saw the foremen there they were yarning I suppose? Generally, but I could not say what their conversation has been, because until the present system of emptying bags came in we went up to the window only once a day; in fact it is just the same now, because a conductor takes our bags from the yard to the office; in my opinion the present system is bad in regard to emptying the bags of the tickets every trip and not taking the money.
7689. Why don't you give the money in? They will not take it.
7690. Because of the distance of the office from the yard? I suppose so; but it casts great suspicion upon us when we get to Hunter-street or to Bent-street, because then we have to take the money out of our bags and put it into our pockets; I myself have a purse into which I put the money; the public seeing you do that would naturally think that you were appropriating the money.
7691. You have to do that under the system in order to give your bags in? Yes, they will not take the cash.
7692. Why will they not take the cash? I do not quite know; when the system was first started they did take in the cash for a short time, and then they said that they would not take it in any more until the close of the day.
7693. I fancy the reason of that is this; that the registers are not read at each trip, and they want to be very accurate about the cash, and to compare the registers and the cash at the same time? That is what I believe.
7694. But there would be no difficulty as far as you know in reading the registers every round trip? No; except the short time we have in the yard in many trips.
7695. But the registers would be read down in the yard? Yes, but we are no sooner there than we are shunted and away again sometimes.
7696. Had you any reason whatever to suspect that fraud was going on before you saw it in the papers? No, I had not.
7697. Had you no opinion in the matter? No.
7698. You had no reason to suspect any person or persons in connection with it? No, I had not.
7699. Therefore you are really without information on the point? I have no information to give you on that point.
7700. What led you to mention to M'Mahon the circumstance of these people being in the ticket clerk's room? It is common conversation with regard to people being in that room.
7701. It has been of frequent occurrence then? It has been frequently talked of.
7702. How often did you see these artillerymen there? Only on one occasion.
7703. How often have you seen foremen there? On several occasions.
7704. There has been talk among the conductors about it? Yes.
7705. What has been the character of the talk; have other conductors seen in the room artillerymen or other persons who ought not to be there? I have heard the conductors say so, but I could not say who the people were.
7706. You have heard them say that they saw strangers there? Yes.
7707. Did not M'Mahon put it to you in this way: "They want to make out that the conductors are dishonest, but my belief is that dishonesty is in the office"? I would not say that he put it that way; I have heard so many conversations in regard to the subject, it being such common talk among the men, that I could not say word for word what was said.
7708. But is that the feeling among the conductors? I think it is.
7709. You think the feeling is that the conductors are wrongly charged in this matter, and that the thing has occurred in the office? I do not say that conductors have been wrongly charged; I think the feeling is that there are some conductors who are mixed up in it, and that perhaps some other persons besides are concerned in it.
7710. But as far as you know they have no good ground for suspicion against anyone? Not as far as I know.
7711. Do you know anyone who has more than suspicion in the matter from conversations that you may have had? No, I do not.
7712. The information M'Mahon has given us amounts to nothing, although it has taken us a long time to get it; if you know of any conductor who from your conversation you would think able to give us any real information in the matter, his name would be serviceable to us? I do not know of anyone.
7713. *Mr. Thompson.*] M'Mahon, whether with your knowledge and consent I do not know, wrote to me as follows:—"Sir, I beg to state that when I was before the Board I thought that I had to answer questions only as I have since explained to you. If you will please recall me I will go into the whole of the matter before the Board of Inquiry. I feel that this is a duty I owe to myself on account of the action which I took to bring about this inquiry." We naturally gathered from that letter that M'Mahon really had something to tell us. Do you not think that that is a fair inference? I do.

Conductor
C. Peters.
21 Sept., 1888.

7714. With regard to the meeting which led to the deputation and which ultimately brought about this Commission, was anything said there by any of the men with regard to what had been going on as to the fraudulent taking and sale of tickets in the first instance? I was only at the first meeting, I was not at the second; in fact I was only a portion of the time at the first meeting, I was there at the opening of the meeting, and, as I daresay you saw by the papers, I moved a resolution with regard to an inquiry. The reason I moved it was this: I thought that the matter would be more thoroughly sifted out by an independent Board than by a Departmental inquiry. I thought that the public would be more satisfied, and that, perhaps, we should get more information. So far as I am concerned I was satisfied with the Departmental inquiry. I never had any reason to complain of any injustice being done to me by the Department or any of its officers. While I was at the meeting to which you refer I heard no remarks with regard to what you just mentioned. I saw from the reports in the Press some things which were said at the second meeting. Had I been there I should certainly have objected to a lot of the utterances.

7715. Don't you see that the Commission, having been brought about by the action of the men, the Commissioners are naturally very desirous that the men themselves should help in every direction that they fairly and properly can; don't you see that this is reasonable? Yes.

7716. Don't you admit that, as far as those who actively moved in the matter are concerned, they have been unable or unwilling to help us in any way? Well, those who are connected with the frauds would be unwilling, whereas those who are not connected with them would be unable.

7717. Did you not know that for months before public attention was drawn to the matter by the newspapers, and before your meetings took place there was a public rumour to the effect that there was fraud connected with the Department, in which, almost of necessity, the conductors must be mixed up? There are so many rumours in the guards' room that I take very little notice of them.

7718. Were there not, as a matter of fact, rumours that this fraudulent dealing with the tickets was going on? There were rumours certainly; the papers had rumours of them months ago.

7719. Can you take your memory back, and tell the Commission when it was when you first heard this rumour? I could not name the exact time.

7720. Have you had an opportunity, while you have been conducting, of seeing what has been the conduct of Musgrave, Greeley, and Ferrier? With regard to the three men you mention I cannot say that I ever had a favourable opinion of either of them.

7721. In what way? I always looked on the three of them as thorough blackguards; that is my opinion of them all round. Musgrave I know the least of. I do not know a great deal of Greeley; but I think that Ferrier, from what I have seen of him, is the most foul-mouthed man I ever met.

7722. Was it merely from his being foul-mouthed that you came to the conclusion that he was a blackguard, or did you observe any blackguardism apart from his coarseness of expression? It was from his coarseness of expression chiefly that I judged.

7723. Have you ever seen anything of him at night-time? No.

7724. What made you come to the conclusion that Greeley was a blackguard? His coarseness of expression a great deal.

7725. And although you knew comparatively little of Musgrave, what induced you to come to the same conclusion with regard to him? His obscene talk.

7726. What Church do you belong to? The Church of England.

7727. Are you a regular attendant? No. A tram conductor has not much opportunity for church-going.

7728. Are you a married man? Yes.

7729. Any children? None.

7730. Are you late out at night when you are off duty? I am out a great deal. I am a member of an Oddfellows' and a Masonic Lodge. I am sometimes out two or three nights a week at lodge meetings. I was for nine and a half years treasurer of one of the largest Oddfellows' Societies in the city.

7731. The very fact of your having been treasurer of such a lodge must have made you perfectly well aware how necessary it is that a check should be kept to guard against the misappropriation of small moneys coming in? Yes.

7732. You remember the President asking you as to whether you were aware that in some instances the men have taken away their bags, and have not accounted for them until a day or two afterwards? Yes.

7733. If there is an opportunity for that kind of thing to be done, is it in your opinion an incentive to dishonesty? Well, I think it is; supposing, as we are led to believe, that the bells have been tampered with, and I believe it is no secret that that is the case.

7734. If you have thought the matter out at all, can you suggest to the Commission any means by which the Department could keep a more effectual check upon the taking of tickets by the conductors, and upon the reception and taking of tickets and cash in the office? I have thought the matter over a great deal, but I do not know of any plan which I could suggest. The difficulty of collection in these cars is so great that I do not know what to suggest; it is impossible to keep a perfect check with the bells. I know myself I often ring more fares than I collect. When you are going over a crowded car with perhaps as many as thirteen and fourteen in a compartment, you are handed a quantity of tickets; you have not time to sift these tickets out to see actually what number you have. You take the number at a guess in order to get through the work, and perhaps you register more tickets or less tickets than there really are. For instance, on some of the trips after the theatres at night, the people come on in great crowds; a good many of them are in a half muddled, stupid condition; you ask for their fares, and perhaps you get four or five handed to you; then, after a little more persuasion, you get another lot. The recent tickets are so thin that it is almost impossible to tell how many you have got in your hand, without sifting them out one by one. Then in the day-time there will be school-boys and school-girls. Before you have the tickets in your hand you will think that there are two coming and will ring accordingly. I know that I have got into the habit of ringing for fares before I have got them into my hand, and instead of the boys and girls giving you the two tickets you have expected, they will give you one, and that is a ring lost. Sometimes people will hand you tickets in excess of the proper number, and just as you start ringing for them they will take them back again. By a mere force of habit somehow you generally ring more than the proper number.

7735. Have you at night-time ever been overpaid by people—a man who ought to give you 2d., giving you 3d., for instance? Very often, and in the day-time also; scarcely a trip passes but that I have to return tickets to people who have given me too many.

7736.

Conductor
C. Peters.
21 Sept., 1888.

7736. With regard to your own returns into the office, I do not ask the question offensively, has it been a fact that your register and your returns have shown a difference either one way or the other? Yes; a week or two ago I had some discrepancy papers given to me. I remember that I was twelve short in one day, four short on another, and nineteen short on another; but it afterwards appeared that the nineteen was a mistake in the subtraction, it should have been only nine.

7737. Do you get credit for any number which you may give in over the proper number? No.

7738. Have you been conscious that you have sometimes over-rung, that you ought to have received credit for it and that you have not received it? Yes.

7739. On the three occasions to which you have referred, or on any other of the same character on which you have been debited with a deficiency, can you tell us whether it was right or wrong, that is, whether you were really out the number stated, or whether there was some blunder? I do not think they were all blunders, probably I made some mistakes. The clerk who reads the registers counts the tickets.

7740. *President.*] Where? Over at the office.

7741. Who are the clerks who read the registers? Bates, Beverley, and Oakes.

7742. But the tickets never go near them? The tickets are weighed in the office, but so many boxes are counted every night by the clerks, who read the registers. Between 6 and half-past 7 the audit clerk in charge at Bridge-street goes up and counts the tickets. One day I saw a little boy counting them; it is some few weeks ago. It was a boy who has been taken on in the office since this fraud affair came out.

7743. Was he counting them without any supervision? There were others there besides.

7744. Was Mr. Oakes there? No; the clerks in the receiving room.

7745. *Mr. Thompson.*] Without wishing to throw discredit on anyone in or out of the office does it not seem to you that there are opportunities in both offices of misappropriating tickets? It does.

7746. Without any check? Yes.

7747. *Mr. Brock.*] What was your opinion of the tearing-ticket system? I believe it was a better system if the tickets were torn; but if you have got dishonest men they will not tear the tickets.

7748. *President.*] What you mean by that is, that it confines the dishonesty to the conductor and does not admit of dishonesty afterwards? Yes.

7749. With the registers you have two places in which dishonesty may be perpetrated? Yes.

7750. By the conductors and by the clerks in the office, who afterwards have the tickets in a perfect state? Yes.

7751. When the tickets were torn it was true that the conductors might not tear them, but the tickets sent into the office would always be torn? Yes.

7752. But do not you think that the tearing system afforded greater opportunity to a dishonest conductor than the present system? Yes, I think it did—without proper supervision.

7753. It would not be at all necessary for the dishonest conductor to go to the trouble of manipulating his register;—all that he would have to do on a dark night would be to pretend to tear the tickets? Yes.

7754. *Mr. Brock.*] Is there any by-law or rule in the office that no one except those belonging to the Department shall be admitted into the ticket-office? I do not know what rules they have in the office.

7755. Do you think there was anything improper going on when you saw the two artillerymen there? No, I do not think so; I should not like to say that I thought there was anything of the kind. All that I thought was that it was loose.

7756. *President.*] You thought that no strangers should be allowed in an office of that kind any more than a stranger would be allowed behind a bank counter? Just so.

7757. *Mr. Thompson.*] With regard to the service tickets, have any come to you from the general public? Not that I am aware of, but there are so many people who have service tickets that it is hard to find out whether they belong to the general public or to the Service. Almost the only way in which we could find out anything improper would be by women or children tendering the tickets.

7758. Suppose a number of women and children were in a crowded compartment, and a man handed you a bunch of tickets with three or four service tickets among them, you would not know from whom the Service tickets came? No.

7759. Have you any reason to believe that the service tickets are being improperly used? No, I have not. They are used on the railway tram more than any other, and I am on that line.

7760. Who would have a right to use them particularly on the railway tram? I do not know.

7761. *President.*] You know that there are large numbers employed clerically and otherwise at the railway? Yes.

7762. I suppose that the clerks and workmen in the Permanent-way and Loco. Departments would often have to go down to the head offices and different places? Yes.

7763. I presume that under those circumstances they would use service tickets;—would that not account for a large number of them? Yes.

7764. But you would not have such a knowledge of the men using these tickets that you would feel warranted in any case in saying, "You have no right to use a service ticket?" No, unless I knew the man personally.

7765. Was it not formerly the custom to use ordinary tickets instead of these service tickets—that is, when a messenger or clerk belonging to the Department travelled they bought the ordinary tickets and afterwards debited them to a petty cash account? I am not certain; I know that at one time there was an order that no one was to travel without paying, that every employee was to pay, and I think it was then that the service tickets came out.

7766. Up to that time were the employees of the Department allowed to travel indiscriminately? Not indiscriminately.

7767. What employees were allowed to travel. At the time the order came out the drivers and firemen and conductors were supposed to pay. Do they pay now? No.

7768. The running staff never pay? No; the order came out that all were to pay, except the Commissioner and the two superintendents, and then the service tickets came into use.

7769. *Mr. Thompson.*] With regard to the cash: how much money have you yourself taken in the course of a day—money which, under the present system, you say you are obliged to keep all day? Only a few shillings; the average is about 5s.; of course on race-days the money is taken on every trip.

7770.

- Conductor
C. Peters.
21 Sept., 1888.
7770. *Mr. Brock.*] How do you think a cash system would work? All cash?
7771. Yes, suppose there were an efficient check, or a check as nearly efficient as could be obtained? There would be a great difficulty in regard to the change. I am afraid we could never get through the work.
7772. We will assume that there is an efficient check. Suppose, for instance, that there was a system under which every fare was paid in a copper coin, and that that copper coin on being put into a certain machine would register itself. Suppose too that the coin after registration would slide into a portion of the bag accessible to the conductor for the purpose of giving change? The difficulty would be in giving change. I am afraid it would take too long.
7773. *President.*] But don't you think that after a very short time people would get into the habit of carrying copper coins in the same way that they now carry a certain number of tickets? They might.
7774. Would not the bulk of the people travelling have their 2d. ready? The ordinary passenger would have; but you would have a great deal of trouble with people who were not ordinary passengers.
7775. You mean by ordinary passengers those who are accustomed to travel between their homes and their business places? Yes. For instance, the other night I had two cars loaded from the Rosehill Races; by the time I reached Liverpool-street I had hardly got through the fares, because there was several of the passengers to whom I had to give change.
7776. That was under the present system? Yes.
7777. They were paying cash? Some of them. A lot, for instance, tendered 2s. 6d.
7778. Under the system I have suggested you would always have a quantity of copper coin available. A person wanting to pay for two fares would hand you 6d., and you would give him six coppers, four of which he would put into the machine? Yes, that would be easier. You mean that the passengers would deposit the coins themselves?
7779. Yes? You would find that a great many passengers would refuse to do it. We had the greatest difficulty when we had the cash system in getting people to take tickets for the cash. They would not take the paper; they would throw it away.
7780. But they did not refuse to pay their fares. People do not refuse to do so under the omnibus system. Take the case of a man sitting near the door; he has to scramble along to get his change from the driver, and then put his coin in the box; you never hear people grumbling about that? No; they do not mind the inconvenience when they are travelling with the bus company, but they would not like it if they were travelling under the Government.
7781. I have no doubt that you have taken an intelligent view of matters of this kind. You have already told us that it is not to be expected under the present system that the registers will come out in agreement with the tickets. Is it not a weak point in any system when you are unable to say to a conductor, "That is your return—you must give me so much." If under the system I suggest the register was so unmistakably accurate that the conductor would have to bring in a certain amount, and if he did not do so would have to make up the difference, would not that be very satisfactory? Very satisfactory for the conductors.
7782. And for the Department? And for the Department.
7783. Then there would be no room for dispute; but when you are working under a system, in which there is no balance, it is very difficult to draw a line, and to say that when a man is ten short it is all right, and then when he is twenty short he must be dismissed? Certainly.
7784. If a system such as I suggest could be carried out it would be satisfactory to all parties? Yes. Under the register system two or three weeks afterwards we get a list showing that on certain days we were short, and we cannot after that interval say whether we were short or not.
7785. It would be too far distant for your recollection to serve you in giving an explanation? Yes.
7786. Of course, if the cash is short, there is so little cash that you can generally know the reason why it is so? Quite so. The papers I got the other day were the first of the kind I have received since I have been in the Department. I was once told that in coming from the races I was £1 short, but it turned out afterwards that in balancing the account they found there was more money than they thought there was. It got entered to some one else; but that was a long while ago.
7787. They found the £1? Yes. We get a receipt, as a rule, for all the money we take in a day, but on race-days we get no receipt.
7788. Why is that? Of course on race-days we collect £7 or £8 in coming through from the races, but I do not know why a receipt is not given.
7789. Where do you give it in? In the office here or at Randwick.
7790. When do you count your cash? When we get race-course money we just hand the bag in as it is.
7791. But the clerk at the office might have a little book with a butt and a fly, and when he counts your cash, while you are standing at the window, he could fill in a statement for you? Yes; on ordinary days we have a receipt-book for the cash.
7792. Would there be any difficulty in doing the same thing on a race-day? No. At one time we had no receipt. When the cash system was in force before we used to simply throw our bags in and get them returned to us empty. We never knew what we paid in.

George Love called in, sworn, and examined:—

- G. Love.
21 Sept., 1888.
7793. *President.*] What is your occupation? I am doing nothing at the present time.
7794. You were employed in the Tramway Department some time ago? Yes.
7795. How long ago? About seven or eight months.
7796. We have sent for you on that account. Knowing that you were in the Tramway Department, we think it possible that you have it in your power to give us some information in connection with these irregularities of which you must in some way or other have heard—the irregularities in connection with the sale of tickets and so forth. It occurs to us that in going about some of these things may have come under your notice;—if so, any information which you may be able to give us may be useful? The only thing I ever knew was this: I heard a remark passed by a stranger that there were tickets sold in Waterloo to a tobacconist there.
7797. Who told you that? I heard a bystander say that he had heard of Siddons buying tickets.
7798. Have you ever been in Siddons's shop? Only once to get my hair cut.
7799. Do you know him? Yes, I know him.

G. Love.

21 Sept., 1888.

7800. Does he bear a character for dishonesty or anything of that kind? He got in some trouble some time ago for buying two rings under value!
7801. That is all you know of him? Yes.
7802. Do you live in that neighbourhood? Yes.
7803. Does he pass in the neighbourhood as a decent honest man? Yes; he passes as an honest man.
7804. Have you ever seen conductors going in there? Yes; I have seen conductors going into the shop.
7805. Were you on the Waterloo line? I have been on all the lines.
7806. What made you leave the Service? I had a bit of a row with one of the drivers, and I resigned.
7807. And since you left the Department you have been back to your old occupation of bus driving, I understand? Yes.
7808. *Mr. Thompson.*] Where were you living at the time you were on the trams? At Waterloo.
7809. Were you living near Siddons's place? In Raglan-street.
7810. Have you ever seen any of these tickets going about? No, except that I have had to take them on a bus instead of a fare sometimes.
7811. What do you mean when you say you had to take them? Sometimes people have not had sufficient money, and they have given me two tram-tickets and 2d. for a fare. If I had not taken that I should have had to go without.
7812. *President.*] Do not the 'bus-tickets go about similarly? I have had them just in the same way.
7813. We have heard that 'bus-tickets are frequently offered in hotels—that a man will go for a drink, for instance, and will offer a 'bus-ticket for it? Yes; I have seen people offer a bus ticket for a drink.
7814. Both 'bus and tram tickets have been used within your own experience in a marketable way? Yes, I have seen them given for drinks. I have also seen people give stamps for drinks.
7815. What is the value of a 'bus-ticket? 3d.
7816. But they would want more than that for a drink? I have seen people give a 'bus-ticket and get a glass of rum or a long beer.
7817. *Mr. Thompson.*] Referring to what you said just now, that you had taken 2d. and two tram-tickets for a fare, that would be equivalent to 4d. in cash? Well, we only charge 3d. cash. The company for which I have been driving is a private company; there are no tickets.
7818. Have you ever driven for the Omnibus Company? Yes.
7819. Long ago? Yes, a long while ago.
7820. How long were you with the Omnibus Company? Over five years.
7821. After that you came into the Tramway Service? I went to Peate and Harcourt's for a short time as a driver.
7822. *President.*] As to your seeing these 'bus tickets given for drinks in certain public houses, have you ever seen the drivers of omnibuses giving tickets for drinks in that way? No.
7823. While you were in the Company I suppose you used to go about a good deal with the drivers? Well I was grooming for a good deal of the time.
7824. If we have been told positively that the 'bus drivers have been seen giving tickets for drinks, have we been wrongly informed? They may have done so.
7825. In what way would the drivers have the tickets? I could not tell you that; they may have picked them up in the 'bus. We have often picked up even a dozen 'bus-tickets when we have been washing the 'busses at night time.
7826. That would be 3s. worth? Yes. Sometimes we would not pick up one at all. I have picked them up behind the seats sometimes.
7827. You think that these might be the tickets which would be given for drinks? Yes, sometimes.
7828. Did you yourself ever use any which you have picked up in that way? No.
7829. But you admit that you have picked some up? Yes.
7830. What have you done with them? I have given them to the Mrs. I have seen passengers who have been short of money give tickets for drinks. Of course no trams were running at that time.
7831. You never lived in Redfern? At one time.
7832. Whereabouts? Pitt-street.
7833. *Mr. Thompson.*] Do you know old Dominic Lacerda? Yes.
7834. Used he not to have a tobacconist-shop there? No; it was at the corner of Regent-street and Redfern-street.
7835. *President.*] When you lived in Pitt-street you would not be far from where you live now? No, not very far. It is about twenty years since I lived in Pitt-street.
7836. Have you been living for any considerable time where you are living now? I have been living there for about five months. I live opposite St. Silas's now—that is off Botany-street.
7837. Where did you live before that? In Cooper-street, Waterloo.
7838. How long since is that? About ten or eleven months.
7839. How long have you been living there altogether? About eighteen months.
7840. Previous to that where were you? At Surry Hills—14, Chelsea-street, near Baptist's Gardens.
7841. How long were you a conductor when you were in the Department? About three years and a half.
7842. Did you ever hear that the conductors were making a bit? No, not until I left.
7843. Only recently? Yes.
7844. While you were occupied on the trams did you never hear it said that some of the conductors were making a bit? Yes; I heard something of the kind passed.
7845. You did not pay any attention to it? No.
7846. You did not believe that it was so? No.
7847. Do you know any of these men who have come under suspicion—Musgrave, Ferrier, or Fraser? Yes.
7848. Do you know them well? Only by being in the Service with them.
7849. You never suspected these men? No. One of them is keeping a tobacconist-shop in Cleveland-street now—that is Fraser.
7850. *Mr. Thompson.*] How long ago is it since you heard that man telling about Siddons buying tickets? About eight or nine months ago.
7851. Before you left the Department? Yes.
7852. Did it not strike you then that it was a curious thing that he should be buying loose tickets in this way? Yes; I did not believe it.

7852½.

- G. Love. 7852½. Then you really have no information you can give us about the frauds? No.
 7853. Give it to us quite freely if you have any? That is the only thing I know of. I do not know the man's name. I was standing at the corner of Buckland-street and Botany Road when I heard the thing said.
 7854. What do you think of Dominic Lacerda? I do not care about him. He would be quite likely to be selling tickets. I would not put it past him.
 7855. You know the father? I know the whole lot of them; they are all tarred with the same brush.

George William Macdonald called in, sworn, and examined:—

- Conductor G. W. Macdonald. 7856. *President.*] You are a tram conductor? Yes.
 7857. How long have you been in the Service? Seven years and ten months.
 7858. We have sent for you because we understand from M'Mahon, one of your fellow conductors, that you have expressed a desire to him to come here and give some information; if you have any to give we shall be very glad to receive it; did you express this wish to M'Mahon? Yes.
 7859. What is the nature of your information? Sometime ago I applied, with others, for a certain position in the Service. A Member of Parliament wrote, recommending me to the Commissioner for the position. My application, with the recommendation, was sent on to Mr. Roberts, and in answer to it he said that there was no traffic foreman wanted at North Shore, and that if one was wanted I was the last man in the Department he would recommend. I don't know of anything against me, and I don't know why he should have sent me that report.
 7860. But how does this bear upon the subject of our inquiry? I do not know. That was all I wanted to say.
 7861. How do you know that Mr. Roberts gave this answer? I got his report.
 7862. In writing? Yes.
 7863. Where did you get it from? It was sent to Mr. Cass, the member who wrote to the Commissioner recommending me, and it was sent to me by Mr. Cass.
 7864. *Mr. Thompson.*] Then what you wished to state was that you had a complaint that favouritism had been exercised, or that undue influence had been used against you? Yes.
 7865. *President.*] Was anyone recommended for the position? I do not know.
 7866. Was anyone appointed to the position? No.
 7867. This is only a particular grievance of your own; if you felt that the report of Mr. Roberts was wrong, and that you suffered under a grievance through it, you should have made an appeal for redress to the Commissioner through the Department, but we have nothing to do with anything of that kind; have you taken that course? No.
 7868. How long ago did it happen? Two years ago. To tell the truth, I was afraid to do what you suggest.
 7869. Why? I was afraid that they might bring some charge against me and dismiss me.
 7870. You thought that some charge would be made? Yes.
 7871. What made you think that? I do not know. I have seen so many curious things happen in the Department.
 7872. What are the curious things that have happened? I understood first of all that it was to be given to a man named William Grono.
 7873. Where is he? In the ticket office at Redfern.
 7874. What objection would you have to offer to that? Well, I was an older hand. He considered that he was an older hand, but he was on the permanent way when I came into the traffic.
 7875. But he did not get the appointment? No.
 7876. You said just now that many curious things happened in the Department; we should like to hear of them apart from this particular grievance of your own? I thought that it was likely that they would have made a charge against me if I said anything about it, therefore I left it alone.
 7877. Did you really think they would trump up a charge against you? I did.
 7878. Have you ever known them to do it? I cannot say that I have known them to do it, but I have heard that they have done it.
 7879. Who do you think would be guilty of trumping up a charge against you? I have heard that the Superintendent has done it before to-day.
 7880. Can you give any cases in which he has done it? I could not swear that he has done it. I have only been told so.
 7881. But in what cases? I do not know that I can remember exactly now. There was one man, Cavanaugh. I heard that he did it in his case. I cannot exactly remember the other cases now.
 7882. But if there has been a charge trumped up against Cavanaugh, it will appear in the records, will it not? I expect it will.
 7883. It will not be a verbal charge, it will be a written report against the man? I expect it will.
 7884. And you have been told that this report was a trumped-up one? Yes.
 7885. What happened to Cavanaugh? He was dismissed.
 7886. Who are the persons who told you he was dismissed on a trumped-up charge? I could not remember—it was generally talked about.
 7887. Was Cavanaugh dismissed at the time of the diamond stud robbery? Shortly after.
 7888. Did Cavanaugh give any evidence at that inquiry? I am not sure.
 7889. You are aware that in connection with that diamond stud matter an official inquiry was held before the Minister for Works and the Commissioner for Railways. Had you any reason to be dissatisfied with the decision arrived at? No; I cannot say that I have.
 7890. You are labouring in your own mind under some terrible grievance which you evidently think a great deal of. If you have any grounds let us know all that you think? Well, I saw Cavanaugh after his dismissal, with a lot of money. He was going away then. He showed me a letter from Mr. Roberts to give to Mr. Fletcher, the Minister for Mines, to get him a billet. He said that he had got the money from Mr. Roberts.
 7891. Did he say what he had got it for? Yes; to get rid of him. He said it was a part of £200 or £250 he had to get. He said he had another £100 to get.
 7892. How much money did he show you? I did not count it. He said there was £125. 7893.

7893. Is he to be found now? I do not know where he is now. This happened in the pointsman's box at Redfern. Stafford, the pointsman, was present. Conductor G. W. Macdonald. 21 Sept., 1888.
7894. Is he in the Department now? He is at the Redfern Railway Station, car cleaning, at present.
7895. Did Cavanaugh explain to you why he was to get this £250? It was to hold his tongue. I understood that both he and Martin got so much each.
7896. What did Martin get? I never heard what Martin got.
7897. And you believed this? I believed it; I read the letter myself and saw the man.
7898. What did the letter say? It was addressed to Mr. Fletcher asking him for God's sake to get the man some position, as Mr. Roberts had been ruined by that man Berner. There was a mark in the left-hand corner of the letter, and Cavanaugh asked me if I knew what it meant. He said it was a Masonic sign. He is a Freemason.
7899. Is that all the letter said? I do not remember anything more. I did not take much notice of it at the time. Cavanaugh is a man I do not care about. I happened to have a little business in George-street, and I came to the box when Cavanaugh was there.
7900. Did it not seem to you extraordinary that a letter should be written to Mr. Fletcher asking him to find employment for this man because the writer has been ruined by another person? Yes, I thought it was. I did think it strange.
7901. Could you understand the bearing of the letter according to your own showing if it had been to this effect: "For God's sake find some work for this man—he has been sacrificed to save me"; that would follow on to what you told us would it not? Yes, I did not know what to think of it.
7902. Was there not something more in the letter that would explain what it meant? Yes, there might be; I did not pay any particular attention to what was in the letter any more than what I have already stated.
7903. What did you think. Did you not think it was a most terrible thing—that it was evidence of the most awful dishonesty? I thought at the time it was very strange.
7904. And yet you did not take any notice of it? I did not consider that it concerned me at all. I thought the thing was done with then because Cavanaugh was going away up country.
7905. How long ago is this? About eighteen months ago.
7906. Not more than that? I could not be sure.
7907. How long is it since the diamond stud matter occurred? I do not remember; I did not give evidence on that occasion.
7908. Is it not a fact that the diamond stud business occurred early in 1884—about four and a half years ago? I may be mistaken in the date.
7909. How long is it since Cavanaugh left? I do not know; I cannot remember. I know it was soon after that other matter.
7910. Then it must be about four years ago? I did not think it was so long.
7911. Have you kept this incident locked in your breast for four years without telling anyone? There was a lot of people who knew it—a lot of men at any rate.
7912. You told a lot? They knew it.
7913. How? Stack had told them. I have heard it talked about on different occasions.
7914. When did you apply for this appointment that you did not get? It was just before the North Shore tram was opened.
7915. Was it after you had this communication with Cavanaugh? I do not remember whether it was before or after.
7916. It never occurred to your mind that you ought to report the circumstance? No; I never thought it was any part of my business to report it. I thought it was all settled before by the inquiry.
7917. Had you' connection with the diamond stud transaction yourself? I was in the raffle. I was not there when it took place, but I paid to go in and some one threw for me. The night before the raffle came on Lambert and Murray, who were the two special conductors at the time, came up on to the platform, and Lambert asked me if I had any enmity against the boss. I said, "No." He said, "Do you want to go up to the inquiry?" I said, "No, for God's sake do not mention my name in it."
7918. Why? I said "It is a fishy piece of business and I do not want to have anything to do with it." Lambert said, "Then you do not want to go." I said, "No, unless I am forced."
7919. And you did not go? I did not.
7920. Why did you want to stop away? I did not want to be mixed up in it.
7921. Why? I did not see that I could do any good or harm.
7922. What evidence would you have given? I should have said I was in the raffle.
7923. Whose studs were they? It was said that they were Mr. Roberts'.
7924. Who said so? When Martin asked me to go into the raffle he said that the studs belonged to Mr. Roberts and that he wanted to raffle them, and then I asked him what they were worth. I forget the reply, whether it was £10 or £20.
7925. I am anxious to know why you did not want to give evidence there? I did not want to get mixed up in it.
7926. But four years afterwards when there is an inquiry into quite a different matter you wake up to a sense of your duty and want to give evidence before this Commission. Is that what we are to understand? If I had been pressed to give evidence at the time I would have gone.
7927. Did we press you to come here? No.
7928. Did you not send word that you wanted to come? Only on that particular matter I have spoken about.
7929. Did you not say that you wanted to give us information? No.
7930. Have you any information to give us in connection with these ticket frauds? No.
7931. But you asked M' Mahon particularly to get yourself called? Yes.
7932. In order that you might give information about a thing which was settled four years ago, and in connection with which you particularly asked that you might not be called upon to give evidence because it was so fishy? I did not want my friends to see my name mixed up in it.
7933. But after the lapse of four years, although the matter is not in any way pertinent to this inquiry, you do wish to be mixed up in it. Will you explain that? I understood that that was what the question was asked me for. I had no desire to bring the thing up.

- Conductor
G. W.
Macdonald.
21 Sept., 1888.
7934. You wanted to come here to give the information? That was simply in connection with an appointment in the Department.
7935. But is it any part of our business to enquire into the appointment of foremen and inspectors? I do not know.
7936. Do you not know that this Commission was appointed to inquire into the recent alleged tram frauds, and to devise a means for improving the collection of fares in the future? I do not know.
7937. What can the question of the personal grievances of the men have to do with that? I understood that that was what you were sitting now for and that the inquiry as to the frauds had been closed.
7938. That we were now sitting to go into individual grievances? Yes.
7939. Who told you that? I heard it from a lot of them; I do not remember anyone in particular telling me.
7940. Who pressed you to come forward and give evidence just now? No one.
7941. Was it entirely your own doing? Yes.
7942. It is singular that you should have been unwilling to give evidence at the proper time and that you should be willing to give it four years after the whole had been settled? I was afraid to do so at that time, and I did not want my name to be mixed up in it.
7943. How is it you are not afraid now? If I get dismissed now well and good, I cannot help it.
7944. How do you mean if you get dismissed now? It is likely the Department will have a down upon me because I have come here. I do not know that they will, but they may.
7945. You have no right to say anything of the kind? Perhaps not.
7946. Answer this particular question as to why you are not now afraid to rake up an old matter which was settled four years ago without the benefit of what you appear to think was valuable evidence on your part? I thought that was what your inquiry now was about, and that was what these other men had come for.
7947. Who told you that we were making any inquiry at all into this old matter? I do not remember who told me.
7948. When were you told? About a week or ten days ago.
7949. You were told that we intended to inquire into the diamond stud matter? Yes, that and other matters.
7950. Did you hear at the same time that it was the intention of somebody to write an anonymous letter to the Commission in order that this matter might be very conveniently brought up? No.
7951. But you heard that it was the intention of the Commission to inquire into a matter that had been dead for over four years? I heard that.
7952. That is the reason of your coming forward? Yes.
7953. *Mr. Thompson.*] Did you hear it down in the yard—from any one in any position down there? It was from some of the men, I could not remember who.
7954. Tell me anyone of the men who said it to you, beginning from the foreman and inspector, and coming down to the scrubbers? I heard it casually mentioned, but I could not remember just now who it was who told me.
7955. Do you know Halliday? Yes.
7956. Did he mention it to you? No.
7957. Did Gamgee? No, I do not think he did.
7958. Was it Saunders the shunter? No, he is not in my shift.
7959. Was it Wigg or Moran? No.
7960. Was it Peters? I am not sure whether it was not Peters, in fact I could not swear positively who it was.
7961. Was it M'Mahon? No, it was not M'Mahon, at least I don't think so.
7962. Was it Lambert? I have not seen Lambert for months.
7963. Was it O'Brien? No, it was not O'Brien.
7964. Have you had any conversation with O'Brien on the subject? No. He was talking to me the other morning, but not about this matter.
7965. What about? About Moran and Greeley taking a public-house, but I thought it was only in a jocular way. He said, "Are you going to take a public-house," I said "No, I am not." He told me then that Moran and Greeley were going to take one between them.
7966. That was all that passed? Yes.
7967. He did not mention this inquiry at all? No.
7968. You say that the matter was so fishy at the time that you begged off being called as a witness. In what respect was it fishy; was it fishy as far as you were concerned; as far as Martin was concerned, or how? I heard then that Martin was going to take the blame for the studs, and say that they were his own; and that his wife did not like them.
7969. You did not believe that the studs were Martin's, although he was going to take the blame for it? Exactly.
7970. You are perfectly well aware from your having been at the meetings of the men when these frauds were made public what gave rise to this Commission? Yes.
7971. Are you not in a position from what you have heard while you have been a conductor to give us some information about the very matter into which we are now inquiring, passing over your stale fishy old transaction? The first I ever heard of the frauds was when I was called back on a Saturday afternoon at 5 o'clock for special duty an announcement appeared in the *Star*, and one of the men was reading it. That was the first I ever heard of it.
7972. You know nothing about it beyond that? No.
7973. Did you ever hear of anything of the kind before? That is the first I ever heard of it.
7974. The public knew more than many of you men appear to have known? Very likely. The first I heard of it was what I saw in the *Star*.
7975. Did you not hear that they were making tickets by rigging their bells? No, that was the first I heard of it.
7976. You never heard of the fellow who used to carry a bell up his sleeve and ring that? I never heard anything about that.
7977. *Mr. Brock.*] Do you know if the letter of Cavanaugh's, to which you have referred, ever went to Mr. Fletcher? I do not know that it ever went. I only know that Cavanaugh said that it had.

7978. Where is Cavanaugh now? Up country somewhere; he got some appointment out west.
7979. In the railway service? I do not know. I do not think so.
7980. Is it in the Government service? Yes, but I do not know in what branch.
7981. *President.*] Did you absolutely see in this man's hand a large amount of gold? No, they were notes. There was a roll of notes bigger round than my arm.
7982. There can be no doubt about it? No.
7983. What sort of sign was it on the letter—the sign which you say was masonic? I do not remember what it was like. It was just in the corner.
7984. You are not a mason yourself? No; the sign was in one of the corners, and Cavanaugh asked me what it meant.
7985. Was he a mason do you know? I do not think he was.
7986. What was Cavanaugh dismissed for do you remember? I do not remember.
7987. But you believe it was upon a trumped up charge? I was told so.
7988. Why was it necessary to dismiss the man at all? I do not know what he was dismissed for.
7989. But is it necessary to give a man a certain amount to hold his tongue and dismiss him at the same time? I heard him say that day that he had been dismissed and reinstated within half an hour.
7990. *Mr. Thompson.*] And then dismissed again? Yes.
7991. *President.*] But had the dismissal anything to do with this other matter—the letter and the money? That I could not say.
7992. What made you say you thought it was a trumped up charge? I heard the others talking about it. I do not remember who it was; it is so long ago, and I did not pay much attention to it. I heard it said that some one went to Mr. Abigail, and that the man was dismissed some few weeks afterwards.
7993. Through Mr. Abigail? I think it was through something that Mr. Abigail said. I do not know whether Mr. Abigail reported him or who reported him, that I do not remember.
7994. But at the time he showed you this letter and roll of notes was he a dismissed man? Yes.
7995. For how long had he been dismissed? I think he had been dismissed some time—perhaps a few weeks or a few months—I could not say which.
7996. *Mr. Thompson.*] This letter was virtually begging that he might be re-instated or get some billet under the Government? Yes.
7997. *President.*] Because Mr. Roberts had been ruined by Mr. Berner? Yes.
7998. *Mr. Brock.*] Did Stafford give evidence at the diamond stud inquiry? I do not know; I do not remember.
7999. Did this man Cavanaugh receive this letter from Mr. Roberts unsealed? I could not say; it was open when I saw it.
8000. Was it in an envelope? Yes.
8001. Was the seal broken or was it left open by the writer? I do not remember that. I understood at the time that he had given it to Mr. Fletcher, and that Mr. Fletcher had given it to him back.
8002. Saying anything to him at the time? I do not remember. I cannot remember that he made any remark.
8003. *President.*] Did you notice the date of the letter? No.
8004. You think Stafford took more notice of the thing than you seem to have done? He may have done. I was just walking past when he bade me "good day," and called me into the box. Cavanaugh was there. There was a locker, and the money was on one of the corners of the locker.

Conductor
G. W.
Macdonald.
21 Sept., 1888.

Matthew Williams called in, sworn, and examined:—

8005. *President.*] You are a tramway conductor? Yes.
8006. How long have you been in the service? Nearly seven and a half years.
8007. We have sent for you, because we have been given to understand by M'Mahon, one of your fellow conductors, that you have expressed to him a desire to come before this Commission to give some information, if so, we should like to hear what you have to say? That is perfectly correct.
8008. Will you say what you have come for? I merely came in reference to the way in which I have been treated by the Tramway Department. It happened about three years ago when there was an accident with one of the engines.
8009. If you have come before us on a matter of personal grievance we must decline to hear it, but if you have come to us with any information which, in the most indirect way possible, will throw any light upon the tram-ticket frauds, we shall be very glad to receive it? No; it is more a matter of complaint.
8010. Who told you that we were sitting here to adjudicate grievances? I can hardly remember.
8011. Did not someone suggest to you that you should come and give evidence? No; I came of my own free will and accord.
8012. In connection with this grievance of your own which you were desirous to ventilate here, we should like to know whether it has any bearing whatever upon the tram frauds? Not in the slightest shape or form.
8013. Does it show any sign of any general favoritism or improper treatment of the men? No, only unfair treatment as far as I am concerned.
8014. Have you been told that this Commission of inquiry was sitting to rake up an old matter which was settled four years ago? No.
8015. Are you sure of that? Yes.
8016. Have you heard any conversations in reference to the diamond stud matter during the last week or ten days? I heard that it had been brought up.
8017. Before this Commission? Yes.
8018. When did you hear that? About a week ago.
8019. Who said so? I could not be sure whether it was M'Mahon or who it was. I could not be sure.
8020. Are you sure that the person who mentioned it to you did not say that it was going to be brought up? I would not be positive whether it was said that it was going to be brought up, or that it had been brought up, but I was told for a fact that the conductor who had the selling of the studs had been brought up.

Conductor
M. Williams.
21 Sept., 1888.

- Conductor 8021. When did you hear that? Yesterday.
 M. Williams. 8018 $\frac{1}{2}$. But tell us about the information you received a week ago. Was it M'Mahon who gave it to you? Yes, if I am not mistaken.
 21 Sept., 1888. 8022. Who told you yesterday that the conductor who had the selling of the studs had been brought up and examined? I could not say who it was, there was so much talk. I general manage to keep myself aloof from the men, and mind my own business. I find I have quite sufficient to do.
 8022 $\frac{1}{2}$. You have no information to give us bearing upon the ticket frauds? Not the slightest. There is only one thing I would suggest in reference to the tickets to prevent any fraud in the future. I think we might first ring for the tickets, and then tear them up afterwards. That would prevent all fraud, and be a double check.
 8023. It would prevent fraud either in the office, or on the part of the conductors? Yes; nothing could be done with the tickets by the conductors, or by those in the office.

William Tipping called in, sworn, and examined:—

- Conductor 8023 $\frac{1}{2}$. *President.*] You are a tramway conductor? I am.
 W. Tipping. 8024. How long have you been in the Service? About six years and six months.
 8024 $\frac{1}{2}$. On what line? On various lines—on the Forest Lodge, Glebe Point, and Moore Park lines.
 21 Sept., 1888. 8025. Our sole reason for sending for you is that we have been given to understand by M'Mahon, one of your fellow conductors, that you have expressed a wish to him that you might be called here to give evidence? I did not wish it, but he asked me, being one of the old conductors, whether I would not like to make a statement. I said I had a little grievance I would like to state.
 8025 $\frac{1}{2}$. A personal grievance? Well, yes.
 8026. We are not sitting here to consider such matters? I beg your pardon.
 8026 $\frac{1}{2}$. We are sitting here to inquire into the recent tram frauds, and to devise, if possible, a better mode of collection in future. If you have any information bearing on either of these two phases of the subject we shall be glad to receive it? Well, in the first place, I certainly do not like the bells. I have been many times going through Belmore Park when a gentleman has handed me 3d. or two tickets. By the time I have started to ring my bell the whistle of the engine has been blowing, the bell has not been sufficiently loud to be heard above the whistle, and the gentleman would turn round and say that "Guard is not pulling his bell."
 8027. Have you heard such a thing said? Yes.
 8027 $\frac{1}{2}$. With regard to yourself? Yes.
 8028. You think the bells should be louder? Yes, certainly. The best system I consider would be to use all cash fares, say 2d. I would give the public a chance for travelling for 2d., the same price as tickets, and I would have a small book upon which the guard could give them a receipt. No doubt the bells are the fastest, but at the same time these bells bear a nasty brand upon us.
 8028 $\frac{1}{2}$. Why? In the first place it is disagreeable when we take our bells into the office. I may very often have two heavy cars to manage, not being a favourite with the traffic foreman; these cars would be so packed that I could not get standing room inside, and I would have to stand upon the footboard and collect; then of course I have to take the tickets from the gentlemen who pass them to me; I have to hold on with one hand and to take the tickets with the other. I have only one hand with which to count them; there may be under the number or there may be over the number; then I have to ring with the hand in which I am holding the tickets, hanging on to the car with the other hand. The consequence is, when I come to office, I get a memo. stating that I am so many tickets under or over. Of course I have done my best for the Department; I am not able to do any more. That is my objection to the bells.
 8029. Your objection to the bells is that they cannot be depended upon to bring out an accurate balance? Certainly not. I was coming down this morning with a gentleman—Alderman Meeks;—he thought that he handed me two tickets. I said, "How many are you paying for?" and he said, "One." I said, "You have given me four tickets." If it had been a dark night I should certainly have put them into my bag without seeing that he had given me four.
 8029 $\frac{1}{2}$. That is no fault of the system? No; it is not fault of the system, but, at the same time, if we had all cash fares, or if we had to tear the tickets, we should not be told that we were so many under or so many over when we had done our best.
 8030. Do you think that if you had all cash fares with all copper coins you could get through your work, giving the amount of change necessary? Certainly, if the trams were run in a proper way; for instance, take the run to Newtown road, or to Forest Lodge, or to Glebe Point, you have to wait perhaps half or three-quarters of an hour for a tram; I may be on the Glebe Point tram coming first; perhaps there would be sixty passengers waiting; they would take the first car; the consequence is that the Forest Lodge or Newtown cars following me would be running empty, but if there were an interval of 10 minutes at the Newtown road the trams would not be so crowded.
 8031. Did you ever try to make out a tram time-table? No.
 8032. Do you think you could? Well I could try.
 8033. Do you think you could arrange the time-table so as to get these intervals properly? Well I think I would try.
 8034. Take the trams going to the western suburbs—Forest Lodge and Leichhardt and so on, the distance is unequal is it not; if you get your interval right going out of Sydney does it not follow that you get altogether wrong coming back about the point you are speaking of? Yes, I see that.
 8035. It is right to preserve an interval if you can, but is it not the case that the difference in distance would bring the trams together at this point? Yes. Take Glebe Point; there is a difference of 3 minutes between Glebe Point and Forest Lodge; one of the Glebe Point trams leaves at 8:26 and one leaves Forest Lodge at 8:25; the consequence is if I start to my time I am down at Bridge-street before my time. If I am on the Glebe Point line I leave a minute behind. We generally have 20 minutes spell on that journey; that leaves us plenty of time to get water and for the driver to look round his engine. The tram leaves Forest Lodge at 8:25 as I have said; the consequence is that the two trams are on to one another.
 8036. It is a fact that not only do these two trams get close to one another at the Newtown Road junction, but all the time they are running the one from the Forest Lodge and the other from the Glebe Point terminus.

- terminus, they are so to speak, eating the earnings out of one another, are they not? Yes. Another thing I would like to refer to is this: I have been taken off a Forest Lodge line and put to Waverley to look after a special. I have had two cars to myself. The ordinary tram comes behind me with two cars, the conductor having an assistant; I get all the loading and the ordinary tram behind me will have about forty passengers; the Forest Lodge people meanwhile are depending upon their tram and are disappointed. 8037. Do you mean to say that the regular tram is taken off the regular route? Yes, I have been taken off several times.
8038. Has not some one gone instead of you on the Forest Lodge route? No.
8039. You say that if the trams ran at better intervals you could do the work of collecting under a cash system? Yes.
8040. Your idea would be that the fares should be the rule and as a check upon yourself you should give a receipt? Yes.
8041. What sort of receipt; would you have to fill it in yourself? No, the same as we had when we had the little books some time ago—when we used to carry the tickets; I fancy it is fairer to the conductor and also to the public. A man pays 2d. and he gets a receipt for it.
8042. Suppose you had a cash system with a register which automatically registered the money as it went through so that the conductor at the end of his trip round would by his indicator show the actual amount of money which should be handed in;—would not that be still more satisfactory? Yes.
8043. So that at the end of a journey, without any dispute, the register indicating £1 5s., the conductor would have to give in that amount? Yes.
8044. Instead of giving in tickets sometimes above the register and sometimes below it? Yes; that will be much better.
8045. You see no reason why a system of that kind should not work? It would be a very good idea.
8046. Have you any information at all to give us in connection with these frauds? Not the slightest; no information at all.
8047. *Mr. Brock.*] When did you first hear of them? I heard somebody make the remark in the room about Musgrave and a few more of them going up to the head office in connection with the frauds.
8048. Since this inquiry commenced? Yes.
8049. Is that the first you heard of tickets being sold? Yes.
8050. *President.*] You believe that the work of the tramways up to that time had been carried on with perfect honesty on the part of all concerned? That is what I believed.
8051. Did you not hear of a paragraph in the *Australian Star*? I did not see the *Star*. I saw the *Evening News* commenting upon it. I did not read it, because the paper usually publishes so many funny things about the conductors and the trams that it was hardly worth while reading them.
8052. *Mr. Brock.*] People generally read the papers when the articles concern themselves? It is not only now and again; they are always writing about the trams.
8053. You had some conversation with M'Mahon as to your coming here to give evidence? Yes.
8054. Did he suggest to you that you should give evidence? Yes. He suggested that being one of the oldest hands I should do so.
8055. *President.*] I want to ask you a few questions in connection with that conversation;—did he not suggest to you the channel in which it would be wise to give evidence? No.
8056. Did he say anything like this to you: "You will find that old matter connected with the diamond studs is going to be brought up"? No.
8057. He did not mention that matter to you at all? No.
8058. Have you heard that this Commission was dealing with the matter in any shape or form? A conductor named Leany told me that the Commission was summoning Cavanough. That was all I heard about the diamond stud matter.
8059. Who is Leany? He is a conductor.
8060. And he said the Commission was summoning Cavanough? Yes.
8061. When did he say that? About three weeks ago.
8062. Beyond that you have heard nothing about the diamond stud business? No.
8063. You did not hear that the Commission was busying itself about that matter? No.
8064. You did not hear that the Commission was going to do so? No.
8065. You did not hear that it was intended to bring the matter under the notice of the Commission? No.
8066. What line is Leany on? On the Randwick line.

Edwin Stafford called in, sworn, and examined:—

8067. *President.*] How are you employed in the Tramway Department? I am a pointsman; but I am ill now.
8068. Are you at work? Yes; I am car-cleaning.
8069. How long have you been in the Tramway Department? Since it started.
8070. Do you know a man named Cavanough? I did.
8071. Do you remember being told something very remarkable by Cavanough in the presence of a conductor named Macdonald, some eighteen months ago? Yes; it was in my box that it happened.
8072. Where is your box? Just below the railway platform.
8073. Have you had any recent conversation with Macdonald on the subject? Not that I am aware of.
8074. What do you mean? Not that I am aware of. I have seen him, but I never had any conversation about the like of that. I do not know what I was sent for.
8075. When did you have any conversation with him last? When we were working together, but it was not on this subject.
8076. Has he not spoken to you on this matter of Cavanough's during the last week or ten days? I think he has.
8077. Did he tell you that he was going to give evidence here? No, not on that subject; it was on another subject.
8078. He said he was going to give evidence? Yes.
8079. When did he tell you? About a week ago, I fancy; you hear so many rumours here on the job that you hardly take notice of anything.
8080. Did you bring up the subject? No.

Conductor
W. Tipping.
21 Sept., 1888.

Pointsman
E. Stafford.
21 Sept., 1888.

- Pointsman
E. Stafford.
21 Sept., 1888.
8081. He has not refreshed your memory on the point? Not to-day.
8082. Not during the last hour? I have seen him during the last hour; just after he came up I got notice to come down.
8083. Did he not tell you what you were coming for? He said I was coming down to the inquiry.
8084. He did not tell you what evidence he had given? No.
8085. Are you quite sure of that? I am.
8086. He did not tell you what he said as to Cavanaugh? No, he did not, because he was fetching up a special; he backed up with his special as I was coming down; we just passed one another.
8087. Will you tell us what happened in your box some time ago? To the best of my memory Cavanaugh came up there, and he threw down I think £113; he told me to count the notes. I said; "What for?" He said, "I got them from old Jimmy," meaning the Superintendent. I said, "What is it for?" Of course Cavanaugh was a man you could not take much notice of one way or the other, because he was always skitting about different things.
8088. He was not a truthful man? He used to tell some tremendous lies at times. When he showed me the notes I said, "Go along." He said, "Count them; that is my tip." Macdonald was in the box at the time. I chucked them down and said, "Sure enough it is there"; there were £113 to the best of my belief. I said, "Were did you get it from." He said, "From old Jimmy," meaning Mr. Roberts.
8089. Did you go further into the matter? No, I did not.
8090. Did he show you any letter at the time? I do not think he did.
8091. Did you believe him when he told you he had £113? I hardly credited him.
8092. Did he not tell you how he came to get it? He said it was over some diamond studs, or something similar to that, but whether it was true or not I do not know.
8093. This took place about two and a half years after the diamond stud business? About that time.
8094. And all that time Cavanaugh had been working on the trams? Yes, I think he had.
8095. Did he say he was to receive or had received more money than he showed you, or anything of that kind? No, he did not.
8096. Was he in the Service when he showed you the notes, or had he been dismissed? It was about the time he resigned; when he was going up country on some other occupation I think, but I would not be certain about it.
8097. He showed you no letter? No; I do not think he did, not to the best of my recollection. If I had known I were to be asked about the like of this I should have been better prepared.
8098. Did you tell anyone about this money matter? Let me see; I am blest if I know. I might have mentioned it up in the conductors' room. I would not be certain.
8099. Did you threaten Cavanaugh that you would at once go and tell Mr. Roberts what he had said? No, I did not.
8100. *Mr. Brock.*] Did you hear anything about a letter having been written? No; not that I am aware of.
8101. A letter to the Minister for Mines, Mr. Fletcher? No; I heard nothing about it.
8102. You were not called as a witness at the diamond stud inquiry? No.
8103. *Mr. Thompson.*] Did you have any talk with Cavanaugh about the matter after the time to which you referred? Really I could not say whether I did or not; it is a good while ago now. I have heard Cavanaugh going about a lot of times and saying they could not sack him.
8104. *President.*] That was before he showed you the money? Yes; but I did not take any notice of it.
8105. *Mr. Brock.*] He said they could not sack him? Yes.
8106. But they did sack him? Yes. It seems they did dismiss him after all for being drunk, or something of that kind.
8107. That was Mr. Roberts' act? Yes.
8108. What is your impression about the matter now;—do you believe that Mr. Roberts owned the studs? I should not care to pass any opinion about the matter at all.

Michael Leaney called in, sworn, and examined:—

- Conductor
M. Leaney.
21 Sept., 1888.
8109. *President.*] What is your position in the Tramway Department? Conductor.
8110. How long have you been in the Service? About six years.
8111. We have sent for you more particularly to ask you one question. Did you say to anyone, about a fortnight ago, that a man named Cavanaugh had been served with a summons to appear before this Commission, or that he was about to be served with a summons? I heard it mentioned that Cavanaugh was served with a summons.
8112. Who mentioned it? Really I could not tell you. I did not take much interest in it at the time. It happened when I was going to Randwick.
8113. Have you been attending these meetings of conductors? I only attended one meeting.
8114. Which was that? The second meeting.
8115. Since these meetings have you had any consultations with any of your fellow conductors? No.
8116. With M'Mahon, for instance? No. I do not think I have spoken to M'Mahon since the meetings. I might have seen him and bid him good-day; but that is all.
8117. But you heard that Cavanaugh was to be subpoenaed by this Commission? I heard it as a matter of fact on the cars.
8118. From a conductor? I could not say whether it was from a conductor or from a pointsman.
8119. But it was from a tramway employee? Yes.
8120. *Mr. Brock.*] It seems strange that you should know that it was a conductor or a pointsman who told you; but that you should not remember which? Well, I heard it; that is all I remember. I may have been talking to someone else about it after I heard it.
8121. Do you remember saying it to any particular conductor? No.
8122. *Mr. Thompson.*] How many pointsmen are there between here and Randwick? There is one living at Randwick. It may have been he who told me about Cavanaugh, but I could not swear.
8123. What is his name? Mick Whalan; I think he is pointsman at the Queen-street junction, and he lives at Randwick.

Conductor
M. Leaney.

21 Sept., 1888;

8124. He did not jump up on to your car and give you that solitary piece of information? No.
8125. Well, what were you talking about? We were talking about the frauds, and Cavanaugh's name came up.
8126. How did it come up? The other man, whoever it was, suggested it to me.
8127. And the statement was made, not that Cavanaugh was going to be called before this Commission but that he had received a summons or something to that effect? I could not say the words.
8128. Was anything said in that conversation about the diamond stud matter? Not that I am aware of. If I had time to think the matter over I might be able to remember it better.
8129. Did this man tell you that the attention of the Commission had been drawn to this matter of the diamond studs, and that Cavanaugh was going to be called in consequence? I did hear that about Cavanaugh.
8130. And that he was going to be called? Yes; I believe the man I have named is the man who told me.
8131. You mean the pointsman at the Queen-street junction? Yes.
8132. Are you sure it was he? He is the only man I can remember having had any conversation with about the matter.
8133. Have you any information you can give us in connection with the ticket frauds? I have no facts.
8134. But have you any strong suspicions? I have only hearsay.
8135. *President.*] What is that? It is in reference to the Frenchmen selling the tickets.
8136. Which Frenchmen? The Frenchmen up at Liverpool-street.
8137. What did you hear about that? I heard that Ferrier the conductor offered to sell one of these Frenchmen £50 worth of tickets for £25.
8138. Do you remember where you heard that? I heard it on the cars from a carpenter working now on the North Shore line. I believe he is working there now as a carpenter.
8139. What is his name? Moloney.
8140. Did he appear to be well informed on the subject, or was he talking from hearsay? I believe from what he told me he heard the conversation between the Frenchmen and this conductor.
8141. This happened when? About last May.
8142. Is not Moloney in the permanent-way department? Not that I know of.
8143. By whom would he be employed? By the Government; he is a bridge carpenter.
8144. Then he is in the permanent-way department? Yes? I suppose so.
8145. *Mr. Thompson.*] Have you heard anything more of the same kind? Well there is a man named Mulligan; I have known him for about twenty years; he lived with these Frenchmen for about a month or five weeks. I asked him one day if there was any truth in the statement that the Frenchmen were buying tickets. He told me that he had heard they did so, but that he had never witnessed any transaction taking place.
8146. Was that all? Yes.
8147. Have you heard of any other matter which will in any way assist us in our inquiry? Well, Ferrier and Musgrave were great mates, and I heard that Ferrier used to sell tickets.
8148. From whom did you hear that? From Mulligan; one day when Moloney was in at the Frenchman's having something to eat, the conductor came in with the tickets offering to sell £50 worth for £25. The Frenchmen would not give him £25 and he went away.
8149. *President.*] How long have you known Moloney? Three or four years.
8150. Did you know him at the Redfern Station? No.
8151. Where then? He was working at the Glebe twelve months ago; but he was not in the department; I know that he is at present on the Pearce's Corner line.
8152. Do you know his address? No.
8153. What is his Christian name? Frank.
8154. Have you no further evidence to give us? No; if I knew anything about the tickets I would be only too glad to come forward.
8155. *Mr. Thompson.*] Do you know what has become of Cavanaugh? No.
8156. Is he out of the country, do you know? I heard some time ago that he was up at Bathurst.
8157. Why did you not report to Mr. Roberts what you had heard with reference to these Frenchmen? I did report it to Mr. Roberts.
8158. What information did you give him? I gave him the information Mulligan gave me.
8159. Not Maloney's information? No.
8160. Did Maloney ask you not to mention his name? No; he just came on to the car and asked me if I thought there was any truth in it. I said I thought there was not. I told Mr. Roberts about the £50 worth of tickets being offered for £25.
8161. Do you know Musgrave? Well.
8162. Did you ever hear anything about his selling tickets? I did hear that he used to sell the tickets.
8163. Who told you so? I only know what Mulligan told me. He had only just hearsay—he had no facts.
8164. Did you ever hear of any other conductors selling tickets? No.
8165. Did you hear that Fraser was selling tickets? No.
8166. It was pretty generally spoken of among the conductors that Musgrave and Ferrier were doing this? Yes; another man who might be able to give you information is a photographer named Finn.
8167. Where does he live? In a boarding-house somewhere down in Lower George-street.
8168. In the Chinese quarter? Somewhere near there. He used to get out of the trams and walk down Bent-street. He used to go down to Coogee taking photographs. He was a particular friend of Fraser's.
8169. Has he a shop in Lower George-street? No; he is staying there in a lodging-house. He is a fast man, about 25 years of age. He has a fair moustache.
8170. You think he could give us some information? I think so.
8171. Do you know of any people who used to buy the tickets? No.
8172. What line are you on? On the Coogee line.

John William Tyrer recalled, and further examined :—

- J. W. Tyrer. 8173. *President.*] We desire to ask you one or two further questions. It seems to us that there is a decided lack of system in connection with the way the registers are read and dealt with when men are going to the race-course. For instance, a man will get his register read for the race-course. He will go away, and when he eventually gives in his returns, he will say "After all, they did not send me to the racecourse, They sent me to Bondi or Forest Lodge." Is that possible? It is possible.
- 21 Sept., 1888. 8174. Is it a fact? I do not say that it is a fact, but it is possible.
8175. We are actually told by Mr. Primrose that it happens on an average twice every race-day, and that instead of considering it his duty to make special inquiries to verify the conductor's statement upon such a very important point, he always accepts the statement, and accepts the register-reading as being for pence instead for shillings. Is that a satisfactory state of things? No.
8176. Are you aware that such a state of things has existed? I should say that it did not. The foremen are, of course, in charge of the men, and tell them off for special duty upon race-days. They have a standing order with reference to race-days.
8177. I think the order to which you refer hardly touches the question? I hardly think that such a thing as you suggest would occur. If a man were told off for race-course duty, and did not go to the race-course his bag would not be taken until the end of the shift. That would be before the present arrangement came into force, but Mr. Roberts is always down at this end. For the first six years of the races being served by the trams I always took charge of the race-course. Mr. Roberts would always be in a position to know if anyone told off for race-course duty really performed that duty. I may say that on such occasions as race-days, especially on public holidays, it was a matter of seeing how much work you could do in a stated time, and I should be obliged to admit that there is not the system carried out on such days as would be carried out on ordinary days. It would be either this or working to a complete system, but earning less money. Anyone who has noticed the work down here on a public holiday must have noticed the large amount of traffic which has to be done in an exceedingly small yard.
8178. Now you are branching off. We want you to stick to the subject we have brought under your notice; that is, the extraordinary statement which has been made in regard to the race-trams, and remember that the races are not necessarily held upon public holidays? I only mentioned public holidays and race-days because the two things combined make the traffic difficult.
8179. You admit that the registers having been read, it was an important consideration whether the conductor is going to ring once for 1s. instead of once for 1d.? Yes, of course.
8180. One of the officers in your branch has stated that on an average twice on every race-day the facility for ringing once for every 1s. has been given to conductors who have afterwards gone on to lines on which they would ring once for every 1d.;—it is said that the word of these men as to what they have been doing is accepted without any question? The foreman of the yard would be better able to speak upon that point than I could do. If such an alteration were made in the men's duty it would be from their instructions.
8181. We should have considered it perfectly satisfactory that such a thing should be done, provided Mr. Primrose had taken the trouble to satisfy himself, by reference to the yard authorities, that the statement of the conductor was correct. His version, however, was that he thought it quite unnecessary to do so. But passing from that we are told in connection with these race-trams that a man may be sent out late in the afternoon, and that he may be sent on to Coogee from Randwick without having his register read. Having collected a certain number of 1s. fares, and having them in his bag, the conductor is sent on to Coogee to collect 1d. fares;—is that correct? It has been done; but it would not be done if the order which has been given were carried out. I have been on duty at the course, and a certain order having come out from Sydney, I have had no power to turn the man back again.
8182. What sort of order do you mean? A man is sent on a late run to the race-course, and if there are a large number of people at Coogee his order is not to be put at the sheds, but to go on to Coogee and to bring in passengers from there. I have objected to it, but the reply which has been made to me is, "What is the use of allowing people to stand out there; what is the use of our losing money?"
8183. Do I understand you to say that on such occasions you would be at Randwick, but that you could not set aside an order made in Sydney? I have been there, but I have been in charge of the traffic. The taking of the money and of the tickets I had nothing at all to do with. That is done by separate officers. What I had to do was to work the traffic and to see that the men who came in with the cars delivered up the bags before they entered upon their journey back to Sydney.
8184. You found that a man was under orders from Sydney to do a Coogee run after he had done the racecourse run? Yes.
8185. Was it not competent for you to direct some one to take that man's money? He would have had his money taken if he arrived during the hours the receiving clerks were at the office. But the receiving clerks are obliged to come away from that end to work the Sydney office.
8186. If you were there yourself could you not read the man's register? It would not be part of my duty.
8187. Would it not be your duty to protect the revenue? Yes; but my time was taken up in such a way that I could not possibly read the registers. I had my hands full.
8188. How would you have your hands full. This would happen at slack time? I should be occupied in regulating the traffic and getting the cars all laid back.
8189. But the trams coming in at this period of the afternoon would be in a slack time when the races were half over? No.
8190. Do you mean to say that you would allow your receiving clerks to go away while business was going on? No.
8191. Then it would be a slack time? Comparatively speaking a slack time.
8192. That is to say there would be comparatively few persons going to the race-course? Yes.
8193. So that it was not thought necessary to keep the receiving clerks? No.
8194. Would it not be better to keep a receiving clerk out there until the whole of the business was finished? It certainly would—or rather, we should have a second lot of receiving clerks, because then business would be beginning at this end directly.
8195. Mr. Primrose told us he thought that the orders for the men to go on to Coogee came from the foreman at Randwick, who, he explained, could not read the registers? Well, the orders came from Sydney
8196. Is it not extremely desirable that on occasions of this kind, when a man is transferred from

a shilling to an ordinary run, some arrangement should be made for the reading of his register, and the taking of his cash. If this is not done the Department is entirely at the mercy of the conductor in regard to the returns he gives in? Yes. J. W. Tyrer.
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8197. Perhaps you will make some little inquiry about this other matter. This statement by Mr. Primrose, the correctness of which I very much doubt myself, as to there being on an average, every race-day, two men told off to the racecourse, and then sent somewhere else. Mr. Oakes' experience is quite the reverse. He remembers several occasions when the mixing up of the tickets has occurred, but he says he cannot remember an occasion on which a man has come back to the window and has said that he has been somewhere else? Neither do I.

8198. *Mr. Brock.*] It seems to be Mr. Oakes' opinion that it could be easily done? Well, it is possible, but it is improbable.

8199. There is nothing to check it? There is a possible check which I think can be reached. If a man was told off for Randwick and did not go, but worked upon another line, of course nothing happens, but if he went to Randwick he would be checked at the other end.

8200. Not according to Mr. Primrose. He said that the work was done so quickly at Randwick that every conductor could avoid having his register read by the receiving clerk, and make at least one trip out of every five? Mr. Primrose has not been there, so how could he tell.

8201. The register reader at Randwick does not go to the conductors? No, he is in the room.

8202. He expects the conductors to go to him? Someone is always watching for them. The first thing I always look to on the arrival of the trams is that the conductors take their bags to the little portion which we have boxed off. The foreman does the same thing now that I used to do. As I said before, I did it for about six years, until I got rather badly hurt. Now it is done by Gamgee or Halliday.

8203. Could they read the registers? I could not say.

8204. But they can see that the conductors do not avoid the check? Yes.

8205. *Mr. Thompson.*] With reference to the incident of Musgrave keeping his register from the Wednesday until the Saturday, and not returning his money or his tickets, does it not seem to you that that was a very glaring irregularity? It certainly was.

8206. And whose fault do you say it was? The foreman in charge. This man was a car-cleaner and occasional conductor.

8207. I think you said that on account of the shift a man could not be put from one line to another? No, I did not say that.

8208. Suppose a man goes out at 5 o'clock in the morning, and is bound to come back at 1.30, is it not a fact that he could be put by the foreman on to three, or even four, different lines all different distances, and that there is no check in the world exercised upon the conductor in regard to the lines he has been on;—is there anything to keep a check on that man, so that the department could know approximately what his returns would be? There is nothing to show beyond his register. He certainly would not be able to leave his car without some other man relieving him.

8209. But we know by this time that there are so many ways of swindling. A man's register might agree with his tickets in his bag, and yet he might have 200 tickets in his pocket and the department would know nothing about it? Of course if we are to assume that the whole body of men we have are thieves, what you suggest would certainly be very feasible.

8210. *President.*] Is it not a fact that when a conductor goes upon several lines he has to name the amount which he thinks he has taken on each line, and that it is apportioned accordingly? Yes.

8211. You consider that satisfactory do you? No, I do not.

8212. Does it not give a man an opportunity for cheating; for instance, suppose he had been four Waverley runs and two Forest Lodge runs; when he was asked about these trips he might reverse the order of things in order to divert attention from the smallness of his return;—is not that a very unsatisfactory state of things? Yes, it is, but there is one thing I would like to ask: Is it to be assumed, from the questions being put to me, that I am to be held personally responsible or that I am supposed to be responsible for what you are now stating in reference to the registers, and more particularly in reference to their not having been read. My reason for asking is this: I started on my holidays and I was sent for. I found this system in vogue. I at once said, "It is no use entering the bags unless you have the registers read also each round trip."

8213. But until these frauds came out is it not a fact that you not only read your registers only once a day but that you also collected the tickets only once a day? Yes.

8214. And that even now you collect your cash only once a day? Yes.

8215. Who is responsible for this state of things? It is not my fault.

8216. *Mr. Thompson.*] It seems that the whole thing is governed by Mr. Roberts? Yes.

8217. *President.*] Did you ever point out, under the old system when the collection was made once a day, that it ought to be made every round trip? I have suggested it, but for other reasons than the supposition that the conductors were dishonest.

8218. Did you make the suggestion in writing? No.

8219. You surprise me by saying so, because the other day you rather ridiculed the idea that the reading of the registers every round trip would be of any service whatever? That is not so. As far as my memory serves me I said that the reading of the registers each round trip would show what they brought in each round trip, but that it would not prevent the conductors from stealing if they were so inclined.

8220. When I asked you before whether you thought the registers were reliable and whether you could expect that the takings would agree with the reading you said no, and that there must be a considerable margin. Then I said, "Would it not bring it much nearer if, instead of reading the registers once a day, you read them every round trip." You said you did not think it would bring the margin closer? I do not think it would. The conductors would still manipulate the tickets if they wished to do so.

8221. How are you to find out the dishonest men if you have not a rule by which you can tell whether the honest men are right or wrong? The only rule we can go by is this: That the register will say so much and that the result will be so much.

8222. But you do not believe that they will agree? I have no faith in the registers.

8223. You still think that it would be absurd to expect a man to balance his day's takings with the register;—does it not follow that if you divide the day into eight parts the men must come out much nearer right? It seems to me that the total would be about the same, whether the earnings are taken separately at different periods of the day or as a whole.

- J. W. Tyrer. 8224. Will not a man be more careful if his register is taken every round trip than he would be if it were taken only once a day? He might be. The mistake all along has been that there has been no limit fixed supposing that we are to take the registers as reliable authority.
- 21 Sept., 1888. 8225. Do you think if you had a test case that a careful man would come out right at the end of the test trip? I think he would be wrong.
8226. *Mr. Brock.*] What is the reason that the registers are read at Randwick and not at any other place? It is only on race days that they are read there.
8227. Why on race-days? To secure the earnings from the men, and I suppose to take a certain amount of temptation out of their reach.
8228. Why on that particular line? Because on that line they get a shilling for each ring.
8229. Is it not done principally because the conductors collect their fares in cash? That is the principal reason.
8230. How is it that the tickets are taken in Sydney on every round journey and that the cash is not taken? The cash is very small in amount. The man gets a receipt for the actual amount of cash he pays in. The tickets of course he does not get a receipt for.
8231. *Mr. Thompson.*] As a mere matter of lightening the labour in the office, would it not be infinitely better that the returns should be made every trip so as to spread the work of entering them up in your books over twelve hours instead of running it into two? It would not lighten the work particularly, because we take the result of the tickets by weight. If an entry had to be made up on account of each journey, seeing that there are about 1,000 trips a day, it would mean considerably more work. We count a certain number of tickets, but we weigh the bulk of them. Every week a certain number of men have their tickets counted and compared with their registers. If there is a deficiency they are called upon to show cause why it exists.

THURSDAY, 27 SEPTEMBER, 1888.

Present:—

A. RICHARDSON, Esq., PRESIDENT.

F. A. BROCK, Esq., J.P.

Alfred Charles Tomkins called in, sworn, and examined:—

- A. C. Tomkins. 8232. *President.*] What is your employment or business? I am a labourer at present. Last summer I got a little camera, and was taking photographs down at Coogee.
- 27 Sept., 1888. 8233. Are you at present in any Department of the Government? No.
8234. Do you know a man named Leaney, a conductor upon the Government tramways? Yes; I think I have heard his name.
8235. You do not know him personally? I know them all by sight;—that is all on the Coogee line, but I cannot say I know their names. I know a man named Warby, and another man named O'Leary.
8236. We have been given to understand that you can give us some information about these frauds that have been going on in connection with the tram-tickets; is that so? No.
8237. None whatever? None whatever. I have been in the habit of riding down to Coogee on the average about four times a week for about six months. That is how I came to know the conductors by sight. All that I know is that I have often been unable to get any tickets down at Coogee, and that I have sometimes ridden home on credit paying the conductor on the following day.
8238. Do you know a man named Ferrier? No; I do not know the name.
8239. Or Frazer? I know a man named Frazer. I know his wife and his wife's sister. I have seen him several times on the Coogee line. He used to be a sort of odd man. He would come down one day, and then you would not see him again for a week or a fortnight.
8240. Have you ever sold any tram-tickets yourself? I have obliged people if I have had them in my possession.
8241. Where have you sold them? I think I have sold sixpenny-worth or a shilling's worth to the doctor at the hotel at Coogee. There might be several people to whom I have sold half-a-dozen sometimes; I would have 4s. or 5s. worth of tickets upon me.
8242. Why did you buy such a large quantity? Sometimes I use as many as 15s. worth in a week on travelling to Botany and Coogee. Then on Saturdays and Sundays I would be down at the Aquarium at Bondi.
8243. Have you never been obliged with tickets by the conductors? Never.
8244. You have never bought any tickets from them? No.
8245. You are quite sure of that? Yes. The only way in which they have obliged me is this; that when I have had no tickets they have sometimes allowed me to go home on credit.
8246. Is it a fact that you have travelled repeatedly with conductor Fraser? No more than would be necessary if he happened to be on the cars when I have been leaving Coogee.
8247. You have never travelled without paying your fare ultimately? No; I have always paid it ultimately.
8248. You are certain of that? Quite certain.
8249. Have you ever sold tickets at the waiting-room at Moore Park? Never.
8250. Did you ever get into any trouble? Yes; once since I have been out here—for fighting.
8251. Where was that? Down at the Circular Quay on a Saturday night a man insulted me.
8252. What happened to you? A constable came along and this man's eye was bleeding. The fight was over. It only lasted about two minutes. The man insulted me. He said that I was a cockney. We had what I call a merry five minutes. The constable seeing the man's eye bleeding asked what was the matter. He said, "That man struck me." The constable said, "Will you give him in charge?" and he said "Yes." The magistrate discharged me on Monday morning, and said that the constable ought not to have done so. I was bailed out by my landlord.
- 8252½. You are sure it was not conductor Leaney? Quite sure. He knows something about it.
8253. Do you know a man named Maloney, a bridge carpenter? No.
8254. Did none of the conductors ever tell you that they were having a little game with the tickets? No; I never was intimate enough with them for them to talk to me in that way. 8255.

8255. Though you travelled with them frequently and you have told us that you sometimes did something rather exceptional—that you travelled upon credit? The conductors knew what I was doing down at Coogee, and they knew that there was only one little bit of a place down there where the tickets could be bought. I have said, "Will you take me home if I give you the tickets to-morrow?" and they have said "Yes."
8256. You know conductors O'Leary and Warby very well? I know O'Leary but I do not know Warby. It is only by accident that I know their names. I know all the conductors by sight.
8257. Have you ever frequented the Greek oyster-shops? No.
8258. Do you know anything of them? No; they are a class of people I have nothing at all to do with.
8259. Perhaps you do not know that they are Greeks? No; I know that they are foreigners.
8260. I mean the people at the shop at the corner of Liverpool and Elizabeth-streets? I do not know any of them.
8261. Do you know a Mr. Charles Cook? No.
8262. *Mr. Brock.*] Do you know a conductor named Musgrave? No; I never saw him to my knowledge. I might know him by sight if I saw him.
8263. What Warby is it that keeps the "Liverpool Arms?" That is a brother to the conductor I have been told.
8264. *President.*] Do you know a man named Gardiner who keeps a shop at Randwick? No; I know very little of Randwick. I pass straight through.

A. C. Tomkins.
27 Sept., 1888.

FRIDAY, 28 SEPTEMBER, 1888.

Present:—

A. RICHARDSON, Esq., IN THE CHAIR.

F. A. BROCK, Esq., J.P.

John Sale called in, sworn, and examined.

8265. *President.*] You are the Chief Inspector of Railway and Tramway Accounts, I believe? Yes.
8266. You were called upon by this Commission, the other day, to make a special examination of tramway accounts and report to us—that you did? Yes.
8267. We should like to know how often an inspection of these accounts is made by an officer of your department? About three times a year.
8268. By yourself personally? Generally. More often than by anyone else.
8269. How long previous to this special examination had an examination been made? Speaking from memory, I should say about five weeks. I could supply you with the exact date if it were of any consequence.
8270. Have you at any time had reason to complain of the state of the accounts? Speaking generally, no.
8271. You have found things, for the most part, as you would wish to find them? Excepting in matters of detail, quite so.
8272. Our chief object in sending for you this morning is to ask you a few questions bearing upon the risk of appropriation which the tickets run in passing through so many hands after they have been handed in by the conductors. I presume that is a branch of the subject upon which you can give us valuable information? Well, I will give you the best I can.
8273. Into what office are the tickets handed by the conductors? Into the Superintendent's office.
8274. Under what circumstances are they handed in—how many clerks are present? There are always two, and generally three, I think.
8275. What do these clerks then do with the tickets? They are weighed and entered in a book against the name of the conductor and the section upon which he has travelled.
8276. Then what is done? They remain in that condition until the following morning.
8277. Are they packed in parcels? They are subsequently. I am speaking subject to correction, but I do not think they are packed into parcels until the following morning.
8278. Do they lie about loose? No; they are placed in separate boxes.
8279. In locked boxes? No; not that I am aware of.
8280. About how many of these would there be? They would of course vary as the traffic varies. The number of boxes would correspond with the number of conductors.
8281. Each conductor's tickets are kept in a separate box? Just so.
8282. Are these boxes labelled? I am not quite sure, but I think they must be. One of our clerks attends to the details of these matters.
8283. Why do the tickets remain there all night? I know of no reason unless it is for the convenience of the work of the checking clerks following upon the work of the receiving clerks.
8284. Should not these tickets be considered in the light of so much money? Certainly the receiving clerk and the clerk who checks should regard them in that light.
8285. Then do we understand that they are left in that office all night without any protection whatever? As far as I know they are, but I cannot say of my own knowledge. This is a matter in which the receiving clerk can speak more positively as to details than I can.
8286. That would be Mr. Oakes? Yes.
8287. Unless some satisfactory explanation can be given, it seems to us that there is a great risk during that period of the tickets being abstracted and misappropriated? Yes.
8288. Have you drawn attention to this matter? No. I do not admit that it is within my knowledge that it is so as a fact, consequently I should not be likely to draw attention to it.
8289. Assuming that the tickets remained there for one night, what does the clerk of your branch then do? The tickets are gathered from several sections and made up into several large parcels, which he weighs, comparing his gross weight with the detailed weighings as entered by the receiving clerk, who is under the Superintendent.
8290. How do these weighings compare with the detailed weighings? I am not ready to give you definite information on that point, but some time ago the discrepancy between the bell-registers and the returns were supposed to average 2 per cent.; anything exceeding 2 per cent. was called attention to at once

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and a report was made. Now I understand that any discrepancy is called attention to. They do not confine themselves to 2 per cent. as formerly.

8291. Do you mean that when the audit clerk weighs the tickets in bulk and discovers in comparison with the detailed weighings any discrepancy whatever he draws attention to it? Yes.

8292. But they never exactly agree? Never.

8293. It would be almost impossible, would it not? I am afraid I shall have to qualify what I have said on this point. We have, as you know, clerks in the yard who read the registers, and I think it is the returns as compiled by them which are compared with the entries made by the receiving clerks.

8294. Then you do not know whether the bulk weighings are checked with the detailed weighings? Yes, that is done.

8295. But you are not sure what discrepancy between these weighings is generally called attention to? Not in that respect; I was confusing the comparison of the register readings with the detail weighings.

8296. What we wish to ascertain has reference to the safety of the tickets after they have been handed in by the conductors. You say you know, as a matter of fact, that the audit clerk does weigh the gross day's takings and compares the result with that obtained from the detailed weighings made by the receiving clerk? Yes.

8297. Do you know of your own knowledge that the comparison between these two weighings is such as to lead one to fairly suppose that there is no misappropriation of tickets in the office? I have never heard of anything which would lead one to suppose that there was a difference between the two weighings indicating anything of the kind.

8298. As far as you have been informed they come out fairly well? Yes.

8299. It could not be expected that one gross weighing would agree precisely with a number of small weighings? No; but you will quite understand that any reports arising out of this comparison would be made direct to the traffic auditor who would deal with those papers.

8300. The audit clerk having made his weighing of the number of tickets taken during the day and compared it with the detailed weighings, what is then done? The tickets are destroyed.

8301. How? By fire.

8302. Where? In the receiving office. The audit clerk who has a check upon the receiving clerk, is present at the destruction of the tickets which takes place in a large open fire-place.

8303. And we understand that the Traffic Auditor would be better able to give information as to the possible misappropriation of tickets from the receiving office? I think so; but I daresay it is within your own knowledge that papers have been going to and fro discussing the general question of the accuracy of the bell registers, and the system of check generally? He has dealt with these papers so far as our office is concerned.

8304. I do not remember papers bearing upon the question we are now discussing? No, perhaps not, as to the safety of the tickets; but I think it is an important question. As far as I am personally concerned, I took the system as it stood, knowing that there had been correspondence between the Secretary, our office, and the Superintendent, with a view to devise the most efficient system of check. My action has been based upon what they had arranged.

8305. Your inspection has been rather one of accounts than of any general arrangements in the Tramway Department? Yes.

8306. Who has charge of the accounts which you examine from time to time, and which you have recently examined specially at our request? The ticket stock is held by Mr. Colls. He supplies all the sale agencies. There are two clerks at the Railway Station and two in Bridge-street. Mr. Colls supplies the whole of these sale clerks.

8307. Suppose the system of ticket sales were abolished entirely, with how many clerks would the Department be able to dispense. How many are there with Mr. Colls? I am scarcely in a position to answer that question, because I have never been able to very accurately gauge the duties of the respective clerks over there. I could not say who would and who would not be considered ticket clerks with Mr. Colls. The organization of the office does not appear to admit of a very clear definition of duties.

8308. But two clerks in Bridge-street and two clerks at Redfern would be saved? Yes; and I think you could dispense with two of our clerks.

8309. We think that the best system would be to have a united office, where the audit clerk would be a check upon the traffic clerk in the receipt of the conductor's returns, and that in this way the returns could be dealt with more systematically than appears hitherto to have been the case. The conductor would have a book, in which would be entered his takings on every run; he would then get that book initialled by the audit clerk and the traffic clerk combined. Would that not be a good plan? Yes.

8310. Under the system of reading the registers at every trip? Yes; quite so.

8311. Would that not be better than reading the registers once a day? Yes; it would certainly reduce the possibility of manipulation.

8312. Under a cash system, such as I suggest, it would be possible to dispense with half-a-dozen clerks, if not more? Quite; I should think rather more than less.

8313. Have you ever had reason in your position to doubt the integrity of any clerks employed in the Tramway Department? No I have not. Rumors have reached us at times, as they possibly have reached this Commission; but I think we have never had anything more substantial than mere rumour to go upon. They have never been sufficient to produce in my mind an impression of doubt as to the integrity of any man.

8314. And as a matter of fact your examination of the accounts has proved the contrary of the rumours? Quite so.

8315. Have these rumours had distinct reference to the receiving clerks? No; they have been general and indefinite—expressive of doubt—suggestive of something being wrong—shadowy things which we were never able to localise.

8316. Would they be in reference to the office or to the tramway system generally? Sometimes in connection with the office. We have had them sufficiently definite as to hear that a doubt prevailed about the accounts in the Tramway Office. I know that in the days of the late Traffic-Auditor I was sent down at least twice specially on account of rumours which he had picked up in town.

8317. And in each case the result of your examination has been satisfactory? Yes, quite so. It has generally led to special directions being given to keep my visit a secret matter—that is that I should pounce

pounce down upon them as suddenly as I could. Remembering that the Branch Agency in Bridge-street and the Railway Agency got their supplies through the Tram Office in Phillip-street, I had a man at the branch agencies while I was in the city, so that there should be no collusion. Mr. J. Sale.
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8318. We understand from papers from the office of the Auditor-General that they are very satisfied with the system down to the point at which the Department sells the tickets to licensed vendors. Are you acquainted with the earlier details such as the issue of the tickets from the Government Printing Office, &c. ? No; except in a general way which would be of no value to you. As you are aware, that is looked after by the Accountant's Branch. The basis of our operations is the supply of tickets through the Secretary's Department to the Tramways. We have a general knowledge of the accountant's checks.

8319. But you are advised that a certain quantity of tickets has been issued by the Secretary to the Tramway Office? Yes.

8320. And you take care to see that that number of tickets is accounted for? We never inspect the Tramway Office without applying to the Secretary to know what supply has been sent.

8321. Without going back so far as the Government Printing Office, you are satisfied that as far as the tickets are dealt with in the Railway and Tramway Department, there is a satisfactory check over the operations with the new tickets prior to their being sent away to the salesmen? Yes; I would not like to say off-hand that I could devise any better check.

8322. With regard to the action in which the Government Printing Office is concerned that would be dealt with only by the Auditor-General and his staff, I presume? Yes.

Frederick Oakes recalled and further examined:—

8323. *President.*] Do you supervise the Receiving Office as part of your duty? Yes, to a certain extent F. Oakes.
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8324. Do you not consider it part of your duty to see that the tickets received are dealt with in a careful manner, so that the revenue may not be affected? Yes.

8325. Is it a fact that after the tickets are weighed they are kept in an unprotected state for the whole night? They are locked in the safe.

8326. In an iron safe do you mean? Yes.

8327. What do the receiving clerks do when they get the tickets from the conductors? There is a box with the conductor's name labelled upon it. Each trip as it is brought in is put into that box. When the man has done his running these tickets are weighed.

8328. From the time the tickets begin to come in until they are locked away in the safe is there any chance, without collusion, for any of them to be abstracted and passed into circulation? Certainly not; the clerks in the office would have to do it.

8329. How many? Two at least.

8330. Two of the clerks would have to be in collusion to enable them to get the tickets into circulation? Yes.

8331. Who are the night clerks? Murray and Scholey.

8332. Are they in responsible positions—are they leading clerks? I think they get about £170 each.

8333. And if these two clerks liked they could make away with a whole lot of tickets? No; because I should detect it in the morning when I weighed them in bulk.

8334. You weigh them in bulk in the morning? Yes; and I compare my bulk weighings with all the separate weighings.

8335. What is the result of that comparison? It differs. It ranges from a hundred tickets downwards.

8336. How many tickets would you have in a day for one bulk weighing? The average would be 130,000.

8337. Have you ever been more than 100 tickets out? Yes, once or twice; but very rarely.

8338. What is the average discrepancy? Twenty-five.

8339. Your book will show that? Yes.

8340. Therefore I imagine that in your own mind you feel perfectly certain that there has been no fraudulent manipulation in the direction to which I refer? Decidedly so. Of course, if the tickets were abstracted and the conductor's returns were altered accordingly, it would not appear in one way, but it would be found out in another, because the conductor's returns would be wrong; his register would show more than he had received.

8341. But suppose these conductors' returns were altered and that tickets were abstracted, there would have to be several clerks in collusion in the Receiving Office? At night two, and in the day-time three or four.

8342. An endeavour has been made on the part of certain conductors to shunt the suspicion from themselves on to the clerks in the Receiving Office. In your own opinion, from what you know of the weighing, &c., is it at all likely that there has been any fraudulent manipulation of the tickets in the office? No; I do not think so; I never did think so.

8343. Is it not a sheer impossibility that tickets have been sold from the office to any extent? Yes.

8344. You not only have your own check in comparison of the weighings, but if the clerks had altered the conductors' returns there would be a check in the register readings? Yes; that, I think, was the reason why the registers were taken away from that office. I think it was to prevent anything occurring in that way.

8345. How long ago is it since that was done? The 14th April.

8346. Why was it done then? I do not know. Mr. Sheridan, the Traffic Auditor, recommended it. The registers were read in the room as well by the receiving clerks.

8347. Were you not present at that time, you were working in the same room? Up to six or nine months previously. I went to the audit office for a time. We were under the auditor at that time.

8348. The receiving room was under the auditor? Yes.

8349. And as an additional check since April last the receiving clerks have been put under the traffic superintendent, and you have made a separate audit branch for the inspection of the registers? Yes; and for the destruction of the tickets. The reason I left the office for a time was that the registers were done away with temporarily. That was when the tickets were being torn.

8350. Apart from the possibility of fraud in the receiving office I suppose you know the characters of the clerks there? Yes; very well.

- F. Oakes.
28 Sept., 1888.
- 8351-2. Is there anything to be advanced against any one of them? I should not think so; I know of nothing nor have I heard of anything.
8353. I believe you have given some attention to the street traffic? Yes.
8354. You were in the traffic branch for some time? I was traffic foreman at Redfern.
8355. In your experience have you found that the overcrowding of cars militates against any system of fare collection? Decidedly so.
8356. Don't you think that if a system of passing crossing places under clearly defined rules as to slowing down and whistling and exhibiting a special signal for the information of the crossing keepers were adopted it would in a great measure tend to put an end to overcrowding? Yes; except on race-days. The class of people who go to races would not be particular as to jumping on the cars when they were in motion, and the arrangement might possibly lead to accidents.
8357. But that would not apply to ordinary traffic? No.
8358. But you think it would apply to a great deal of the holiday cricket and race traffic and so forth? Yes.
8359. Would you permit overcrowding on those occasions? Not if it were possible to do it.
8360. Could you suggest any means? I do not know of any means; people will not be stopped from getting on to the cars. I have kept a tram waiting at the railway station after a race meeting and I have tried every means in my power to get the people off the cars but they would not get off.
8361. Then I understand you to approve of the plan I suggest although you do not think it would apply to public holidays? I think I would apply it all through. The fact of the trams going through might deter some people from getting on.
8362. You would take the risk even on race days and other similar occasions? Yes.
8363. Is it not a fact that for some time that arrangement was carried on without any signal being exhibited, that the conductor would inform the driver, and that the crossings would be crossed at three miles an hour with a snorting whistle? Yes. I do not know that it is not carried out when the trams are loaded.
8364. You believe it is done now? Yes; I have seen it frequently in Oxford-street.
8365. Still it is not done with sufficient regularity to be well-known? No.
8366. It is not done as systematically as it might be done? No.
8367. You think the driver should exhibit a signal to the crossing keepers and the public that a certain tram is going out of its ordinary course? Yes; and I think the public and drivers of vehicles would very soon get to know.
8368. *Mr. Brock.*] What is the arrangement about race trams now. Do they run right through? I think they do after they get full.
8369. Do they slow down at crossings? Yes; they slow down and whistle at crossings. I do not think there is much chance of the cars being rushed after they have passed Liverpool-street.
8370. Is there not a great difference in the weight of the tickets when they are damp? Yes.
8371. The register is then no check at all? Not when the tickets are wet. If the tickets are damp of course they weigh heavier; when I am weighing them in bulk I see how tickets will go to the quarter ounce and weigh them accordingly.
8372. You count so many and see what they will weigh? Yes; we have a standard scale applying to all dry tickets, but when they are wet I generally test them.

John Allen called in, sworn, and examined:—

- J. Allen.
28 Sept., 1888.
8373. *President.*] You are employed in the Government Printing Office? Yes.
8374. We understand that you wish to give us some information bearing upon the tram frauds which are now so much talked about? Yes; it is something which came under my notice last night.
8375. What was it? I had left my work last night and was going through Elizabeth-street at about four minutes after 6; I saw a tram nearing the stopping-place in Elizabeth-street. My attention was drawn to the conductor; he was standing with one foot on the step and the other in the car; I saw him put his hand into a black leather bag; he drew out a leather purse, and I saw him take out some tickets and put them from the bag into the purse.
8376. Are you sure it was not money? I am positive.
8377. You are certain they were tickets? Yes; I saw them between his fingers.
8378. Do you know the man? I think I could swear to him if I saw him; I took the number of the tram—it was No. 5.
8379. Did you notice the destination of the tram? No, I did not; it was coming towards Hunter-street.
8380. If you are told that it is a common practice, which the system appears to necessitate, for a conductor when nearing the end of his journey to take the cash out of his bag and put it into his own private purse, do you not think that that is what this particular conductor may have been doing? I think not, because I saw the tickets.
8381. I understand that you have some further information to give us with reference to the sale of some tickets at Ashfield? I live there and come in every day, and on one or two particular occasions I have thought it was a very loose thing for the Government to allow single tickets to be sold. On one occasion I bought 6d. worth of tickets which were very much worn.
8382. Where did you get them? At the office at the railway station—from one of the boys. As I was holding the tickets one of them came in two; I took it back and said to the lad, "What do you call this?" He said, "I gave you 6d. worth of tram tickets." I said, "You do not call this a tram ticket; if the Government issue tickets of this description it is a very loose way of doing things. It is the first time I have seen such tickets."
8383. What did the boy say to that? He gave me another ticket for the one I returned, and said nothing more. I thought it rather strange at the time, and I happened to mention it at the office to Mr. Chapman. I then heard of the tram frauds.
8384. You are aware that when a man has a large number of tickets to sell he cannot possibly keep them all in sheets? I am well aware of that.
8385. Have you any reason to suppose that the tickets supplied you had been used before? No doubt they had been used, or they must have been in a man's pocket for a long time. 8386.

8386. Do you know the name of the clerk who sold you the tickets? I do not.
8387. Is he in the office now? I think so. There are three or four young fellows there. I did not take particular notice at the time.
8388. Could you not tell us which clerk it was so that we might get him in from the station? I really could not. There are three of them very much alike, and I did not take particular notice of the clerk who sold me the tickets.
8389. But if you thought they were used tickets, is it not strange that you did not go back and have a good look at the clerk? I think there were two lads there at the time; one of them was a sort of half-caste. I got the tickets at the small window, and I could not see very well.
8390. You could not be sufficiently sure of the lad to enable us to get him in? No; I do not think I could.
8391. *Mr. Brock.*] What was the date of your purchase? I think it was about the time the Commission was appointed.
8392. That would be about the middle of last month? I think it was about three months ago.
8393. You say there was a half-caste in the office? Yes; and there is now, and he was sweeping out the place.
8394. Would he have any recollection of your buying the tickets and your going back to the window? He might recollect my bringing the ticket back.
8395. And he might be able to say who served you? Yes.
8396. Perhaps he served you himself? No; I think he was sweeping out the office at the time.
8397. Had the ticket which you returned been torn across and pasted together again? No, it was greatly worn. It seemed to me to have been in a man's pocket for a long time. It had become so ragged with wear that it would not hold together.
8398. You do not think it was one of the tickets which had been torn under the tearing system, and which had been gummed together again? No.
8399. You did not see the receptacle from which the clerk took the ticket? I think he took them from the table; but I would not be positive.
8400. You could not see if there were many? No, I could not.
8401. On which side of the station was this? On the down side. I am sorry that I did not take particular notice of the clerk. I made up my mind at the time if he did not exchange the ticket I would see the authorities about it.
8402. Will you describe the conductor whom you saw on the car last night? He was rather a tall man. He was rather dark, and, if I am not mistaken, he had rather a bushy beard. I am almost positive I could point out the man.
8403. How many cars were there on the tram? I think there were two.
8404. What was the time, as nearly as possible? It could not have been more than four minutes after six. I left the office at six, and went direct to the spot, on my way to the railway station.
8405. It is strange that when you had your suspicions aroused about these tickets at Ashfield three months ago, you did not give some information about the matter? I spoke to Mr. Chapman about it at the time I heard of the frauds. I thought the case looked rather a suspicious one.

James Roberts recalled and further examined:—

8406. *President.*] You are I think convinced, even if you have not already stated so in your evidence, that the overcrowding of cars is one of the greatest evils in connection with our tramway service? Yes.
8407. And I imagine that you recognise that it would be difficult to carry out any system satisfactorily under such overcrowding as occurs at certain hours of the day? Yes.
8408. What means have you devised for stopping this overcrowding? We have been prevented to a great extent by Sir James Martin's ruling that we ought not to pass certain crossings without stopping.
8409. When was that? A considerable time ago. If we were allowed to cross stopping-places without stopping it would be all right. Now in many cases I have to send empty cars from the yard up to King-street, and further ahead, to try and prevent it, and we cannot put more than three cars on to any of our motors.
8410. How long is it since you abandoned the plan of going over crossing-places at a reduced speed and whistling? We have not abandoned it. We risk it; and I generally get into hot water over the thing.
8411. Is it not really the best way to get rid of the overcrowding? There is no doubt about it.
8412. It has occurred to us that if the plan were systematised all risk of accident would be removed. Supposing that a conductor, on finding that his tram was full, communicated with the driver, and that the driver were to exhibit some signal which was decided upon by the Department—something which he could put out on the motor so that it would be at once known by the crossing men, and the public. If that were done, and if the same precautions were taken as to slowing down and whistling, do you not think that the public would soon get accustomed to it, and that risk of accident would be removed? The conductor can do as you suggest now, but no signal is exhibited in front of the motor. I do not think it would be safe to do away with the whistling. When the whistle is blown continuously for three or four seconds the public are, I think, sufficiently warned that the tram is going to pass through, and they are enabled to take the necessary precautions at the different crossing-places.
8413. But do you not think that the exhibition of a signal from the motor would be a good idea? Yes, certainly.
8414. It has occurred to us that before reaching a certain street the conductor should pass along the car calling out the name, and if that were done we think people would not be carried beyond their destinations? That is what is done now; at least that is the instruction which is issued.
8415. I was under the impression that this practice was discontinued at the present time? I discontinued it as much as possible; but I think it would be a great mistake if the trams did not go through on race-days.
8416. You think it would be a great mistake to discontinue the practice in any way? Yes.
8417. Is it not a fact that it would for the most part do away with overcrowding? To some extent it would; but we should always have a certain number of persons trying to get on to the cars whether the trams went through or not.

J. Allen.
28 Sept., 1888.

Supt.
J. Roberts.
28 Sept., 1888.

Supt.
J. Roberts.
28 Sept., 1888.

8417½. That would be on race-days? Yes; chiefly on race-days. I have them under control now. I send empty cars to King-street. The difficulty occurs in this way: There are a number of persons going to Paddington who want to take the first tram in that direction, and if a tram were to go through with a few vacant seats the conductor would be reported. If he stopped, forty or fifty people would get on.

8418. You would not allow a tram to pass a crossing-place while there was room for anyone in it? No, decidedly not; there is a rule against it.

8419. You knew a man named Cavanaugh who was employed in your branch? Yes.

8420. What led to his leaving the service? Drunkenness; he was a regular blackguard fellow.

8421. How long is it since he left? Two or three years ago; I cannot call to mind the exact date.

8422. Is it a fact that you gave him a letter of recommendation to Mr. Fletcher? It is not.

8423. If a man has said that he saw Cavanaugh with a letter in your handwriting addressed to Mr. Fletcher, would it be untrue? He may have taken dozens of letters to Mr. Fletcher in my handwriting. He was hanging about Mr. Fletcher's office for some considerable time. I was in communication with Mr. Fletcher about a case of coal-land down Wollongong way, in which, with Mr. Harris and Mr. Stiles, I had an interest; there was a difficulty about the rent. Cavanaugh was hanging about the office, and he may have taken a letter there.

8424. The letter to which I refer was said to be an open letter; it was said that Cavanaugh was reading it, and that you had recommended Mr. Fletcher to get him a job? I never recommended him in any way.

8425. Was he flush of money? I could not say anything about his private affairs. He was a regular blackguard fellow, and he used to get drunk very often.

8426. It has been sworn positively by two men that they saw him in a certain pointman's box with 113 pound-notes in his hand; where do you suppose he got the money from? He was a gambler; he used to gamble a good deal.

8427. Have you ever known him to be well off—to have a lot of money? I cannot say that I have.

8428. You know that he was afterwards employed by the Mines Department? Yes.

8429. And there was a little trouble about it in the House? There was some trouble in reference to him; he was a tank-repairer, and he got drunk. I think he was dismissed for being drunk.

8430. From the Mines Department? Yes.

8431. Attention was directed to the matter in the House when Mr. Fletcher appointed him? I am not responsible for any action of Mr. Fletcher's.

8432. Mr. Hawthorne said in the House that a man had been appointed on your recommendation, and Mr. Fletcher denied it? I never block anyone unless I have occasion. Cavanaugh is a man with a large family. I think he was dismissed once or twice. On one occasion he had a row in the yard about religion, but he was taken back again.

8433. Was this after the stud business? I dismissed him after that. Martin had a raffle for a set of studs, and Cavanaugh was dismissed some little time afterwards.

8434. Did he return to the Service after that? No.

8435. Then he must have been dismissed about four and a half years ago? He may have been.

8436. Did he ever challenge you to dismiss him? No. I dismissed him immediately. I had grounds for doing so. I think the papers will show that I suspended him and recommended his dismissal.

8437. Will the papers show that he was reported to you by anyone else, or that you yourself dealt with him? I fancy that the matter was reported to me by the foreman.

8438. Then if anyone has advanced the statement that a charge was trumped up against Cavanaugh, it will be utterly untrue? A most infamous lie. He was drunk at the railway station. Half-an-hour after I received the report about him, I took action in the matter.

8439. Had he had any warning before that? I think he had been cautioned once or twice. I generally caution them several times. As soon as they are cautioned they run to their Member, and it was the same in this as in every other case.

8440. Do you know of any reason other than your refusing him as inspectorship, which should cause M'Donald to have any bad feeling towards you? I was never so surprised in all my life as when I heard he had this ill-feeling.

8441. You heard then that there had been some ill-feeling? I have heard about the things the men have been talking about as they have come from here.

8442. *Mr. Brock.*] What is your opinion of Mr. O'Brien? I always have a good opinion of everybody. I live as I like to let live. Mr. O'Brien does not interfere with me.

TUESDAY, 2 OCTOBER, 1888.

Present:—

A. RICHARDSON, Esq., PRESIDENT.

R. W. THOMPSON, Esq., M.P.

F. A. BROCK, Esq., J.P.

Edward Warby called in, sworn, and examined:—

Conductor
E. Warby.
2 Oct., 1888.

8443. *President.*] You are a tramway conductor? Yes.

8444. How long have you been in the service? Eight years.

8445. On what line are you engaged? On the Randwick line.

8446. Do you remember Thursday evening last? Yes.

8447. Were you about six o'clock running in from Randwick and near the corner of Elizabeth and Hunter Streets? Yes.

8448. Were you doing anything extraordinary with your bag and tickets, or anything connected with them? Not that I am aware of. I keep my tickets and cash in my bag, and it is possible that I may have been taking my cash out of my bag and putting it into my purse. This we are obliged to do, because at the end of the trip we hand in only our tickets.

8449. You are quite sure that you did not put any tickets into your purse? Quite.

8450. If anyone has sworn positively that you were seen on Thursday evening last taking tickets from your bag and putting them into your purse has he sworn falsely? Yes. 8451.

8451. *Mr. Thompson.*] I suppose you make no secret of putting your cash into your purse? No.

8452. *Mr. Brock.*] It has been positively sworn that you had tickets in your hand, although it was suggested to the witness that you might have had cash? I can swear positively that I never took a ticket out of my bag and put it into my purse.

8453. *Mr. Thompson.*] I suppose you take out your cash when you find that you are not likely to take any more cash fares? At any time after we have passed King-street.

8454. What do you do with your purse when you have placed the cash in it? I put it into my pocket and restore it to the bag when the tickets have been taken out.

Conductor
E. Warby.
2 Oct., 1888

1888.

LEGISLATIVE ASSEMBLY.

NEW SOUTH WALES.

TRAMWAY EMPLOYEES.

(RETURN SHOWING NUMBER OF, DISMISSED FROM TRAFFIC BRANCH.)

Ordered by the Legislative Assembly to be printed, 7 December, 1888.

RETURN to an *Order* of the Honorable the Legislative Assembly of New South Wales, dated 19th April, 1888, That there be laid upon the Table of this House,—

“(1.) A Return showing,—(1.) The number of men who have been dismissed from the Traffic Branch of the Tramway Service, with the view to retrenchment, during the six months ending 31st October, 1887, specifying the name of each one dismissed, the date of such dismissal, the length of time in the Service before such dismissal, the offence or offences (if any) for which each one was dismissed, the duties being performed at time of dismissal, and the reasons which guided the Department in the selection for such dismissals; (2.) the names (if any) of those who have been dismissed and who have applied for re-employment, the names of such applicants who have been re-employed, and the names of those who have been refused re-employment; the reasons also for such re-employment and refusal respectively.

“(2.) Copies of all letters, papers, correspondence, and all documents whatever, having reference to, or in any way connected with, such dismissals or re-employments.”

(Mr. Stephen.)

SCHEDULE.

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TRAMWAY EMPLOYEES.

No. 1.

Minute by The Secretary for Railways.

New Metropolitan Tramway Time-tables.

THESE are to be brought into operation on 1st October.

The Commissioner wishes to be furnished at once with a list of new hands engaged on the Plattsburg line, as by directions previously given, and the Minister's decision just announced, they are to make way for hands dispensed with from the metropolitan service under the new tables.

Notice should now be renewed to suit employees and fixed for the 1st proximo.

Mr. Higgs. Urgent.

D.V., 16/9/87.

There are only two new hands on the tram, viz., Thomas C. Virgo and Joseph Lower. The other men were withdrawn from the Railway staff, and some of them have been five and six years in the Department. Still the notice, as requested, will be given.—J. HIGGS, 17/9/87. Secretary.

No. 2.

Minute by The Secretary for Railways.

Government Railways.

THE new time-tables are to be brought into operation on 1st October. The Commissioner desires to be furnished with a list of the employees with whose services you can dispense.

The Minister has directed that as many as possible are to be drafted to the Newcastle-Plattsburg line to take the places of new hands temporarily employed there, respecting which inquiry will at once be made.

The Minister further directs that, in dispensing with the services of men who may not be required, the preference is to be given to married men with families, irrespective of length of service.

Mr. Roberts. Urgent.

D.V., 16/9/87.

List of men attached.—J.R., 21/9/87. The Secretary.

List of men to be dispensed with.

Conductors—	Time of service.		Rate of pay.	Car-cleaners—	Time of service.		Rate of pay.
	yrs.	ms.	per day. s. d.		yrs.	ms.	per day. s. d.
Paulson, G. A.	3	0	9 0	Keefe, B.S. N.C.	5	2	7 0
Thomas, E.	3	4	9 0	Greer, Joseph	5	1	7 0
Connors, —	3	0	8 6	Cornwell, John	3	8	7 0
Territt, —	3	3	9 0	Islip, Wm.	3	4	7 0
Organ, G. E.	2	9	8 6	Garvan, John	2	9	7 0
Head, E.	2	8	8 6	England, J.	1	6	7 0
Kenny, T.	2	7	8 6	Brown, Caleb	1	3	7 0
Roache, L. G.	2	0	8 6				
M'Gee, H.	1	11	8 0				
Musgrave, T.	1	8	8 0				
Ferrier, H.	1	8	8 0				
Williams, C. T.	1	2	7 6				
Sutherland, R. E.	0	2	6 0				

No. 3.

Telegram from The Assistant Secretary for Railways to The Traffic Manager, Newcastle.

NOTICE by newspaper outcry amongst men; is it necessary to undo promotions, &c.? It seems to me that Sydney tramway men should take places of new hands at whatever work latter may be employed. See Mr. Boag. Submit report. Do nothing till advised by Commissioner.

A.R., Assistant Secretary.

I have reported on this. As Mr. Boag is mentioned, I refer the paper to him.—J. HIGGS, 22/9/87. Mr. Boag says he had already sent a report on the subject through Mr. Scott. See my report.—J.H., 23/9/87.

No. 4.

Telegram from The Secretary for Railways to The Traffic Manager at Newcastle.

PLEASE let Mr. Superintendent Tramway Roberts know the vacant positions you will have on Plattsburg tramway, in addition to reporting to this office.

D.V., 17/9/87.

Were the places of the men transferred from railway filled up? If so, by whom, &c.? If by new hands they will have to fall out.—A.R., 19/9/87. Mr. Higgs.

Three

Three telephone operators—D. Cameron, at 20s. per week; H. Blandford, at 15s. per week; G. Fury, 15s. per week—were brought into the coal traffic by the removal of three coal employes to the tramway. Three gatekeepers were also brought into the traffic service, all old men, who had been in the permanent way branch many years (one of them about 28 years) through the opening of the tram system. Attached is a list of the employees on the tramway, showing their respective dates of entering the Service, present position, &c. As I had at the start given all hands notice that appointments and changes were temporary, I did not think it necessary to give operators notice.—J. HIGGS, 23/9/87. Assistant Secretary.

TRAMWAY STAFF.

Name.	Joined service.	Rate pay.	Present position.	Rate pay.
J. Yeomans	20 Aug., 1882, asst. conductor, Sydney.	s. d. 6 0	Acting conductor from July....	s. d. 7 6
G. Wakely.....	31 July, 1882, porter, Newcastle	6 0	" " "	7 6
O. Watt.....	19 Feb., 1883, "	7 0	" " "	7 0
T. C. Vergo*.....	5 April, 1884, conductor, Sydney ...	7 0	" " "	7 0
W. L. Gorton	6 Oct., 1881, porter, Newcastle	6 0	Acting Pointsman	7 6
Jas. Rice	8 Mar., 1885, porter, W. Creek	7 0	"	7 0
Percy Tinkler	7 April, 1884, asst. conductor, Sydney	7 0	" Shunter.....	7 0
Wm. Howe	19 Mar., 1886, loco.....	.....	" Car-cleaner	7 0
Joseph Thompson	11 Sept., 1884, porter, Newcastle.....	7 0	" Pointsman	7 0
G. A. Whyte.....	8 Aug., 1881, West Maitland	6 0	" "	7 0
G. Middleton	23 Aug., 1884, gatekeeper	7 0	" Gatekeeper	7 0
Thos. Penfold	16 Feb., 1880, permanent way	7 0	" "	7 0
Chas. Willis	8 June, 1885, porter, Newcastle	7 0	" Pointsman	7 0
Jas. Lower.....	19 July, 1887, gatekeeper	6 0	" Gatekeeper	6 0
M. Reed	30 Aug., 1886, gatekeeper	7 0	" "	7 0
J. M'Alpino	23 May, 1881, gatekeeper	6 0	" "	7 0

* T. C. Vergo resigned 29th December, 1884; re-appointed to Service, 11th July, 1887.

No. 5.

Memorial.

Joseph Creer, Esq., M.L.A.,—
Sir,

We, the undersigned, employees of the Newcastle Tramway Department, desire to bring under your notice an injustice which is about to be inflicted upon us, and beg to solicit your valuable assistance in preventing the action referred to being taken. A revised tram time-table is about to be introduced in Sydney, the result of which will be that a number of employees, engine-drivers, conductors, &c., now engaged there will be surplus. To find employment for "these surplus hands" the authorities have decided to create vacancies in the Newcastle Tramway Department by removing the men who are now working it, and substituting those drafted from Sydney. This proceeding is too apparent and iniquitous to demand much explanation. In the first place the present staff have been employed since the commencement of tram running here, and with the knowledge that the confusion which first prevails in a new undertaking of this sort can only be ultimately overcome by the exercise of intelligence and energy by the employees, who have tried to act accordingly, and pleased to state, have achieved the desired end. Again, the servitude of the majority being long, most probably longer than those about to succeed us, the greater the injustice appears, and certainly is most discouraging after serving a considerable time in struggling for advancement, which, when attained, is snatched from us. Actions similar to this have a most deterrent effect on the employees as far as the welfare of the Department is involved. Our duties have been discharged to the entire satisfaction of our superiors; what more, we ask, could be desired? And we are unanimous that if the authorities here were afforded an opportunity of protesting against our removal for the substitution of actual strangers, and who, we contend, have really no right to the positions, would do so to the utmost. The course about to be adopted is most unreasonable. Again we ask, why should it be that, because Sydney has a few surplus hands, the Newcastle men should be made the sufferers? In the event of an occurrence of this kind in Newcastle no such thing as drafting men to Sydney would be once thought of. We had an instance some time ago in Newcastle, when drivers were reduced to firemen, firemen were reduced to cleaners, and the surplus cleaners were discharged. The same occurred in the Traffic Department, on account of dull times and very little work doing on the railway; but no men were sent to Sydney. If we are called upon to quit our positions in the tramway and return to the railway, thereby suffering for the welfare of others, it is a matter which we cannot comprehend, and therefore request that you will intercede on our behalf, and prevent, if possible, the enforcement of the intended unjust proceedings upon us, for which we will be ever thankful.

We are, &c.,

W. L. Gordon.
Owen Watt.
John Clayton.
Wm. Jackson.
A. Beaumont.

W. F. Horne.
G. H. Whyte.
Jas. Rice.
C. Willis.
G. Wakely.

G. Matthews.
J. Yeomans.
Geo. Brown.
J. Thompson.

The Commissioner for Railways will please read and deal with this document.—J.S., 29/9/87.

The language used in this letter is most insubordinate, and if I acted upon the regulations, which prohibit employees going outside the Department, I should have to take very severe measures to prevent a repetition of such conduct. I wish to have a statement of the position each man occupies, and what explanation he has to offer for acting in this matter. The men, if they feel aggrieved, have the right of respectful

respectful appeal to the Commissioner. They have made no appeal to me, and yet I receive their communication, which states that a certain line of action which the Department proposes to carry out is iniquitous.—C.A.G., 29/9/87.

A list is enclosed, dealing with nine of these fourteen employees. The other five are, it is presumed, loco. employees. Will Mr. Scott furnish the information and obtain the explanation asked for in connection with these five?—A.R., 29/9/87. Loco. Engineer.

PLATTSBURG Tramway—List of nine men referred to:—

Name.	Position.	Rate of pay.
Wm. Gorton	Acting pointsman	7s. 6d.
Jas. Rice	”	7s.
O. Watt	Acting conductor	7s.
G. Wakely	”	7s. 6d.
J. Yeomans	”	7s. 6d.
W. Howe	Acting car-cleaner	7s.
J. Thompson	Acting pointsman	7s.
G. A. Whyte	”	7s.
C. Willis	”	7s.

No. 6.

The Secretary for Railways and Tramways Employees Association to The Commissioner for Railways.

N.S.W. Amalgamated Railway and Tramway Association,

Elizabeth and Bathurst streets, Sydney, 27 September, 1887.

Sir,

I do myself the honor, by instruction of the Council of the abovenamed Association, to address you on the subject of the manning of the Newcastle-Plattsburgh tramway. To-day we hear the lamentable intelligence that between twenty and thirty of our tramway employees are to be dispensed with for lack of further need for their services. From the newspapers and other sources we learn that the tramway in question has been manned with men drawn from the Northern Railway system, and that it is now contemplated that these men shall be displaced, and the men dispensed with from the Sydney tramway system sent to fill their places. Hence the position briefly presents itself to us as being that there are some twenty positions to fill, and some forty or more men available to fill them. Under the circumstances both sets of men feel aggrieved, and naturally so, and I sincerely trust a way may be found out of the difficulty, so that no hardship may be entailed on anyone.

We are informed that the men now on the tramway have all been offered their former positions on the northern line, but as many of them have received promotion by the removal, and others again promoted into their vacant places, such a return to their former positions would entail a very considerable amount of hardship, not only on the men themselves but on a large number of others in various places on the northern line. Some of them again relying on their appointment to the tramway have removed their homes and families to Newcastle, at very considerable expense to themselves, and considerable loss will be entailed upon them should they be called upon to remove again, which, under the circumstances, I venture to hope the Department will compensate any such men for in an adequate manner. Nevertheless, any scheme which will prevent any of our men being put out of work in the present very much overstocked condition of the labor market, must commend itself to all men of reasonable minds. Of course we fully recognize that this is a matter of Departmental administration, and that if these men cannot be profitably employed, they must be dispensed with, and we have no wish to interfere in this or any similar matter to prevent such action being carried out; but we venture to offer a suggestion, and trust you will do us the honor to consider the same in the same frank spirit in which it is offered.

As these northern line men have all been offered a return to their former positions, it naturally follows that these positions are available as well as the positions on the tramway. Now, we suggest that seniority of service should determine the appointment in each grade, and that, when passed by this test, those men from the northern line, who are juniors, should return to their former position, and the places be filled by the senior men from Sydney; and where the northern line men are the seniors they should retain their positions on the tramway, and the junior men from Sydney should take up the positions on the northern line, vacated by the other men, but only in each case by seniority, reckoned with the existing staff at any place to which they may be sent. Fearing that perhaps this, at first sight, may not be perfectly intelligible, I give an example to further show our exact meaning: Supposing there were four drivers required and there were eight eligible, four from the northern line and four from the Sydney trams; place them altogether, irrespective of whence they came, and let the four who have been the greatest number of years in the service of the Department have the four positions, the four juniors then to fill the places vacated by the northern men, which, it must be remembered, have been offered to these same men. If any northern men are juniors, they will then return exactly to their former positions; and if there be any Sydney men among the juniors, let them fill the other places, provided always that into whatever staff they may be drafted they must gain their rank by competency, and strictly as to seniority with the then existing staff.

I beg to assure you that this letter is written in no desire to interfere in the duties of the responsible management, but simply to express the views of the men on the subject, and to make a few suggestions which may or may not be of any value in solving the point at issue. In either case I trust you will recognize the purity of our intentions and motives.

Bespeaking your favourable consideration,—

I have, &c.,

WM. F. SCHEY,

General Secretary.

P.S.—I desire to add that I have addressed a similar letter to the Honorable the Secretary for Public Works.

No. 7.

Minute by The Assistant Secretary for Railways.

GOVERNMENT RAILWAYS.

MR. JOSEPH CREER, M.P., left with Commissioner a communication addressed to him from fourteen employees on the Plattsburg Tramway opposed to their services being dispensed with, and their positions allotted to employees dismissed from Sydney tramways, on account of revised time-table.

Nine of the number are under your control, viz. :—

Name.	Joined Service.	Rate of pay.		Present position.	Rate of pay.	
		s.	d.		s.	d.
W. L. Gorton	6 Oct., 1881, porter, Newcastle ...	6	0	Acting pointsman	7	6
Jas. Rice	8 Mar., 1885, porter, W. Creek ...	7	0	„ „	7	0
O. Watt	19 Feb., 1883, porter, Newcastle ...	7	0	„ conductor	7	0
G. Wakely	31 July, 1882, porter, Newcastle ...	6	0	„ „	7	6
J. Yeomans	20 Aug., 1882, assistant conductor, Sydney.	6	0	„ „	7	6
W. Howe	19 March, 1886, loco.	7	0	„ car-cleaner	7	0
J. Thompson	11 Sept., 1884, porter, Newcastle ...	6	0	„ pointsman	7	0
G. A. Whyte	8 Aug., 1881, W. Maitland	7	0	„ „	7	0
C. Willis	8 June, 1885, Newcastle	7	0	„ „	7	0

The Commissioner wrote upon the communication the following :—“The language used in this letter is most insubordinate, and I wish to have from each man any explanation he has to offer for acting in this manner.” Will Mr. Higgs please give attention to this. A.R., 29/9/87.

Traffic Manager, Newcastle.

Re letter to Mr. Creer, M.L.A.—Each of the men named has apologised, and I venture to hope the apologies may be accepted. Most of the men, if not all, I am convinced, did not read the text, but signed the document because others had done so. This was indiscreet, but I am fully of the belief there was no insubordinate or disrespectful intent. Papers enclosed.—J. HIGGS, 7/10/87. Assistant Secretary.

No. 8.

Memo. to Drivers by The Locomotive Superintendent.

Re petition signed by you and other tram employees, addressed to Joseph Creer, Esq., M.L.A., soliciting assistance in preventing the authorities from carrying out the proposed alterations in tramway working staff, 21st September, 1887,—the petition having been referred to the Commissioner to deal with, the Commissioner has minuted as follows :—

“The language used in this letter is most insubordinate, and if I acted upon the regulations which prohibit employees going outside the Department, I should have to take very severe measures to prevent a repetition of such conduct. I wish to have a statement of the position each man occupies and what explanation he has to offer for acting on this matter. The men, if they feel aggrieved, have the right of respectful appeal to the Commissioner. They have made no appeal to me, and yet I receive this communication, which states that a certain line of action which the Department proposes to carry out is iniquitous.”

Please explain in writing at once. Very urgent.

THOS. BOAG

(*Pro* Locomotive Engineer).

30/9/87.

The following explanation was submitted by each of the undermentioned drivers, viz. :—John Clayton, Wm. Jackson, A. Beaumont, G. Matthews, Geo. Brown :—

“Sir,

In answer to the memo. addressed to me, I beg to state, in explanation of my name being on the address to Mr. Creer, M.L.A., that I was asked for my name to be attached, never for a moment thinking it was to be used for the purpose to which it has been applied.

Trusting that the above explanation will be sufficient, and also that no offence was intended on my part in the letter.

Mr. Boag, Loco. Superintendent.”

Re letter to Mr. Creer, M.P., from tramway employees at Newcastle—The men signing the letter, employed in Locomotive Department of the Tramway are Drivers John Clayton, Wm. Jackson, A. Beaumont, George Matthews, George Brown. They are fifth-class drivers, paid at the rate of 11s. per day, and were promoted from the ranks of first-class firemen in the Railway Locomotive Branch, when the tramway was opened up to traffic. I handed each one a copy of the Commissioner's minute of 29/9/87, and requested an immediate explanation in writing. Please see their explanation forwarded herewith.—W. SCOTT, 4/10/87. Commissioner.

Explanations from the fourteen men, five locomotive and nine traffic, are now enclosed. The action of the men would seem to be united, but all express regret.—A.R., 10/10/87.

The decision was that all new hands employed in the Plattsburg line should be made to give way to men who had been a long time in the Service, and who were discharged from the metropolitan tramway. There is no hardship in this, at least no injustice, and the directions must be carried out.—C.A.G., 11/10/87.

No. 9.

The Assistant Secretary for Railways to The Commissioner for Railways.

Tramway traffic employees dismissed through retrenchment on the metropolitan lines, who were, as far as possible, to be provided for in replacing new hands employed on the Plattsburg line.

Mr. HIGGS having transferred railway men to fill the majority of the positions of the Plattsburg line there is little means of providing for the men dismissed from the metropolitan staff.

The number paid off is—conductors, 13; car-cleaners, 7; total, 20.

Four of the car-cleaners have been provided for in connection with the wool traffic at Newcastle, and Mr. Read has by the Commissioner's directions been asked to employ as many men as he may require at the same class of work (wool unloading). There is nothing more now to be done but to carry out the Commissioner's verbal directions to dismiss "Vergo," the only new hand employed in connection with the Plattsburg tramway, and replace him by Thomas, the longest service man (3½ years) dispensed with in metropolitan staff.

No locomotive men have yet been paid off, but Mr. Midelton has been requested to expedite the list of those no longer required, and has been supplied with a list of those newly appointed hands at Newcastle whose services are to be dispensed with to make way for his discharged men.

A.R., 11/10/87.

No. 10.

Return showing Employees dispensed with, &c.

[Asked for by Mr. W. Stephen, M.L.A.]

Name.	Date of dismissal.	Length of service prior to dismissal.	Offence or offences (if any) for which each one was dismissed.	Duties performed at time of dismissal.	Reasons which guided Department in such dismissal.
†Terrett, Sydney	4 Oct., 1887	3 years 4 mnths.	No offence	Conductor...	Retrenchment alterations in time-table necessitated such a course being taken.
†Connors, John	" "	3 " 2 "	"	"	
*Thomas, Edw.	" "	3 " 5 "	"	"	
Paulson, Geo. A.	" "	3 " 3 "	"	"	
†Head, Edw.	" "	2 " 10 "	"	"	
†Kenny, Thos.	" "	2 " 9 "	"	"	
†Roache, L. G.	" "	3 " 1 "	"	"	
†M'Gee, Herbert	" "	2 " 0 "	"	"	
†Musgrave Thos.	" "	1 " 10 "	"	"	
†Ferrier, Henry	" "	1 " 10 "	"	"	
Williams, C. T.	" "	1 " 3 "	"	"	
†Sutherland, R. E.	" "	2 months 15 days	"	"	
Downey, John	" "	2 years 8 mnths.	"	"	
*England, Jno.	" "	1 year 7 "	"	Car-cleaner..	
*Garvan, Jno.	" "	2 years 8 "	"	"	
*Islip, William	" "	3 " 5 "	"	"	
Cornwall, Jno.	" "	3 " 10 "	"	"	
*Greer, Joseph	" "	5 " 2 "	"	"	

* Transferred to the Newcastle-Plattsburg Tramway.

† Temporary employment found on Railways.

J.R., 9/5/88.

Names of men who have been dismissed and who have applied for re-employment.	Names of applicants who have been re-employed.	Names of applicants who have not been re-employed.	Reasons for re-employment or refusal respectively.
Terrett, Sydney	.....	Terrett, Sydney	Did not perform his duties satisfactorily.
Connor, John	Connor, John	.....	A vacancy occurred as conductor.
Thomas, Edwd.	Thomas, Edward	.....	Transferred to Newcastle, a vacancy having occurred for a conductor.
Paulson, Geo. A.	.....	Paulson, Geo. A.	Did not perform his duties satisfactorily.
Head, Edwd.	Head, Edwd.	.....	Transferred from railways to fill vacancy for a conductor.
Kenny, Thos.	Kenny, Thos.	.....	A vacancy occurred for a pointsman—afterwards placed as conductor.
Roache, L. G.	Roache, L. G.	.....	An opening made as conductor, he having received injuries while in service at the Soudan.
M'Gee, Herbert	M'Gee, Herbert	.....	A vacancy occurred as conductor.
Musgrave, Thos.	Musgrave, Thos.	.....	Appointed conductor of water tank.
Ferrier, Henry	Ferrier, Henry	.....	Appointed to vacancy on railways caused by Edwd. Head's transfer.
Williams, C. T.	Williams, C. T.	.....	A vacancy occurred as car-cleaner.
Downey, John	Downey, John	.....	"
Sutherland, R. E.	Sutherland, R. E.	.....	A vacancy occurred as conductor.
England, John	England, John	.....	Transferred to Newcastle—afterwards exchanged with Benjamin Smith Keefe as car-cleaner.

J.R., 9/5/88.

No. 11.

No. 11.

The Superintendent of Tramways to Conductor Terrett.

In consequence of the alteration in the running your services will not be required, and I am directed to give you seven days' notice, the said notice to expire on the 4th proximo.

I have further to inform you that, as far as possible, employment will be found on the Newcastle tramway for the men whose services are now being dispensed with, and that, in any case, when a vacancy occurs in this branch your claims will have prior consideration to outside applicants.

At the expiration of this notice you will hand to Mr. Muir all Government property in your charge when you will receive docket for pay due.

J. ROBERTS,
Superintendent of Tramways.

27/9/87.

My dear Goodchap,

Reform Club.

Will you kindly see the bearer. He was once waiter here. You put him on the tram line; has got on well; deserving and steady, with a wife and aged mother to support out of his earnings. Now, after working up well in the service, he gets notice to quit. Can you manage to keep him on, and oblige

Yours, &c.,

Commissioner for Railways.

H. H. THORN.

Terrett states that there are single men retained, whose service is less than his. The Commissioner wishes to have a report.—A.R., 28/9/88. Mr. Roberts. Terrett is a married man, and virtually has a family, including a mother and sister, depending upon him. He has been, he says, three years and four months in the Service. Mr. Roberts for report.—D.V., 28/9/87. Let me have all this man's papers, also report from both traffic foremen. I have been pestered with this man over and over again prior to this decision to dispense with his services.—J.R., 29/9/87.

Report of Foreman Halliday.

Sir,

Bridge-street, 4 October, 1887.

In reference to Conductor Sydney Terrett I beg to state that, in consequence of his quarrelsome disposition, I was compelled to remove him from off the Leichhardt line, the drivers there not being able to work harmoniously with him. The traffic would have suffered had I not done so.

I consider that he is unfitted for the post of conductor.

JOHN HALLIDAY,
Traffic Foreman.

To Superintendent of Tramways.

I saw Mr. Vernon *re* this man's case and explained that Terrett is not by a long way one of the best men. It is not true, as far as I can learn, that he is keeping any relative. His wife is living apart and getting into trouble in different ways. Terrett has given me false addresses, and the one he gave last there is no such number or house in the street. He also declined to tell where he was living, and who with. He is one of the last men I should think of retaining to dispense with others who are first-class men. These papers will speak for themselves. He has been one source of trouble to the Department since he came to us.—J.R., 5/10/87. Secretary.

Where is this man now? He seems to have no special claim for retention in our service, and should not be retained to the detriment of a better man.—Cr.A.G., 8/10/87.

Terrett is still about, but I cannot get his correct address. He is a most peculiar man. I have had a deal of trouble with him, and have had to dispense with many men much more worthy of our consideration.—J.R., 10/10/87. Commissioner.

I have seen Terrett, and have referred him to Mr. Read.—A.R., 13/10/87. Mr. Roberts. Terrett was given work at Darling Harbour with the wool, but did not remain at it.—W. V. READ, 26/10/87. Secretary.

Sir,

99, Regent-street, Camperdown, Sydney, 26 October, 1887.

I humbly beg to ask your assistance, under the following circumstances:—In June, 1884, I was in the employ of the Reform Club as clerk, from which position you was kind enough to place me as conductor on the Government tramways, where I rose in course of time from assistant conductor at 7s. to full conductor at 9s. daily, and in which service I remained until three weeks ago, when, through reduction of staff, my services were dispensed with.

I was afterwards offered and accepted temporary employ at Darling Harbour goods-shed at 6s. daily, but after starting I found the work was so laborious and heavy that my physical strength was unable to meet the requirements, and with deep regret was compelled to relinquish the occupation.

I most respectfully beg to state that I am the senior conductor now out of employ, and that if you can assist me to any position within the range of my physical capacity I shall be deeply grateful, and will do my duty faithfully, and in no way give you cause to regret assisting.

Yours, &c.,

SIDNEY TERRETT.

Inform Terrett that nothing further can be done.—A.R., 28/10/87. Terrett informed accordingly, 31/10/87.

Sir,

99, Regent-street, Camperdown, 10 November, 1887.

I most respectfully beg to enclose my address, which I omitted leaving with you at the interview which you kindly granted me this morning; so as to enable you to communicate with me, and thereby avoid wasting your valuable time by my calling upon you.

At the same time I beg to reiterate my statement that in whatever capacity you might be pleased to appoint me I will perform my duty faithfully, and in no way give you any cause to regret assisting.

Yours, &c.,

SIDNEY TERRETT.

Is

Is it possible to find employment for Terrett; he is not strong enough to do the wool lumping?—
 CH.A.G., 11/11/87. Traffic Manager. There is no vacancy at present, but I have noted Terrett's
 name specially.—W.V.R., 16/11/87. Commissioner. Inform.—A.R., 21/11/87.

Sir, Department of Railways, Sydney, 22 November, 1888.
 Referring to your letter of the 10th instant, respecting your application for re-employment in
 this Department, I have the honor, by direction of the Commissioner for Railways, to inform you that
 there is no vacancy at present to which you could be appointed. Your name has, however, been specially
 noted for employment when an opportunity offers.

Yours, &c.,
 A. RICHARDSON,
 Assistant Secretary.

Mr. S. Terrett.

Sir, 99, Regent-street, Camperdown, Sydney, 4 December, 1887.
 I humbly beg to recall to your recollection the interview I had with you on Saturday afternoon
 last & the following circumstances:—After three years and three months service as Government tram
 conductor my services were dispensed with in consequence of retrenchment. My character, given me by
 my late Superintendent (Mr. J. Roberts), I beg to enclose.

After my dismissal I was given temporary employment at Darling Harbour, where the labour was
 so heavy that I was reluctantly compelled to resign.

For the past two months I have been without employment, although I have diligently looked for
 same.

Some time since I received the above memo. from the Railway Department in answer to my
 request for re-employment, but have not since received any further communication.

I humbly beg to state that if you can assist me in obtaining employment on the railway or elsewhere,
 I shall be most thankful, and in no way ever give you cause to regret assisting.

Yours, &c.,
 SIDNEY TERRETT.

T. Garrett, Esq., M.P.

Dear Goodchap,—The writer is one of your late guards, and was previously a waiter at the Club.
 He is a very superior man of his class, and was one of the most efficient guards I have ever come across. I
 have spoken to Mr. Sutherland about him. The busy time is coming on, and I hope you will be able to
 give him a turn again.—THOS. GARRETT, 12/12/87.

He should be offered the first fitter's labourer's position vacant.—A.R., 12/12/87. Locomotive
 Engineer. No vacancy at present. Name noted.—W. SCOTT, 15/12/87.

Sir, 99, Regent-street, Camperdown, Sydney, 13 December, 1887.
 I humbly beg to bring before your notice the following circumstances:—About two months
 and a half ago my services were dispensed with (being a Government tram conductor) in consequence of
 departmental retrenchment. At the same time I was notified that should vacancy arise my services
 would receive prior consideration.

I have been informed that on Saturday next Mr. T. Musgrave, who was one of the tram conductors,
 is receiving a reappointment to the Tram Department.

I most respectfully beg to state that being myself the conductor with the longest service who was
 retrenched (with the exception of one conductor named Thomas, who was transferred to Newcastle) that
 should Mr. Musgrave be reinstated, who was much junior in the Service to myself, it would be unjust.

I left the Service with a good character, a copy of which I beg to enclose, together with copy of
 letter received from Railway Department, in answer to my application for re-employment.

Yours, &c.,
 SIDNEY TERRETT.

The Hon. John Sutherland.

Endorsement by Mr. Garrett, M.P.:—I again take this opportunity strongly pressing Terrett's
 application for re-employment (if there is any vacancy) upon my hon. colleague.—THOS. GARRETT,
 14/12/87.

For report.—J.S., 14/12/87. Nothing it seems, suitable, can be found for Terrett at present.
 Every endeavour has been made to provide for him.—A.R., 19/12/87. Seen.—CH.A.G., 21/12/87.
 Locomotive Branch applied for a fitter's labourer, and I said on application that position should be offered
 to Terrett.—A.R., 21/12/87. Locomotive Engineer. Terrett was employed as labourer at Eveleigh on
 28/12/87; rate of pay, 6s. per day.

No. 12.

Mr. J. Connor to The Commissioner for Railways.

Sir, 20 December, 1887.

I have the honor to apply for a situation on the tramway or railway. I have been employed
 previously as conductor for three years on the tramway, during which time there was no complaints made
 against me. I was discharged on the 4th October, and re-employed at Darling Harbour good's-shed, and
 was compelled to leave through a previous sickness, from which I had not thoroughly recovered up to the
 time I started work at Darling Harbour. I am a married man with one child. Hoping you will give my
 application your most favourable consideration.

J. CONNOR.

John

John Connor, late conductor, discharged on account of reduction in staff. I recommend that John Connor be appointed assistant-conductor at 7s. per diem, in place of Christopher Payne, resigned.—J.R., 10/1/88. The Commissioner.

Approved.—D.V., 10/1/88.

Sir,

Government Tramways, Tramway Office, 3 February, 1888.

I report for your information that in consequence of a report reaching the Bridge-street yard that Conductor Connor was drunk in charge of a Waterloo tram, I proceeded to Waterloo terminus with Conductor Downey to relieve him, if such was the case, taking cab 788 to do so. On arriving at the terminus, Waterloo, I found Connor sitting in his tram, and although he was not helplessly drunk, he was in a muddled state, and in case an accident should happen to him I deemed it advisable to put Conductor Downey in his place, telling him to come down to the yard and see the Superintendent, which he did.

The Superintendent.

W. WIGG.

Connor is one of those men that we lately dispensed with, and took back in Payne's place. Mr. Colls reported the matter to me, and I sent Wigg and a conductor out to relieve Connor. It is useless having men we cannot trust, and Connor's services had better be dispensed with. There are plenty of good men waiting to get back.—J.R., 3/2/88. The Secretary.

Is this his first offence, and what has been his general character?—D.V., 10/2/88. Mr. Roberts.

There is nothing against Connor. The man has called, and promised if I give him another chance he will not offend against rules again. If he does, to be instantly dismissed. Lose pay for the time absent I think will be sufficient punishment. Now will the Secretary please decide at once.—J.R., 13/2/88. The Secretary. Approved.—D.V., 13/2/88.

No. 13.

Minute by The Secretary for Railways.

Re Conductor Edward Thomas.

THREE and a half years in the Service. Has an invalid sister to support, and has never had a fault found with him.

Mr. Roberts, please see me.

D.V., 30/9/87.

Thomas is a first-class man, and I am sorry indeed to lose him. There is no alternative at present that I can see, if I am to do as directed by Minister *re* single men.—J.R., 5/10/87. Secretary.

A vacancy has been found for Conductor E. Thomas on the Plattsburg Tramway, and he will require to commence duty at Newcastle on the 20th instant. Please inform Thomas.—A. RICHARDSON, 11/10/87. Superintendent of Tramways.

Thomas will report himself as directed on the 19th instant, to the Traffic Manager, Newcastle.—J.R., 12/10/87. He will take Virgo's place at 7s. a day.—A.R., 17/10/87.

No. 14.

The Superintendent of Tramways to Conductor G. A. Paulson.

In consequence of the alteration in the running your services will not be required, and I am directed to give you seven days' notice, the said notice to expire on the 4th proximo.

I have further to inform you that, as far as possible, employment will be found on the Newcastle tramway for the men whose services are now being dispensed with, and that, in any case, when a vacancy occurs in this branch, your claims will have prior consideration to outside applicants.

At the expiration of this notice you will hand to Mr. Muir all Government property in your charge, when you will receive docket for pay due.

J.R., 27/9/87.

Re G. A. Paulson's services being dispensed with, Paulson represents he has been over three years in the Service, and although not married he has a family, consisting of a mother, three sisters, and a young brother, to support, in conjunction with another brother. The family has to be kept by the two, and on this ground he thinks he is entitled to the same consideration as any married man, with which view I imagine Commissioner will concur.—D.V., 28/9/87.

Mr. Roberts in the first place for report.—D.V., 28/9/87.

I am sorry to say I do not consider Paulson has any claims to consideration. His conduct since he joined this Department has not been the best. A glance at his papers will convince the Secretary that there are many men with greater claims. Paulson's services are not further required.—J.R., 6/10/87. Secretary.

Inform Paulson that I regret nothing can be done at present for him.—D.V., 8/10/87. Inform Paulson, Mr. Roberts, please.—A.R., 8/10/87. Paulson informed.—J.R., 12/10/87.

Petition.

The Honorable the Minister for Works,—
Sir,

We, the undersigned residents of Leichhardt and district, hearing of the intention to dispense with the services of a number of tramway conductors, most respectfully beg to petition you to retain the services of Conductor George A. Paulson, whom we have always found to be one of the most obliging, civil, and attentive men on the line, he being one of the oldest conductors (regarding service).

We humbly pray that you will kindly reconsider the decision to dispense with his services, and give him the benefit of your most favourable consideration and influence.

Francis Nugent, Balmain Road	J. Reeve, Short-st.
John Thompson, Catherine-st.	T. Willson, Leichhardt
W. Beardmore, Arthur-st.	F. Hammond, "
Robert Furness, Dean-st.	Mrs. F. Edwards, Leichhardt Hotel, Leichhardt
James Hurle, Carlisle-st.	James Cox, Wells-st., Annandale
William Nugent, Balmain Road, Leichhardt	Frank Elliott, Coleridge-st., Leichhardt
John Smith, Norton-st., "	Dennis M'Carthy, Short-st., "
Alfred Nugent, Balmain Road, "	J. M. Robertson, Day-st., "
William Brown, " "	his
P. Nugent, " "	M. M'Donald, x Smith-st., "
F. M'Guinness, Francis-st., Leichhardt	mark
F. J. Mills, Short-st., "	A. E. Hearn, Parramatta Road
A. Osborne, Allen-st., "	G. Hearn, "
R. Clarke, Short-st., "	G. White, "
J. Sparkes, Emma-st., "	Frances Brown, "
W. Walton, Francis-st., "	Joseph Hill, Leichhardt
W. J. Humphrys, Starling-st., "	F. Bird, "
W. Johnson, Balmain Road	John Dooley, M'Kenzie-st., Leichhardt
G. A. Elliott, North-st., Leichhardt	Mr. Jones, Petersham
V. Lewis, Annesly-st., "	Chas. Kelly, Renwick-st.
J. Loftus, " "	N. Powell, " Leichhardt
W. Nashe, Norton-st., "	A. J. Swinnerton, ironfounder, Leichhardt
J. W. Coles, Catherine-st., "	Anthony Hollis, Rofe-st., "
Thos. Arundell, Derbyshire Road, Leichhardt	F. Miller, Renwick-st., "
Q. Hendry, Day-st., "	J. H. Sanderson, Leichhardt
P. E. Burk, Henry-st., "	R. Cartwright, "
Walter Bryant, Brennan-st., "	John Linane, " "
C. W. Leigh, Allan-st., "	R. Oliver, " "
Chas. Redmayne, Parramatta Road	William Meyer, " "
J. B. Hilaire, Petersham and Leichhardt	W. Moseley, Petersham
Miss Welleinson, Leichhardt Hotel, Leichhardt	Fred. Kennard, "
Mrs. Hammond, Short-st., Leichhardt	William Boffey, Leichhardt
Miss Edwards, " "	G. Stanfield, " "
James Ett, Leichhardt	James Flamsteed, " "
John Dooley, M'Kenzie-st., Leichhardt	Bartlett King, Petersham
H. Moseby, Balmain Road	George Frew, Parramatta Road
Mr. Ogle, Elswick-st., Leichhardt	A. Walsh, " "
W. Painter, Catherine-st., Leichhardt	G. M'Clewahan, Petersham
C. J. Costello, Norton-st., "	John Hearn, Allen-st., Leichhardt
N. Petersen, Derbyshire Road, Leichhardt	Geo. Jackson, Marion-st., Leichhardt
W. Edwards, Balmain Road, "	Jno. R. Stone, Emily-st., "
Henry Chase, James-st., "	Alfred Moles, Queen-st., "
F. Edwards, Norton-st., "	R. Clarke, James-st., "
Henry Earl, " "	Francis Joseph, Parramatta Road
E. Shase, James-st., "	W. H. Rogers, " "
Walter Lurney, James-st., "	J. Eckesley, " "
W. Langley, Leichhardt	Tom Johnstone, Moore-st., Leichhardt
S. Nugent, " "	G. Seales, Young-st., "
J. Nugent, " "	H. J. Leddin, Catherine-st., "
M. Nugent, " "	R. Barrett, Parramatta Road
W. Rapp, Balmain Road, Leichhardt	Sam. Young, Leichhardt
Miss Berthwaite, Balmain Road, Leichhardt	William C. Miles, Parramatta Road, Camper-
Samuel Turrell, Arthur-st., "	down
J. M'Donald, Commercial Road,	Thos. O'Neill, Allan-st., Leichhardt
F. Merritt, "Ivy Cottage," Leichhardt	W. Westbrook, Allan-st., "
Thomas Osborne, Allen-st., "	G. Galbraith, Petersham
W. Crosse, Balmain Road	

The above was signed at ticket vendors without any canvassing whatever.

Signed on behalf of above—

FREDK. EDWARDS,
Short-street, Leichhardt.

I think this case has already been decided.—A.R. (*pro. Commr.*), 12/10/87. Mr. Roberts. Yes, and those signing the petition evidently don't know the man. I consider he is no loss to the Department.—J.R., 13/10/87. Secretary. Please attach the papers, Mr. Roberts.—A.R., 14/10/87. Paulson's papers with this.—J.R., 15/10/87. Secretary. Is Mr. Read able to employ Paulson in connection with the wool?—A.R., 17/10/87. Please send him here.—W.V.R., 18/10/87. Supt. Tramway. Paulson was sent to Mr. Read with the others.—J.R.

No. 15.

The Superintendent of Tramways to Conductor E. Head.

Government Tramways, Tramway Office, 27 September, 1887.

In consequence of the alteration in the running your services will not be required, and I am directed to give you seven days' notice, the said notice to expire on the 4th proximo.

I have further to inform you, that as far as possible employment will be found on the Newcastle tramway for the men whose services are now being dispensed with, and that in any case when a vacancy occurs in this branch your claims will have prior consideration to outside applicants. At the expiration of this notice you will hand to Mr. Muir all Government property in your charge, when you will receive docket for pay due.

J.R.

Dear Sir,

Town Hall, Redfern, 29 September, 1887.

Referring to the dismissal of Conductor E. Head from the Tramway Service, owing to the alteration in the running of same, I take the liberty of asking you to cause his case to be reconsidered, for although he is a single man yet he has to support a widowed mother, and is a most respectable man.

He also has perhaps a prior claim over some of the others, having been in the employ since January, 1885.

The Minister for Works.

Yours, &c.,

EDWIN BERRY.

Mr. Roberts.—D.V., 12/10/87. I have seen Mr. Vernon *re* this man, and explained that there is no alternative at the present time; but this man with others will be first considered should any opening occur.—J.R., 13/10/87.

Sir,

7 November, 1887.

I beg most respectfully to make application to be reinstated as conductor on the Tramway Service, as I have heard that there is to be more hands taken on, through the alteration in the time-table. My service in the Tramway Department has been good. I have been in the Service since January, 1885, and have never been reported unfavourably, or have I lost any time.

Trusting you will give my application a favourable consideration.

The Minister for Works.

E. J. HEAD.

Endorsement of W. Stephen, Esq., M.P.:—I will be glad to hear that this young man has been reinstated.—W.S.

This man has a large charge, and is worse off than many married men. If there are any men required let his claims be recognized.—J.S., 8/11/87. It is not correct that more hands are to be employed, I imagine; but Head's name should be specially noted.—A.R., 23/11/87. Mr. Roberts. It is not correct. I will not require more hands. Head's case will, of course, be considered directly a chance occurs.—J.R., 25/11/87. Secretary. I am under the impression that Head has since been employed. Let me have papers.—A.R., 6/12/87. Has he been employed?—A.R., 7/12/87. Locomotive Engineer. Yes.—C.A.N., 8/12/87.

Sir,

I would respectfully inform you that since the removal of the loco. carpenter's shop to Eveleigh I find I need the service of an extra hand—a labourer. I shall have much work for him to do in a variety of ways. The carpenters are often much delayed, having to lump their materials to and fro, losing much time thereby. In case of cutting our country orders for blocks (engine and tenders) I could not possibly do without another hand.

H. HARRISON,

The Assistant Locomotive Engineer.

11/10/87.

If approved I suggest L. Hammond.—G. DOWNE, 14/10/87. Locomotive Engineer. Recommended for approval.—W.S., 17/10/87. Commissioner. In view of the necessity for retrenchment could not this extra man be done without? There is surely someone already in the Department who could attend to this small matter.—D.M'L., 27/10/87. Locomotive Engineer. The man can be done without, but with loss and inconvenience to the Department.—R.S., 1/11/87. I think we should send for one of the tramway men who were dispensed with.—D.V., 11/11/87. Yes. Perhaps Mr. Roberts can arrange for this.—A.R., 11/11/87. Mr. Roberts. Head will accept this billet if you will please send him there.—J.R., 14/11/87. Head may be employed if Mr. Scott considers him suitable.—D.V., 14/11/87. Locomotive Engineer. Edwin Head will present himself for duty for this work to-morrow morning.—G.D., 14/11/87. Edwin Head commenced work as a labourer yesterday. Proposed rate of pay, 6s. per day.—R.S., 16/11/87. E. Head, applicant for employment, formerly in trams.—H.M'L., 30/1/88. I have ascertained that Head is still employed in the loco. shop at Eveleigh as labourer. I am afraid nothing better can be found for him at present.—A.R., 31/1/88. Seen.—C.A.G., 2/2/88. I would be glad to have Head back on the trams, as I have room for him, and Ferrier could take his place at Head's work at Railways. Will Commissioner please approve.—J.R., 14/3/88. For Commissioner's approval.—D.V., 14/3/88. Approved.—C.A.G., 14/3/88. E. J. Head re-engaged as conductor at 7s. per day from 16th March, 1888.—J.R., 21/3/88. Government Tramways, Tramway Department.

No. 16.

T. Garrett, Esq., M.P., to The Secretary for Railways.

Thomas Kenny, Tramway Conductor—Three years in the Service—No complaints.

Dear Vernon,

Department of Lands, Sydney, 4 October, 1887.

The above is one who has received notice to quit. If you can possibly keep him on I wish you would do so, as he is the son of a very old friend of mine; he has been a very good officer.

Yours, &c.,

THOS. GARRETT.

I understand Kenny is a good man, and, if possible, I should like him retained.—J.S., 7/10/87. Kenny's re-employment was approved this morning. Put this with his paper, please.—D.V., 7/11/87. The Secretary of Railways has notified me that Kenny (late conductor) is, by the express wish of the Minister, to have the first vacancy.—J.W.T., 4/11/87. The Superintendent.

I am recommending the appointment of Beven to the points at Elizabeth-street, in Russell's place. I can therefore take Kenny in Beven's place. Will the Secretary please approve of Kenny being appointed at 7s. a day. The man will be glad to take anything at that rate.—J.R., 6/11/87. Secretary.

Approved.—D.V. (*pro* Commissioner), 7/11/87. Mr. Roberts, B.C. Kenny started work to-day at 7s. per diem.—J.R., 8/11/87. Secretary. Kenny now returns to his old work, and being a first-class man I recommend that he be allowed his old rate of pay, viz., 8s. 6d. a day.—J.R., 1/12/87. Mr. Vernon. Approved.—D.V. (*pro* Commissioner), 1/12/87. Mr. Roberts, B.C.

No. 17.

W. F. Schey, Esq., M.P., to The Commissioner for Railways.

Sir,

29 November, 1887.

I have the honor to draw your attention to the case of L. G. Roache, formerly a conductor in the Tramway Department, and who has made application to be reinstated. Roache, it appears, was in the service of the Department for over three years, and his services, and numbers of other employees, were dispensed with in the beginning of last month (October) on the score of retrenchment, but he was placed at work temporarily at Darling Harbour. He, however, had to cease duty there through the heavy nature of the work coming against him, as he still suffers from the ill-effects of a serious accident that he met with while in the execution of his duty as tram conductor. It seems that one night, about the middle of November, 1886, Roache was sent in charge of a tram to do a special trip to the railway-station, and while the tram was in the act of backing up to the railway platform, Roache, who was standing on the foot-board of the car giving signals, got jammed between the car and a signal-box, and was so severely injured that he was taken to the Sydney Hospital. The injuries he received were of such a serious nature that for some time his life was despaired of, and for three months after he was discharged from the Hospital he was compelled to use crutches, and I enclose a copy of a certificate from Dr. Tarrant, dated 29th September last, certifying that Roache is liable to suffer from the effects of the injuries sustained by him through the accident in question, for a very long period.

Roache received full pay for the time he was off duty, and after resuming work was placed at employment of a light kind until such time as he was able to undertake his usual duties of tram conductor. But in the beginning of last month, as before pointed out, Roache's services, together with other tram employees, were dispensed with, and he was given temporary work at Darling Harbour, with the result that, on account of the heavy work he had to perform, he was disabled from duty, and it is quite evident that Roache has been unfitted to perform any work of a heavy character through injuries he sustained in the accident before alluded to.

Under these circumstances I am of opinion that Roache's application for reinstatement to his former position of tram conductor is deserving of the favourable consideration of the Department, and I shall be glad to hear that you have been pleased to comply with his request, and have reappointed him to some position that he may be capable of filling.

W. F. SCHEY.

[Enclosure.]

I CERTIFY that I attended Mr. Roache in the earliest part of this year for severe injuries received through tram accident, and, though sufficiently recovered to resume his duties as conductor, he is liable to suffer from the effects of those injuries for a very long period.

Macquarie-street, 21 September, 1887.

H. J. TARRANT, 21/9/87.

This is a hard case. If I had known the particulars I think I should have authorized the retention of Roache's services. Is there any opening for him?—CH.A.G., 30/11/87. Mr. Roberts.

W. F. Schey, Esq., to The Commissioner for Railways.

Sir,

12 January, 1888.

Adverting to my letter, dated the 29th November last, and to your acknowledgment thereof, dated the 1st ultimo, having reference to the case of L. G. Roache, formerly a tram conductor, and urging a favourable consideration of the same, with a view to his reinstatement, I now have the honor to ask you to be so good as to advise me whether any decision has yet been arrived in the matter; or, in the event of any determination not having yet been come to, to let me know how it at present stands.

Awaiting the favour of a reply at your early convenience.

W. F. SCHEY.

Mr. Roberts.—A.R., 17/1/88. Roache is now at work in this Department since 3/12/87.—J.R., 17/1/88. Secretary. Mr. Schey informed accordingly, 20/1/88.

No. 18.

Mr. W. M'Gee to The Commissioner for Railways.

Sir,

Marrickville Road, Marrickville, 5 October, 1887.

In consequence of the running of the new tramway time-table my son, Herbert M'Gee, has been one of the unlucky conductors who has been dismissed on account of having too many hands on the Traffic Branch of the Tramway Department. He has been in the Service just on two years. I may state that

that he was placed in the Service by yourself, as a favour to me; you may remember some time ago I gave 15 chains of land to the Government to allow the tramway to pass through my property, and at the opening of the line you promised that at any time you could do me a favour you would willingly do so.

I just write you these few lines to remind you of your promise, and hope you will find him an early vacancy, as he has no trade to depend on.

W. M'GEE.

Mr. Roberts for report, please.—A.R., B.C., 10/10/87. M'Gee is a first-class man, but I would be doing an injustice to other men who have been in the Service if I retained him and sent them away.—J.R., 10/10/87. Secretary.

Wollongong, 3 January, 1888.

MR. HERBERT M'GEE, of Marrickville, was for about two years employed as a conductor on the Sydney tramways under your Department, and about three months back, when some reductions were made in the number of hands employed, he was discharged, and understood at the time that he was to be again employed as a conductor as soon as any vacancy took place on the staff.

The tramway to Marrickville, when constructed, passed through his father's (Mr. W. M'Gee) land for about 16 chains in length by 1 chain wide. The older M'Gee gave this land free to the Government without compensation of any kind. This might be taken into consideration in favour of his son's (Herbert M'Gee) being reappointed to the first vacancy as a conductor on the tramway.

If you can reappoint the applicant I would esteem it as a personal favour. With my respects. Wishing you a happy new year.

The Secretary for Public Works.

J. BIGGAR.

M'Gee could now return to the tram. I have room for him. Will the Secretary please approve.—J.R., 14/3/88. Approved.—D.V. (*pro* Commissioner), 14/3/88. M'Gee started work to-day at 7s.—J.R., 16/3/88. The Secretary.

No. 19.

Minute by The Superintendent of Tramways.

Re Thos. Musgrave, late conductor.

In accordance with the Minister's instructions I have placed Thos. Musgrave in charge of one of the road water-tanks, at 7s. per diem, from 14th December, 1887.

The Secretary.

J.R., 28/12/87.

Seen.—A.R., 29/12/87.

No. 20.

Mr. H. J. Ferrier to The Assistant Secretary for Railways.

Sir,

17 October, 1887.

I most respectfully beg to apply for employment of any kind in the Railway or Tramway Department. I was one of the tramway employees that was put off the time of the retrenchment.

I was given employment, since I left the tramway, on the railway at June Junction, to assist in the wool loading, but I had to travel from station to station, and I was not allowed expenses, and I was only receiving 6s. per day, and it would cost 5s. per day to keep myself, and I have a mother and a large family of young brothers and sisters to support, and they require the money more than I do, so I had to resign and come back to Sydney to see if I could not get employment in Sydney.

Hoping you will give this your kindest consideration.

H. J. FERRIER.

I shall be glad if Mr. Read can give this young fellow a job in Sydney. A family appears to be dependent upon him for support.—A.R., 18/10/87. There is no vacancy at present, but I have noted Ferrier's name.—W.V.R., 23/11/87. Commissioner.

Sir,

3 February, 1888.

I most respectfully wish to lay a matter of vital importance (to me) before you, trusting you will give it your kind consideration.

My son, H. J. Ferrier, who was in the railway service as tram conductor, received notice last September that his services would be dispensed with in consequence of retrenchment in the Service, but when a vacancy occurred he would be reinstated. He is now out of employment four months, which is a severe loss to our family, as he was assisting to support a family of twelve. I had the misfortune to lose a son 19 years old, who was killed by falling from the roof of the Royal Arcade on the day the Contingent returned from the Soudan, which you no doubt remember.

I enclose a copy of a minute made and handed to H. J. Ferrier by the Superintendent of Tramways when he left the Service.

Trusting you will be so good as to reinstate him,
The Secretary for Public Works.

HENRY FERRIER, SEN.

For report, 5/2/88. Papers to Mr. Roberts.—A.R., 7/2/88. No vacancy yet. When there is this man will be considered.—J.R., 8/2/88. The Secretary. Mr. H. Ferrier informed, 14/2/88. (Ferrier was re-employed as labourer in the Locomotive Department on 14/3/88, *vice* Head, transferred to Tramway Department as conductor.)

ABOUT four months ago my son, H. J. Ferrier, received notice from the Tramway Department that in consequence of retrenchment in that department his services would be dispensed with; he has been out of employment since, which is a serious loss to us as he was assisting to support a family of twelve, and the longer he is out of employment the keener we will feel it. You would confer a lasting favour on us if you would impress upon the Hon. the Minister for Works the necessity for his immediate reinstatement.

I felt sure Mr. Want would kindly attend to it for me; but he is so taken up with his professional business that I do not like to trouble him.

I enclose a copy of minute my son got from the Superintendent of Trams. I sent a letter to the Hon. the Minister for Works, and got an answer that there was no vacancy at present, but if you state the urgency of the case to the Minister I feel sure he will take immediate action.

Knowing you will do your best for us in this matter.

Travers Jones, Esq., M.L.A.

HENRY FERRIER, SEN., 27/2/88.

Mr. Roberts.—A.R., 5/3/88. No vacancy at present.—J.R., 9/3/88. The Secretary. Mr. Ferrier informed accordingly, 15/3/88.

No. 21.

Minute by The Superintendent of Tramways.

Chas. T. Williams, late tram conductor—Services dispensed with on account of retrenchment.

Government Tramways, Tramway Office.

CAR-CLEANER Doise having resigned, I recommend that Chas. T. Williams be appointed as car-cleaner from 18/4/88, at 7s. per diem.

The Secretary.

J.R., 18/4/88.

What is Williams doing now? Muir and Unwin are not being again lost sight of, I hope.—A.R., B.C., 20/4/88. Mr. Roberts. Williams is car-cleaning, and assistant conductor when required. Mr. Stephens' man, Unwin, will be attended to very soon.—J.R., 25/4/88. Secretary. Approved.—D.V. (*pro* Commissioner), 28/4/88.

No. 22.

Minute by The Secretary for Railways.

R. G. Sutherland, late tram conductor.

ASK Mr. Tyrer to see me please.

D.V., 7/3/88.

On account of so many men being away sick, the extra train on Leichhardt, men going off on holidays, and the approaching Easter holidays, I can do with Sutherland.—J.R., 14/3/88. Approved.—D.V. (*pro* Commissioner), 14/3/88. Mr. Roberts. Mr. Muir to note. Sutherland commenced work to-day at his old rate, 6s. per day.—J.R., 17/3/88. Secretary.

No. 23.

J. Barling, Esq., to The Secretary for Railways.

Dear Sir,

Please see Mr. Conley from our office—he wishes to be introduced to you. I do not know what he wants, but he is a most deserving officer.

Yours, &c.,

J. BARLING.

Dear Sir,

"Hazelmere," Station-street, Newtown, 7 October, 1887.

I desire to bring under your notice the case of a young man Downey, who for the last three years has been employed as a guard in the Tramway Department, but who, I understand, has recently received notice that his services are to be dispensed with on and after next week. His case is one deserving, I think, of merciful consideration,—a widowed mother and sister depending as they do almost entirely upon him for their support. Mr. Roberts, the Superintendent of Tramways, gives Downey an excellent character, and if you can do anything towards his retainment in the Service it will be an act of great kindness to his family.

Apologising for troubling you in the matter.
Donald Vernon, Esq., Secretary for Railways.

I am, &c.,

JAS. CONLEY.

Downey is a very good man indeed, and I am sorry to lose him. I see no alternative. I have now more men than I think I will be able to retain.—J.R., 10/10/87.

The Mayor of Waterloo to The Secretary for Public Works.

Dear Sir,

Kellick-street, Waterloo, 14 October, 1887.

It is with regret I trouble you, knowing well the number of applicants you must have by virtue of your position, on behalf of a young man (tram-guard) named J. Downey, discharged from the Service last Monday. I know a number of other single men have also been discharged, but the young man in question is the sole support of an aged widowed mother. In addition to being a good son, he is a respectable deserving young fellow. If you will see that he is taken back in the Service again at an early date I shall take it as a personal favour.

Yours, &c.,

WEEKS WHITE,

Mayor.

Was

Was he offered work at Darling Harbour, do you know?—A.R., B.C., 20/10/87. Mr. Roberts. Yes. I sent him there. He told me he could not do the work. I do not require any more hands.—J.R., 21/10/87. Secretary. Was he employed?—J.P., 22/10/87. Mr. Read. Mr. Paull, please say.—W. V. READ, 24/10/87. Mr. Paull. I have only four men out of the Tramway. Some of them never commenced here; they came and looked at the work, and went away again. I do not remember ever seeing Downey, and he is not at work here now.—CHAS. PAULL, 26/10/87. Traffic Manager. Secretary.—W. V. READ, 27/10/87. Inform, and say there are no vacancies at present.—D.C.M'L., 28/10/87. Mr. White, 31/10/87.

Sir,

Department of Railways, Sydney, 31 October, 1887.

In reply to your letter of the 14th instant, relative to the case of John Downey, I am desired by the Commissioner for Railways to inform you that inquiry has been made, but there is no prospect of his obtaining re-employment on the tramway at the present time. I am to add that Downey was offered work at Darling Harbour, but he told the Tramway Superintendent that he was not equal to it.

I have, &c.,

A. RICHARDSON

(For the Secretary of Railways).

Weeks White, Esq., Mayor of Waterloo.

No. 24.

Mr. S. Cornwell to The Commissioner for Railways.

Sir,

32, Lewis-street, Redfern.

John Cornwell having been discharged from the Tram Service through retrenchment, I do ask a favour of you to look into this case, as he is the only support of his widowed mother, who is unable now to support herself through indisposition. Dear sir, his late father was in the Government Service for a period of twenty-eight years, but had the misfortune to lose his life there.

Hoping that you will find him some suitable employment,—

I have, &c.,

S. CORNWELL.

Mr. Roberts.—A.R., B.C., 29/9/87.

Strange this man could absent himself, time after time, through drink. He was then with some friends or relatives. In dispensing with these men I have had to part with some good men; this is not one of those, and I do not see I could keep a man like Cornwell, and dispense with much better men. Cornwell's services are not required.—J.R., 29/9/87. Secretary.

Inform.—D.V., 5/10/87. Mr. Cornwell informed accordingly, 11/10/87.

No. 25.

Telegram from The Traffic Manager, Great Northern Railway, to The Commissioner for Railways.

* * * * *

SHALL require four or five strong able-bodied men for heavy work.

JOHN HIGGS.

Send Greer, Islip, Garvan, England, formerly car-cleaners in tramway, recently discharged.—CH.A.G., 6/10/87. I am very short of hands. Please say when the surplus hands from the tramway are coming. Unless I get them to-morrow or next day I must employ extra hands.—J. HIGGS, 3/10/87. The men named by the Commissioner to see me to-morrow morning at 10 a.m. Halliday instructed.—J.R., 6/10/87. Greer, Garvan, England, Islip, start for Newcastle to-morrow, Saturday morning. I have given them passes for that place. Will you inform Mr. Higgs, please?—J.R., 7/10/87. Secretary.

1888.

LEGISLATIVE ASSEMBLY.

NEW SOUTH WALES.

THE TRAMWAYS.

(PETITION FROM PUBLIC MEETING HELD AT LEICHHARDT IN OPPOSITION TO LEASING OF.)

Received by the Legislative Assembly, 12 December, 1888.

To the Honorable the Legislative Assembly of New South Wales.

The humble Petition of the Residents of Leichhardt,—

SHOWETH:—

1. That on the 12th day of November, 1888, a public meeting was held in the Town Hall, Leichhardt, in reference to the leasing of the trams.

2. That the following resolutions were carried by a large majority of that meeting, viz.:—

This meeting is of opinion that the leasing of the trams to any private company or syndicate is impolitic, and will prove detrimental to the best interests of the public.

That the foregoing resolution be embodied in a Petition, to be signed by the Chairman of this meeting, to be entrusted to Mr. Hawthorne, M.L.A., to be presented to Parliament.

Your Petitioners therefore humbly pray that the Honorable the Legislative Assembly of New South Wales will take into its favourable consideration the foregoing resolution.

And your Petitioners, as in duty bound, will ever pray.

Signed, on behalf of the meeting,—

SYDNEY SMITH,
Chairman.

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